REVIEW OF THE NATIONAL HEALTH POLICY 2016-2025

2022

Directorate of Policy Analysis and Development
Ministry of Health

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Special Thanks to

Dr. Sujatha Samarakoon
Public Health Specialist

Sincere appreciation to

World Health Organization

Message from the Director General of Health Services

The Ministry of Health developed the National Health Policy of Sri Lanka 2016 to 2025 following a comprehensive situational analysis and extensive collaboration with all stakeholders. The objective was to provide a framework of overarching principles and goals to dictate equitable access and availability of health service to all Sri Lankans. A set of strategies have been identified in the policy document to assist in decision making for planning, implementation of evidence based interventions and monitoring and evaluation of such interventions to achieve the highest attainable health status through high quality promotive, preventive, curative and rehabilitative services to contribute to social and economic development of Sri Lanka.

Effective policy requires far more than just creating a manual to sit on a shelf. A policy should be viewed as a living document to guide healthcare delivery consistent with current healthcare needs, new laws and regulations and technology. Policies are regularly reviewed and this appraisal was conducted to learn the progress of health service delivery and the impact it has made to improve the health and well-being of Sri Lankans. The findings and recommendations of this review will be useful for future healthcare reforms and take strategic moves to achieve the national and sustainable development goals.

I appreciate the immense efforts of the Director, Policy Analysis and Development of the Management Development and Planning Unit of the Ministry of Health and her team for reviewing this policy document. I extend my deep appreciation to all the stakeholders including World Health Organization, UNFPA and UNICEF for the continuous support provided during this process

Dr Asela Gunawardena
Director General of Health Services,
Ministry of Health, Sri Lanka

Message from the Deputy Director General Planning

It is with much pleasure that I write this message on the occasion of releasing the report of the "Review of the National Health Policy of Sri Lanka (2016-2025)". National Health Policy 2016 was developed with a vision to achieve a healthier nation that contributes to its economic, social, mental and spiritual development. It was considered a need to review the National Health Policy with the current socio-economic challenges faced within the country and across the globe.

This NHP was to be reviewed as a mid-term evaluation in 2021, but unfortunately due to the COVID 19 pandemic it had to be postponed to year 2022. This policy review was conducted with the objective of studying the progress already made, gaps in healthcare services in Sri Lanka and provide evidence to strengthen the existing policies to improve the current situation especially to address the health service disparities as reflected in some of the social and health indices, reduce out of pocket health expenditure and also look for revenue generating measures for the Ministry of Health and to be used for the next policy development to commence in 2026. I sincerely hope, that decision makers will make use of these evidences to sustain the low- cost but high impact health interventions towards achieving universal health coverage and Sustainable Development Goals in the context of "leaving no one behind" and maintain the hard earned achievements in health indicators.

I extend my sincere appreciation to the World Health Organization for giving the required partnership for this review. I also greatly appreciate the active participation and inputs by all stakeholders involved in this process, and thank UNFPA & UNICEF for their partnership for this task. I thank, Dr. Janaki Vidanapathirana Director of Policy Analysis & Development for the tremendous work done with her team and the members of the office of the Management Development and Planning Unit, Ministry of Health. A special thanks goes to Dr. Sujatha Samarakoon for her contribution during finalization of the report.

Dr S. Sridharan

Deputy Director General- Planning
Ministry of Health, Sri Lanka

Message from the Director Policy Analysis and Development

Sri Lanka is unique among the other South-East Asian countries as it is the only country that offers free healthcare at the point of delivery and free education. Sri Lanka has a good track record for achieving impressive social and health indices by implementing high quality, comprehensive essential health services with low financial allocation from the national budget with a wide population coverage. In order to sustain the already gained health achievements, reviewing health policies is considered crucial to understand realistically the current situation and take appropriate policy reforms for appropriate actions.

The current National Health Policy has seven broad strategic directions and 85 sub-strategies and all of them were reviewed with relevant stakeholders. There were few newly identified areas which were also reviewed with relevant stakeholders. As Sri Lanka is facing the worst economic crisis ever, it is an urgent need to review the National Health Policy to make appropriate policy decisions to revise or update the existing sectoral policies, and provide evidence to develop the next policy planned for 2026 to ensure universal health coverage and achieve the targets of Sustainable Development Goals.

I greatly acknowledge the guidance and continuous support given by the Secretary of Health, Additional Secretaries, Director General of Health Services and all Deputy Director Generals and all sectoral Directors throughout this process. A special appreciation to Dr. S. Sridharan, Deputy Director General of Planning for his guidance at all stages of this review.

The Directorate of Policy Analysis & Development sincerely appreciates the commitment of other ministries, academia, all professionals, consultants, academics, developmental partners, NGO & community members, general public and trade unions for the contribution made during the review. The enormous effort taken by the review team and staff of Directorate of Policy Analysis and Development, of the Management Development and Planning Unit is appreciated with much gratitude. It is my duty to extend my sincere appreciation to the World Health Organization for the partnership given for this national endeavor and also the support of the UNFPA and UNICEF. I also thank Dr. Sujatha Samarakoon for her support.

It is with pride that I present the NHP review report and this will serve as a guiding document containing recent evidence to guide the health decision makers to formulate policies and strategies to mitigate future challenges and requirements in the health system to build a healthier nation towards universal health coverage and achieve Sustainable Development Goals with the principle of “leaving no one behind”.

Dr Janaki Vidanapathirana
Director, Policy Analysis & Development
Ministry of Health, Sri Lanka

National Health Policy Review (2016-2025) - 2022

Executive summary

Background & Objective

National Health Policy 2016 -2025 has been prepared and implemented with a mission "to contribute social and economic development of Sri Lanka by achieving the highest attainable health status through preventive, curative and rehabilitative services of high quality made available and accessible to people of Sri Lanka". It includes seven strategies & eight five sub strategies covering preventive, curative, rehabilitative programmes which deliver evidence-based service interventions to provide quality health care with equity to reduce associated morbidity and mortality and reduce out of pocket expenditure through a strengthened health system. The objective is to review the content of the National Health Policy (2016-2025) in relation to the sectoral policies and strategies, identify implementation strengths & gaps, and its impact on achieving the highest attainable health among Sri Lankans. These findings are to be used to strengthen the existing National Health Policy 2016-2025 and to make recommendations for the next National Health Policy starting from 2026.

Methodology

Methodology of this review was based on, CDC policy evaluation series 1-7, Monitoring, evaluation and review of national health strategies: A country led platform for information and accountability 2011 (WHO) and Monitoring, evaluation and review of national health policies, strategies and plans in 2016 (WHO).

Data collection included:

- Comprehensive literature review,
- Physical meetings, zoom meetings/ telephone conversations/ written/ email communications/ online surveys with stakeholders (health and non-health sectors, developmental partners, non-government organizations (NGOs), civil society organizations (CSO), community-based organizations (CBOs) & general public
- Public opinion via web advertisement

Triangulations of results were done

Results

Sri Lanka has an estimated population of 22.15 million and is on record in achieving excellent social and health indicators using low cost but high impact evidence-based interventions delivered through a well-structured health delivery system which provides free of charge services at all government healthcare delivery points. Successive governments have provided high level political commitment, adopted free health and education policy and social welfare orientated policies which can be identified as significant contributory factors to the successes.

The World Health Organization declared Sri Lanka polio-free in 2014 and declared the country as having eliminated leprosy in 1995, malaria in 2016, lymphatic filariasis in 2016, measles in 2019, rubella and congenital rubella syndrome in 2020 and mother-to-child transmission of HIV and syphilis in 2020. The vaccine preventable diseases are well controlled and significant reduction in food and water-borne disease with zero mortality for diarrhoeal disease. The curative sector has shown many achievements including managing epidemic disease and performing advanced surgeries including organ transplantation. However, non-communicable diseases including cancer which are becoming the leading causes of premature death and disability and aging population are significant challenges to Sri Lanka. The current

health expenditure was below 5% as a fraction of Gross Domestic Product in the last five years. The out-of-pocket expenditure for health was 48% in the year 2018 and has increased to 50.1% in 2022 is yet another challenge to the country.

Strengthened service delivery to achieve preventive health goals

Having a well-structured maternal and child health programme which reach a large population of people and vaccine preventable communicable disease control was found to be a strength in the country. National Immunization Programme has reached almost 100% coverage for the Expanded Programme on Immunization (EPI) schedule. The universal health care index of the country has improved over the years and in 2018 the index was 67%. International Health Regulation Co Capacity Index of the country was 64% in 2021 & the SDG index score is 70 and the coutry rank is 76 among 163 countries and the target is 70% at the end of 2030. Even though the nutrition indicators of the country showed an improvement over the years, current economic crisis has changed the course and the nutrition related indicators are worsening. The predictions done by this review using the current data of maternal mortality, neonatal mortality and under year 5 mortality shows that if "business as usual" continues it will be a difficult task to achieve the intended SDG targets by year 2030. Although malaria and filaria have achieved the elimination status the challenge is to maintain this status with the hardships the country is facing.

The incidence of cancer is rising, the numbers of new cases of tuberculosis and HIV infection is still increasing although it could be explained on the basis of scaling up of case finding with new strategies of rapid diagnostic tests for both diseases and digital X-rays for early detection of tuberculosis. Prevention of risk factors for ischemic heart diseases, chronic respiratory tract diseases and stroke need to be addressed.It address using a multi-sectoral approach by the NCD Directorate. But it needs high political patronage as it involves prevention and control of tobacco, unhealthy diets, physical inactivity and harmful use of alcohol. Healthcare workers' safety on providing infection control procedures, waste management systems but radiation security in the hospital system has not been well established. A disaster management policy and a strategic plan are available to implement during humanitarian settings. The health sector response to prevention and control of the COVID-19 pandemic was guided by the "Covid-19 Strategic Preparedness and Response" plan prepared to align with the National Health Policy taking into consideration prevention and treatment and care. It was implemented with resilient strategies with the support of several government and non-government stakeholders, communities and international development partners. Implementation of Environment Policy and Climate Policy is a challenge and out of all the hospitals in the country only 30% had a valid environmental protection license by mid-2022. Commitment towards "Green hospital initiative" should be strengthened. The role of Health Promotion Bureau should be more strategic towards health promotion through social and behavioral change strategies.

Appropriate and accessible high quality curative care for all Sri Lankan citizens

The curative sector operates at three service delivery levels of primary, secondary and tertiary care level network of hospitals which are linked to the island-wide preventive health services. The "shared care cluster" system was introduced with the objective of serving an empaneled population at the primary healthcare institution closer to their homes but with a referral system to the appropriate higher level service. The other objective was to reduce the out-of-pocket expenditure (OOPE). Specialized services for cancer, chronic renal diseases and chronic NCDs such as cardio-vascular diseases, stroke, diabetes are being strengthened through infrastructure and human resource development and introduction of new technology. Sri Lanka was able to systematically control the COVID 19 related morbidity and mortality through strengthened hospital delivery service with intensive care service, high dependency care, pressure swing adsorption oxygen plants, and anti-viral therapy. During the pandemic, the usual hospital admissions were reduced by 24%, OPD admissions by 33% and routine clinic visits by 25% compared with the 2019 statistics. The rate of ICU facilities per 10000 Population for 2021 was 0.05. Accident &

Emergency care units have been doubled from 2015 (N-33) to 2020 (N-64). National Blood Transfusion Services has commenced local production of reagents and there is an opportunity for exporting some of the products. Healthcare Quality & Safety unit is working on a plan to improve the quality & Safety at the hospital level with the support of a donor fund. Development of the model centers of National Stroke Center, National Fertility Center, Genetic lab, according to the health master plan are on slow progress. Service improvement as well as coverage gaps have been identified in provision of diabetic care, ear, nose and throat services and preventable blindness services. All medical specialist ratio per 100,000 Population for the year 2021 was 10.7. Health workforce density in the country for physicians, dental surgeons, nurses/midwives and pharmacists are 0.09, 0.009, 0.25, 0.01 respectivly, per 10,000 Population in year 2020. Currently, no health technology assessment is carried out. There were 979 expired items (pharmaceuticals, laboratory and surgical) in the Medical Supply Division (MSD) in year 2021 incurring a cost of Rs. 587.89 million. The total storage volume for the central and regional stores are inadequate. There is lengthy lead time for the registration and purchasing of medical items. The management and information system of the MSD should be developed and managed by an information technology specialist. Overall significant underutilization of high-end machines & surgical theaters is observed in a background of long waiting lists running for months and years for cardiac and renal procedures.

The laboratory services are provided at all three levels of healthcare with advanced diagnostics being available at specialized centers and centers of excellence. The Medical Research Institute (MRI) should be upgraded to the status of a center of excellence. The services of microbiology, pathology, histopathology, chemical pathology etc should be stratified or clustered according to the disease burden and availability of infrastructure and human resources. Inter and intra service level networks should be developed. Surveillance systems for antibiotic sensitivity, gene sequencing for severe acute respiratory syndrome (SARS) virus, etc. should be further strengthened to signal impending threats. The curative sector data collection through the e-IMMR is being implemented in some hospitals and until a complete flow of data is achieved accurate data reporting to the National Health Bulletin will be a challenge.

Promotion of equitable access to quality rehabilitative care

Building of a National Centre of Excellence for Stroke Care has commenced and its progress is still 14% by 2021. The Mental Health Policy for 2020 to 2030 has been published in 2022. There are 34 in-patient psychiatry units in other tertiary and secondary care hospitals including child & adolescent psychiatry and forensic psychiatry care. In Sri Lanka only two places provide separate geriatric ward facilities, namely, at Kadugannawa Hospital (30 beds) and Peradeniya Teaching Hospital. Currently, there is no formal well organized widespread pulmonary rehabilitative services established in Sri Lanka although chronic pulmonary diseases are the highest number of admissions in 2019. Though the National Cancer Institute (Apeksha Hospital) has a fully fledged palliative care service, progress of palliative care service in Sri Lanka is not satisfactory. Acute Stroke units were established in some Teaching and Provincial General Hospitals but guidelines and SOPs should be developed to improve quality of care.

Strengthen evidence-based service delivery to support journey along the continuum of care

Currently customized outreach primary curative services are delivered by the public health midwife (PHM) and the public health nursing officer (PHNO). Public Health Inspector is also involved in some primary level curative activities other than their main duties of preventive work. In addition, Pre-Hospital Curative Care for emergencies are delivered by the “Suwaseriya” ambulance service. The “shared care cluster” has been identified for reforming of the primary healthcare structure to achieve universal health coverage (UHC). It has been already initiated and need strengthening for sharing of resources within clusters and to properly implement a referral and back referral system in the country. Management of Palliative Care is integrated into primary, secondary and tertiary care services. Although patients’ rights have been secured, the knowledge of patients and staff towards patients’ rights, public confidence and client satisfaction is inadequate. A Patient’s charter is not available.

New strategies to reduce out of pocket spending and reduce financial risk

As a share of total health expenditure, private health expenditure has been increasing in Sri Lanka. The percentage of domestic private health expenditure which was 45.5% in 2000, has risen to 55.8% by 2016. Out-of-pocket expenditure accounts as the largest contributor to private health expenditure and increased from 40% to 50.1% of total sector expenditure between 2000 and 2016. One objective of the primary healthcare strengthening through the "shared care cluster system" is to reduce out of pocket expenditure. Ministry of Health has taken a policy to provide quality intraocular lenses, coronary stents, and cochlear and prosthetic implants free of charge for all patients seeking medical treatment from state hospitals as a strategy to relieve the financial burden to patients. The gazette notification on reducing the prices of coronary stents has been issued under the National Medicines Regulatory Authority (NMRA) Act Number 05 of 2015. Strategic purchasing and sustainable financing has not been identified.

To ensure a comprehensive health system through a better restructuring including Human - Resource Management

Unavailability of a centrally led monitoring system and an updated Health Performance Monitoring Framework are identified as a gap. In the Preventive sector, many programmes implement their Health Performance Monitoring Framework at a satisfactory level. Currently the performance monitoring in the curative sector is inadequate. Currently there were no health technology assessments. There is no National Health Sector Master Training Plan. Structural re-organizations have been carried out to establish the NCD Bureau under a separate Deputy Director General (DDG) and a separate DDG post for the Environment and Occupational Health was created.

Develop strategic partnership with all providers of health care

Several stakeholders are joining hands to implement the NHP. It includes non-health government organizations, NGOs, CBOs, CSO and developmental partners. Strong partnership with developmental partners is a significant positive factor and many programmes have lack of partnership of NGOs and patient groups. Community engagement involves in many programmes by representing various advisory committees and social contracting has started in National STD/AIDS Control Programme.

Overall recommendations

Leadership/Governance

- Mid- term or end- term programme evaluations should be carried out and using the recommendations the respective sectoral policies should be updated and strategic and action plans should be developed with the aim of achieving the sustainable development goals by 2030.
- Advocate for pre-prioritization of health in the government budget to ensure sustainable financing.
- Social contractive services should be initiated for identified services.
- Introduce strategic purchasing of services from the private sector (e.g., Dialysis facilities) and social contracting of services for identified services
- Obtain private sector services for a concessional rate by leasing space of state hospitals while charging market price for the private sector patients (e.g., MRI/CT services)
- Administration fee to be charged at secondary and tertiary care hospitals for patients bypassing their empaneled Primary Medical Care Institutes

Service Delivery

- Ensure cross programmatic efficiency of service delivery in priority areas of health care to achieve health outcomes in an accountable and cost-effective manner ensuring equity.
- National guidelines, protocols and standard operation procedures (SOPs) should be developed for respective preventive and clinical managements and updated as appropriate.
- A system should be established to provide services to informal sector workers to promote UHC.

Health Workforce

- A Detail human resource analysis should be carried out and a Master Plan for Human Resources should be developed.
- Patient safety guidelines and protocols should be developed as appropriate.
- Carry out comprehensive audit & review of health care work force and redistribute. Performance based merit and payment system should be introduced.

Health Information System

- Develop a central focal point in the Ministry of Health for data handling and monitoring & evaluation of health services.
- Work of the Laboratory Information Management System should be accelerated.

Medical products, Vaccines and Technologies

- Health technology assessment should be carried out for new treatment, diagnostic procedures as well as for introducing medicinal products
- Re-organize the Medical Supplies Division after a comprehensive evaluation. Restructure the medical supplies division with emphasis on continuous monitoring and evaluation

Financing

- Increase the charges of health care costs for non-citizens when obtaining state health services.
- Implement the already developed tobacco tax formula and revisit the alcohol tax and sweetened-sugar-beverage tax.
- Introduce a social health insurance scheme following a feasibility study to achieve universal health coverage.
- Integrate a health coverage to reimburse the state health care cost in vehicle insurance policies.
- Establish paying wards in government hospitals.
- After a proper utilization assessment of High-end Biomedical equipment such as CT/MRI, lease the resources to private sector for a fee during the underutilized period (e.g., During night time)..
- Identify income generating micro interventions and standard rates for each level of care (e.g., provide CSSD services for the private sector hospitals).

- Establish a Plasma Fractionation Plant at NBTS to expand the export market of blood and blood products under the governance of National Blood Transfusion Services.
- Promote medical teaching tourism by providing clinical training for international medical students for a fee (e.g., neglected tropical diseases) and student exchange programmes
- Train nursing officers for the private sector for a fee at the state-owned nurses training schools.
- Produce skilled healthcare workers targeting international market. Recruit more international students to Sri Lankan medical and para medical universities.
- Market time-tested evidence based public health practices by conducting international public health training programmes.
- Introduce attractive and competitive medical screening packages for a fee to the private sector to provide door-to-door medical services by utilizing state health resources.

CONTENTS

Content

Executive summary		VII
Contents		XIII
List of Tables		XVII
List of Figures		XIX
List of Annexes		XXV
Abbreviations		XXVI
Introduction		01
Results		15
Strategy 1 - Strengthen Service delivery to achieve preventive health goals		29
1.1	To provide equitable and efficient healthcare delivery system to improve maternal health care including family planning, child health care, and school health	30
1.2	To improve intra partum care by identified national standards (Clinical Governance in Labour Room)	58
1.3	To ensure the quality and efficiency of the immunization programme , robust monitoring and evaluation system	62
1.4	To strengthen surveillance of food and water borne diseases	66
1.5	To reduce the morbidity and mortality due to specific communicable diseases	71
1.6	To address mal-nutrition through specific strategies	83
6.12	To expand functions and strengthen capacities of Nutrition units through re- structuring the programme as a Nutrition Bureau	83
1.7	To develop comprehensive health system to reduce the burden of CKDu	87
1.8	To maintain zero transmission of Malaria and Filariasis	92
1.9	To enhance asymptomatic / early case detection in Leprosy	100
1.10	To eliminate human Rabies by 2020	105
1.11	To develop multi sectoral approach to minimize the transmission of STI including HIV	107
1.12	To enhance active case detection & preventive measures to minimize thetransmission of Tuberculosis	119
1.13	To reduce the occurrence of Dengu outbreaks through multi sectoral involvement	124
1.14	To ensure the delivery of Comprehensive health care system to control and prevention of cancers	130
1.15	To reduce mortality and morbidity due to Non-Communicable Diseases	144
1.16	To improve the Health status and reduce the dependency of the Elderly , Disabled and Displaced	160
3.4	To ensure healthy ageing with multi sectoral collaboration	160
3.6	To provide community based comprehensive rehabilitative care for the people with disabilities to enable them to self – support their daily activities	160
1.17	To improve the health status of Youth & Adolescents through special programmes on risk behavior	167
1.18	To ensure the health and safety of the working population through occupational health services	173
1.19	To promote Healthy Settings approach to safe guard the natural environment and prevent environment related health hazards	176

CONTENTS

1.20	To improve the health status of the plantation community by reducing the disparities between the plantation areas and the other regions of the country	178
7.1	To collaborate with Plantation companies in the delivery of Health care for the estate workers	178
1.21	To address health issues related to urbanization through Health Promotion and Healthy Settings concepts	183
1.22	To ensure Universal Health Coverage to migrants and families left behind in Sri Lanka	188
1.23	To prevent possible entry of pandemic diseases concerned	193
1.24	To promote the involvement of the community in health care through Health Education and Publicity	197
1.25	To develop mechanisms to minimize the health impact of climate change and climate anomalies	199
1.26	To establish systems to promote environmental sustainability when providing health care (safe disposal of waste water from hospital settings, safe disposalof clinical waste, Sustainable Solar energy, ensuring green environment from air and chemical pollution)	202
Strategy 2- Appropriate and Accessible high quality Curative care for all Sri Lankan citizens		**207**
2.1	To provide comprehensive cardiac care services in equitable manner	208
2.2	To establish comprehensive and adequate ICU facilities and pain clinics at appropriate centres	211
2.3	To establish anti – microbial stewardship programe in all hospitals	215
2.4	To improve the specialized care facilities for the patients with Hematological disorders	216
2.5	To improve accessibility to Oral and Maxillofacial treatment care services	219
3.15	To ensure the delivery of quality, equitable & effective oral healthcare services to the community	219
2.6	To ensure the equitable distribution of comprehensive Neurosurgical care throughout the country	223
2.7	To improve the accessibility to comprehensive Eye Care at all levels	224
3.14	To promote equitable access to a national programe of Preventable Blindness and Visual Impairment	224
2.8	To ensure the delivery of Urological services, that caters to the Community in a well distributed and equitable manner	227
2.9	To ensure delivery of comprehensive Accident & Emergency services at all levels of Health care, to reduce preventable mortality and disability related to Accidents and emergencies in Sri Lanka	229
2.10	To ensure adequate provision of quality assured safe blood; blood products (including local Plasma Fractionation), laboratory and therapeutic services to the entire country	233
2.11	To establish effective managerial systems and processes at health institutions to facilitate continuous quality improvement	236
2.12	To ensure the delivery of sophisticated state-of-the-art Bio Medical Technology at appropriate level of care	238
7.3	To ascertain the idling (nonuse) periods of expensive bio medical equipment, medical laboratories and operation theatres (especially in the night) and develop mechanisms to provide service to private sector with a fee for service for the Govt staff and generate revenue for the State	238

CONTENTS

2.13	To expand the supply of quality diagnostic facilities, research and training through the Medical Research Institute to the entire health network	242
4.3	To ensure sharing of resources within a cluster to provide quality primary level care to the community	248
4.4	To develop a Referral and Back – Referral system for patients in each defined catchment area	248
6.9	To establish a new structure for management of Primary level curative services which include all divisional hospitals and primary medical care units of the country	248
2.15	To provide quality laboratory services by ensuring efficiency in the functioning and equity in the clustering of laboratories in hospitals	248
2.16	To provide quality ENT care services in an equitable manner throughout the country	256
2.17	To ensure the efficient and effective supply of quality medical items to relevant health institutions	259
6.10	To improve the efficiency of Supply Chain Management; re-structure the Medical supplies division	259
5.3	To strengthen the mechanism of regulation of prices of Medicinal drugs and devices	259
7.2	To promote local manufacturing of Pharmaceuticals	274
Strategy 3 - Promotion of equitable access to quality rehabilitation care		**277**
3.1	The mainstream health system should provide Palliative Care to all patients who are in need of such care for them to live and die with dignity	278
3.2	To provide an equitable, efficient and quality Stroke Care to needy patients, with multi-disciplinary approach and medium / long term plans	280
3.3	To develop and expand a responsive mental health service with structural and process changes in different settings	281
3.5	To provide equitable distribution of Geriatric care	288
3.7	To establish clinical Genetics services at appropriate centres to cover the entire Population	289
3.8	To provide comprehensive pulmonary rehabilitation services	290
3.9	To establish a national mechanism to protect the children from abuse, exploitation, violence and neglect	291
3.10	To expand quality Plastic surgical services for needy patients throughout the Country	295
3.11	To establish a national system of endocrinology and Diabetic care services at different levels	296
3.12	To develop an effective system to reduce mortality and morbidity due to Thalassemia	304
3.13	To develop and implement a national program for screening and manage the children with neurological disabilities including Autism	307
3.16	To ensure the reduction of morbidity and mortality due all types common Respiratory Disease	309
3.17	To establish a multi-level and multi-sectoral Disaster Preparedness and Respond System in Sri Lanka	310
Strategy 4 - Strengthen evidence-based service delivery to support journey along the continuum of care		**317**
4.1	To ensure Patient's Rights, Public Confidence and Patient/Client Satisfaction at all public and private health institutions	318

CONTENTS

4.2 To implement customized outreach primary curative services including Pre Hospital Curative Care incorporated into the health system 322

Strategy 5 - Develop new strategies to reduce Out of Pocket Spending (OOPS) and reduce financial risk 325

5.1 To regulate the private health sector to ensure quality service and financial risk protection of the patients 326

5.2 To provide certain costly devices (such Cardiac Stents, Intra Ocular Lenses for Cataract patients, Infusion pumps for Thalassemia children) at the expense of the Government 329

5.4 To provide all Diagnostic services (including medical laboratory investigations) within the government hospitals at free of charge for the patients 330

Strategy 6 - To ensure a comprehensive health system through a better re- structuring including Human Resource Management 333

6.1 To improve planning and monitoring system of health sector to ensure quality universal health coverage 334

6.2 To rationalize the development and management of human resources for health with special emphasis on improving the post graduate training of doctors 334

6.3 To expand the Education & Training Division with a view to increase the training capacity of Nurses and other para- medics to match the demand in govt and private sectors and also the overseas employment opportunities available for Sri Lankans 342

6.4 To establish a National Health performance monitoring system that will track health systems performance 346

6.5 To improve international relations in health care with emphasis on International Health Governance 352

6.6 To strengthen translation of research findings into policy and practices in order to enhance efficient health service delivery 354

6.13 To develop comprehensive ICT systems for clinical services, public health services aswell as for supportive services 356

Strategy 7- Develop strategic partnership with all providers of health care 361

7.4 To collaborate with International Donor Agencies, in improving the health status of citizens of Sri Lanka, according to this National Health Policy, Strategic Framework / Key result areas 362

Areas that have not been covered by the NHP 363

Prison Health Services 364

Forensic Pathology 366

Organ, Tissue and Cell Transplantation 367

Sports and Exercise Medicine 368

Recommendations 371

References 376

Annexes 380

LIST OF TABLES

Table Number	Table Name	Page No.
Table 01	Different categories of Medical Care Institutions-2020	05
Table 02	Utilization of public hospitals during year 2019 and 2020	06
Table 03	The average duration of hospital stay, Bed Occupancy Rate and Bed Turnover Rate of different hospital categories of public health sector during the year 2019 & 2020	06
Table 04	Mid-Year Population, Crude Birth Rate (CBR) per 1000 population, Crude Death Rate (CDR) per 1000 population, Annual Growth Rate (AGR), Life expectancy (LE) for both sexes & Dependency Ratio (DR) from 2015-2021	16
Table 05	Available sectoral health policies in Sri Lanka at the end of 2021	27
Table 06	SDG Indicators Relevant to Maternal and Child Health	33
Table 07	Sustainable Development Goal (SDG) Indicator 3.7.1-Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods	42
Table 08	SDG 3.2.1 3.2.2 - Child Health Indicators	44
Table 09	Results of birth defect surveillance from 2018-2020	49
Table 10	National Immunization Indicators for SDG	64
Table 11	Recommended indicators for food regulations	69
Table 12	SDG indicators Relevant to the Neglected Tropical Diseases and Leishmaniasis	73
Table 13	Nutrition-related SDG indicators	85
Table 14	The average number of dialysis machines per 100,000 population and average number of yearly dialysis sessions per one machine in 2020	89
Table 15	Research carried out by the NRDPRU during the period of 2016 to 2021	90
Table 16	Sustainable Development Goal relevant to HIV	109
Table 17	Key population size estimate of Sri Lanka, 2018	112
Table 18	Age Standardized (incidence) Rate of common cancers per 100,000 Population in Sri Lanka compared with regional and world statistics	133
Table 19	Use of FDG-18 in the National Cancer Institute during 2018-2020	142
Table 20	Behavioral risk factors exposure and screening data among males and females in STEPS survey 2015 & 2021	149
Table 21	Comparison of some health indicators of DHS 2006 and 2016	179
Table 22	Comparison of selected health indicators relevant for urban sector with those of National level (DHS 2006/2007 and 2016/2017)	184
Table 23	Total number of Inbound migrants screened and screened positives from 2019-2021	191
Table 24	SPAR 2021 of SEAR Member States	195
Table 25	Total no. of capacities identified in State Party Annual Reporting from 2018-2021	196

LIST OF TABLES

Table 26	Comparison of 2021 IHR co capacities of Sri Lanka by global and SEARO averages	196
Table 27	Estimated cardiac catheterization facility projected service provision in 2025	209
Table 28	Number of ICUs in each province at the end of 2021	212
Table 29	Requirements to fulfill the ICU grading	213
Table 30	Distribution of Urological Services in Sri Lanka as at the end of 2015	228
Table 31	Distribution of accidents and emergency care units in different categories in 2015 & 2020	230
Table 32	Total collection and test positive rates of transfusion transmitted infections from 2015-2021	234
Table 33	Number of vital and essential pharmaceuticals list in the MSD in a given year	266
Table 34	Number of expired items within in the MSD Main List from 2016 to 2021	267
Table 35	Number of circulars issued by the MSD to batch withhold or withdrawal of pharmaco-logical, surgical and laboratory items from2016 to 2021	268
Table 36	Number of Quality failed items within in the MSD Main List from 2015 to 2021	268
Table 37	Storage capacities of each warehouse at the end of 2020	269
Table 38	The service period of the transport vehicles at the end of 2020	270
Table 39	Human resources availability of the MSD at the end of 2021	270
Table 40	Expected number of institutions to be connected with MSMIS under the expansion project	271
Table 41	Available stroke units in government hospitals at the end of 2021, in comparison to 2015	280
Table 42	Data from Lama Piyasa, Ragama from May 2016 to 20th ofMay 2022, is as follows	293
Table 43	Number of Thalassemia screening tests and number of traits of thalassemia identified in different centers from 2018-2019	305
Table 44	Annual intake of Health Staff Categories from 2015-2021	343
Table 45	UHC index of Sri Lanka from 2000 to 2018	349
Table 46	Number of research proposals submitted, and the number of research allowances approved each year from 2015-2021	355

LIST OF FIGURES

Figure Number	Figure Name	Page No.
Figure 01	Public Sector -Western Medicine health administrative system, Sri Lanka	04
Figure 02	District Level Western Medicine health administrative system	05
Figure 03	The seven broad strategies of the National Health Policy 2016 -2025	08
Figure 04	Trend analysis of CBR and CDR of Sri Lanka from 2015-2021	16
Figure 05	Trend analysis of Life Expectancy of Sri Lanka from 2015-2021	17
Figure 06	Male and female annual population growth rate of Sri Lanka from 2015-2021	17
Figure 07	Trend analysis of annual population growth rate of Sri Lanka from 2015-2021	18
Figure 08	Predicted Future Population, Sri Lanka, from 1871-2021	18
Figure 09	Total Fertility Rate from year 2016 to 2021 in Sri Lanka	19
Figure 10	Trend analysis of total Fertility Rate from year 2016 to 2021 in Sri Lanka	19
Figure 11	Projected Age-sex structure of the Sri Lankan Population, 2012-2037	20
Figure 12	Human Development Index and Inequality Adjusted Human Development Index in Sri Lanka from 2014 to 2020	21
Figure 13	Total current health expenditure in Sri Lanka from 2013-2018	23
Figure 14	Total Health Expenditure and Total Gross Government Health Expenditure as a Fraction of GDP from 2013 to 2019	23
Figure 15	Per Capita Current Health Expenditure in Sri Lanka in Rupees & USD from 2013 to 2018	24
Figure 16	Disaggregation of current health expenditure by broad categories of diseases from 2013 – 2018	24
Figure 17	Current health expenditure by providers of healthcare in Sri Lanka	25
Figure 18	Current health expenditure in Sri Lanka by sources of funds	25
Figure 19	Total Health Expenditure and Total Gross Health Expenditure as a Fraction of GDP from 2013 to 2019	26
Figure 20	Maternal Mortality Ratio from year 2008 to 2020 in Sri Lanka	33
Figure 21	Comparison between SDG target and forecast of maternal mortality ratio	34
Figure 22	Percentage of pregnant mothers who attended 4 or more government antenatal clinics	35
Figure 23	Percentage of pregnant mothers with low BMI on or before 12 weeks of gestation from 2015- 2021	36
Figure 24	Trend analysis of percentage of pregnant mothers with low MI on or before 12 weeks of gestation from 2015- 2021	36
Figure 25	Percentage of pregnant women with antenatal anemia from 2015-2021	38
Figure 26	Trend analysis of Percentage of pregnant women with antenatal anemia from 2015- 2021	38

LIST OF FIGURES

Figure 27	Contraceptive Prevalence Rate and unmet need from 2015 to 2021	41
Figure 28	Trend of analysis of Contraceptive Prevalence Rate and unmet need from 2015 to 2021	41
Figure 29	Demand satisfied by modern family planning	43
Figure 30	Neonatal Mortality rate, Infant Mortality Rate and Under 5-year mortality Rate From 2008-2021	45
Figure 31	Comparison between SDG target and forecast of Neonatal mortality Rate (2008-2030)	45
Figure 32	Comparison between SDG target and forecast of under 5 years mortality Rate (2008-2030)	46
Figure 33	Percentage of under 5 children who are underweight, stunted, wasted, moderately-wasted and overweight 2016-2021	47
Figure 34	Trend analysis of the under 5-year nutritional status from year 2016 to 2021 in Sri Lanka	47
Figure 35	Number of Mithuru Piyasa centers from 2011-2020	52
Figure 36	Consultation services provided by Mithuru Piyasa centers from 2011 to 2020	52
Figure 37	Percentage of deliveries by LSCS from 2015 to 2021	59
Figure 38	Trend analysis of LSCS from 2015 to 2021	59
Figure 39	Stillbirth Rate from 2016 to 2021	60
Figure 40	Trend analysis of Stillbirth Rate	60
Figure 41	Achievements of the National Immunization Programme up to 2020	63
Figure 42	Immunization Coverage from 2015 to 2021	64
Figure 43	HPV1 & HPV 2 vaccine coverage from 2017-2021	65
Figure 44	Water Quality Surveillance from 2015 to 2021	67
Figure 45	Number of Cases per 100,000 Population of water & Food borne diseases from 2015 to 2021	67
Figure 46	Trend of water borne diseases from 2015 to 2021 in Sri Lanka	68
Figure 47	Percentage of weekly reporting rate of communicable diseases from MOH areas	72
Figure 48	Cutaneous Leishmaniasis Incidence per 100,000 Population from 2015-2021	73
Figure 49	Impact of COVID-19 Vaccination	76
Figure 50	Different doses and types of vaccines for COVID-19 up to 31/07/2022	76
Figure 51	Percentage of weekly reporting rate of ILI (Influenza Like Illness) and SARI (Severe Acute Respiratory Infection) from sentinel sites	78
Figure 52	Incidence of Mumps per 100,000 population from 2015-2021	79
Figure 53	Incidence of Chickenpox per 100,000 population from 2015-2021	80
Figure 54	Number of notified Leptospirosis cases 2015-2022	80
Figure 55	Number of Leptospirosis deaths and case fatality rates (CFR) from 2015 to 2020	81

LIST OF FIGURES

Figure 56	Number of male and female CKD/CKDu patients reported by sentinel sites, 2015-2019	88
Figure 57	Prevalence of CKD/CKDu in districts by GPS mapping	88
Figure 58	Number of dialysis machine per 100,000 population & average number of utilizationper machine in each province in 2020	90
Figure 59	Malaria cases by origin of infection from 2012 to 2021	93
Figure 60	Main targets achieved on prevention of reintroduction of Malaria	94
Figure 61	Number of Microfilaraemic cases reported by the type of parasites from 2016 to 2021	96
Figure 62	Number of new patients and subsequent visits for Lymphedema from 2016 to 2021	96
Figure 63	Microfilaria Rate from 2015-2021	97
Figure 64	Trend analysis of Microfilaria Rate from 2015-2021	97
Figure 65	Filaria infected and infective rates of Culex Quinquefasciatus from 2015 to 2021	98
Figure 66	Trend analysis of Filaria infected and infective rates of Culex Quinquefasciatus from 2015 to 2021	98
Figure 67	Microfilaria Rate by endemic districts from 2016-2021	99
Figure 68	Number and percentage of child leprosy cases from 2015 to 2021	101
Figure 69	Number and percentage of grade 2 deformity due to Leprosy from 2015 to 2021	102
Figure 70	Number and percentage of Multi Bacillary (MB) leprosy cases from 2015 to 2021	102
Figure 71	Trend analysis of Multi Bacillary Leprosy Cases	103
Figure 72	Total number of cases (new cases and defaulters) of Leprosy and new case detection Rate (NCDR) per 100,000 from 2015 to 2021	103
Figure 73	Percentage of late presenters for the treatment (>6 months) of leprosy cases from 2015 to 2021	104
Figure 74	Percentage of treatment completion of leprosy patients from 2018 to 2021	104
Figure 75	Human Rabies Incidence Rate per 100,000 population and the Number of Deaths* due to Human Rabies from 2015-2021	106
Figure 76	Trend line of humen rabies per 100,000 population from 2015-2021	106
Figure 77	Trends in new HIV infection and 95 95 95 targets and achievements by 2021, Sri Lanka	108
Figure 78	Number of reported HIV infections by age and sex, 2011-2021	109
Figure 79	HIV positive number and % according to probable mode of transmission among PLHIV reported during 2021, according to sex.	110
Figure 80	New HIV infections by populations, 1990-2025	112
Figure 81	Tuberculosis new cases, incidence rate notified and TB estimated incidence from 2015 to 2021	122

LIST OF FIGURES

Figure 82	Number of TB Mortality and TB Mortality Rate per 100,000 population from 2015 to 2020	122
Figure 83	Dengue cases per 100,000 population and CFR of Dengue from 2015 to 2021	124
Figure 84	Premise Index for Aedes Larvae from 2015 to 2021	125
Figure 85	Dengue vector control interventions in Sri Lanka	127
Figure 86	Age Standardized Incidence Rate of Male & Female Cancers from 2005 – 2019	133
Figure 87	Age Standardized Incidence Rate of Leading Cancers Among Men in Sri Lanka (2005 - 2019)	134
Figure 88	Age Standardized Incidence Rate of Leading Cancers among Females in Sri Lanka (2005 - 2019)	134
Figure 89	Trend analysis of Age Standardized Rates for Male and Female Cancers from	134
Figure 90	Trend analysis of Standardized Rates for Male and Female Breast Cancer from 2005-2019	135
Figure 91	Age Standardized Rates for Male and Female Oral Cancer from 2005-2019	136
Figure 92	Trend analysis of Standardized Rates and Crude Rates for Cervical Cancer from 2005-2019	137
Figure 93	Trend analysis of Standardized Rates for Male and Female Thyroid Cancer f from 2005-2019	137
Figure 94	Trend analysis of Age Standardized Rates for Male and Female Lung Cancer from 2005-2019	138
Figure 95	Trend analysis of Standardized Rates for Male and Female Colorectal Cancer from 2005-2019	138
Figure 96	Distribution of childhood cancers from 2015-2019	139
Figure 97	Trend analysis of Age Standardized Rates for Paediatric Cancers from 2005-2019	139
Figure 98	Estimated NCD related mortality data for Sri Lanka in 2018	147
Figure 99	The number of admissions to government hospitals due to chronic NCDs for 2015 to 2020.	147
Figure 100	Trend of mortality due to chronic NCDs in government hospitals from 2015-2020	148
Figure 101	Risk factors identified through the HLC from 2014 to 2020	149
Figure 102	Elaboration of the key areas covered by the National Elderly Health Policy 2019	162
Figure 103	Percentage of teenage pregnant mothers registered from 2015 – 2021	170
Figure 104	Trend analysis of teenage pregnancy percentage from 2015-2021	170
Figure 105	Percentage of hospitals having a valid environment protection license	177

LIST OF FIGURES

Figure 106	Health and health related welfare activities carried out by the PHDT	181
Figure 107	IHR core capacity index in Sri Lanka from 2018-2021	195
Figure 108	Environmental Protection License (EPL) status of all healthcare institutions as of 31st June 2022	204
Figure 109	Scheduled Waste Management License (SWML) status of all healthcare institutions as at 31st December 2020/30th June 2022	204
Figure 110	Ischemic heart disease (ICD 120-125) mortality rates per 10,0000 population in Sri Lanka from 2015-2020	208
Figure 111	Trend analysis of ischemic heart disease (ICD 120-125) mortality rates in Sri Lanka from 2015-2020	208
Figure 112	Red Cell Concentrate discard rate from 2015 – 2021	235
Figure 113	Number of Stem cell transplantations, Cryopreservation and infusion procedures at the National Cancer Institute, Maharagama	235
Figure 114	Services of the BMES and the process of purchasing medical equipment in hospital sector	239
Figure 115	Strategies for healthcare delivery for UHC	249
Figure 116	Component of the Essential Services Package	250
Figure 117	Responsibilities of the supply chain management, MoH	260
Figure 118	NMRA Registration Process of a Medical Item	262
Figure 119	Estimation of medical items in the Supply Chain	264
Figure 120	Supply Chain Management from the MSD to the end user	264
Figure 121	Lead time of different medical items by the SPC supply in year 2019	265
Figure 122	Number of medical items in the MSD Main List from 2016-2021	266
Figure 123	Percentage cost incurred due to expired medical items in the public sector from 2016-2021	267
Figure 124	Percentage Cost incurred due to quality failed medical items in public sector from 2016-2021	268
Figure 125	Required vs available store capacity of the medical items in the public sector at the end of 2021	269
Figure 126	Percentage of Items Supplied by Local Manufacturers against the total items supplied from 2015-2021	274
Figure 127	New Clinic Registrants with Diagnosed Mental Illnesses per 100,000 Population from 2016 to 2021	284
Figure 128	Percentage Coverage of Treatment Interventions for Drug Use Disorders from 2015 to 2020	285

LIST OF FIGURES

Figure 129	Suicide Rate per 100,000 Population from 2015-2021	286
Figure 130	Trend analysis of Suicide Rate per 100,000 Population from 2015-2021	286
Figure 131	Reported complaints on Child Abuse types from 2015- 2021	292
Figure 132	Number of deaths due to Diabetes Mellitus in Government Hospitals from 2015 to 2020	297
Figure 133	The Components of patients' rights	318
Figure 134	Registration Process of the Private Healthcare institutions	327
Figure 135	Complaint handling system related to Private healthcare	328
Figure 136	Healthcare worker density in 2016 per 1000 Population, in Comparison to the SDG target	334
Figure 137	Health Related SDG indicators in Sri Lanka	348
Figure 138	Indicators for the UHC index	349
Figure 139	Trend analysis of the UHC index of Sri Lanka from 2000 to 2018	349
Figure 140	Strategies for healthcare delivery for UHC	350
Figure 141	Planning & Monitoring process of the GFATM	351
Figure 142	The global health domain	352
Figure 143	Implementation of Hospital Health Information Systems in the country	357
Figure 144	The Number of organ transplantation from 2014 to 2020	367

ANNEXES

No.	Name	Page No.
I	Evaluation Questions for Policy Content Analysis	380
II	Questionnaire on Implementation of the National Health policy 2016-2025 for Stakeholders	381
III	Midterm Review of Health Master Plan Based on the National Health Policy 2016 - 2025	385
IV	Interviewer Guide - Implementation of the National Health policy 2016-2025 Developmental Partners	386
V	Distribution of specialists in public sector – 2021	387

ABBREVIATIONS

AAPC	Annual Average Percentage Change
ABST	Antibiotic Sensitivity Test
ACCD	Advisory Committee of Communicable Diseases
ACHPR	African Charter on Human and Peoples' Rights
AHEL	Apollo Hospitals Enterprise Limited
ADB	Asian Development Bank
AYFHS	Adolescent and Youth Friendly Health Services
AEFI	Adverse Event Following Immunization
AEO	Oto Acoustic Emission*
A & E	Accident and Emergency Care
AGR	Annual Growth Rate
AFC	Anti-Filariasis Campaign
AHB	Annual Health Bulletin
AIDS	Acquired Immune Deficiency Syndrome
AITDs	Autoimmune thyroid diseases
ALC	Anti-Leprosy Campaign
AMC	Anti-Malaria Campaign
AMR	Antimicrobial Resistance
ANC	Antenatal Care
APC	Annual Percentage Change
ARI	Acute Respiratory Infections
ARSP	Antibiotic Resistance Project
ART	Antiretroviral Therapy/Antiretroviral Treatment
ASFR	Age Specific Fertility Rates
ASPs	Antimicrobial Stewardship Programme
ASR	Age Standardized incidence Rate
AST	Antimicrobial Susceptibility Testing
AWaRe	Access, Watch and Reserve
BBMS	Blood Bank Management System
BCG	Bacille Calmette–Guerin
BD	Birth Defect
BES	Biomedical Engineering Services
BH	Base Hospital
BHA	Base Hospital (Type A)
BHB	Base Hospital (Type B)
BHTs	Bed-Head Ticket
BMES	Biomedical Engineering Services
BMI	Body Mass Index
BMTU	Bone Marrow Transplant Unity
BOR	Bed Occupancy Rate
BTR	Bed Turnover Rate
BWC	Biological Weapons Conventions
CADCAM	Computer-Aided Design and Manufacturing
CANMHSL	Consumer Action Network Mental Health Sri Lanka
DGHS	Director General of Health Services
DGG-PHS1	Deputy Director General of Public Health Services 1
DH	Divisional Hospitals
DHBB	Digital Health Building Blocks
DHIS2	District Health Information Software 2
DHQS	Directorate of Healthcare Quality and Safety
DHS	Demographic and Health Survey
DL	Direct Laryngoscopy
DM	Diabetes Mellitus
DMT	Department of Motor Traffic
DNA	Deoxyribonucleic acid
DNT	Door to needle time
DO	Development Officer
DOTS	Directly Observed Treatment
DPRD	Disaster Preparedness and Response Division
DPT	Diptheria Pertussis Tetanus
DR	Dependency Ratio
DST	Drug Susceptibility Testing
DTCO	District Tuberculosis Control Officer
dsDNA	Double-stranded Deoxyribonucleic acid
ECG	Electro-cardiography
ECHC	Estate Community Healthcare Centers
ECHR	European Convention on Human Rights
ECMO	Expansion of the use of Extracorporeal membrane Oxygenation
ECSWL	Extra Corporal Shockwave Lithotripsy
EEG	Electro
EHV	Estate Health Voice
eIMMR	Electronic Indoor Morbidity and Mortality Reporting
EML	Essential Medicines List
EmONC	Emergency obstetric and newborn care
EMTCT	Elimination of Mother to Child Transmission
EMTs	Emergency Medical Technicians
ENT	Ear, Nose, Throat
ENT	Ear, Nose, Throat & Head Neck
EPI	Expanded Programme on Immunization
EPL	Environmental Protection License
ERCs	Research Unit
eRHMIS	electronic Reproductive Health Management Information System
ESBL	Extended Spectrum Beta-Lactamase
ESP	Essential Services Package
ET	Educational Therapist
ET&R	Education, Training and Research
ETU	Emergency Treatment Unit

ABBREVIATIONS

CAT	Convention Against Torture
CBMs	Confidence Building Measures
CBOs	Community-Based Organizations
CBR	Crude Birth Rate
CCC	Courage, Compassion and Commitment
CCN	Community Psychiatry Nurse
CCP	Consultant Community Physician
CCS	Climate Change Secretariat
CDC	Center for Disease Control
CDDA	Cosmetics Devices and Drugs Authority
CDIC	Child Development Intervention Clinic
CDR	Crude Death Rate
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women:
CEDC	Cancer Early Detection Center
CFR	Case Fatality Rate
CHE	Current Health Expenditure
CIM	Cancer Institute – Maharagama
CKD	Chronic Kidney Diseases
CKDu	Chronic Kidney Disease of unknown etiology
COAISL	College of Anesthesiologist and Intensivist Sri Lanka
COPD	Chronic Respiratory Diseases
CP	Cleft Palate
CPD	Continuing Professional Development
CPN	Community Psychiatry Nurses
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CRRT	Continuous Renal Replacement Therapy
CRS	Congenital Rubella Syndrome
CSC	Community Support Centers
CSF	Cerebrospinal Fluid
CSO	Civil Society Organization
CSR	Cataract surgical rate
CSTH	Colombo South Teaching Hospital
CT	Computer Tomography
CVD	Cardiovascular Disease
DALY	Disability Adjusted Life Years
DA/MH	Development Officers Mental Health
DCC	District Chest Clinic
DDG/DS	Deputy Director-General/Dental Services
DDG/ET&R	Deputy Director General/Education Training & Research
DESC	Drug Evaluation Sub Committee
DFU	Diabetic foot ulceration
DGH	District General Hospital
E & UH	Directorate of Estate & Urban Health
FBC	Full Blood Count
FESS	Functional Endoscopic Sinuses Surgeries
FDC	Fixed Dose Combination
FHB	Family Health Bureau
FHP	Family Health Programme
FPASL	Family Planning Association of Sri Lanka
FPP	Family Planning Programme
FOB	Fibro Optic bronchoscopy
FOL	Fibro Optic Laryngoscopy
GA	Government Agent
GAMCA	Gulf Approved Medical Centers Association
GATS	Global adult tobacco survey
GDF	Global Drug Facility
GDP	Gross Domestic Product
GFATM	The Global Fund to Fight AIDS, Tuberculosis and Malaria
GGI	Gender Gap Index
GIS	Geographic Information System
GLASS	Global Antimicrobial Resistance Surveillance System
GN	Grama Niladari
GSHS	Global School-Based Student Health Survey
GMO	Genetically Modified Organisms
GOSL	Government of Sri Lanka
GPs	General Practitioners
GYTS	Global Youth Tobacco Survey
HAPT	Health Account Production Tool
HCW	Healthcare Waste
HCWM	Healthcare Waste Management
HDI	Human Development Index
HDU	High Dependency Unit
HHMIS	Hospital Health Information Management System
HIMS	Health Information Management System
HiQi	Health Information and Quality Improvement
HIS	Health Information Systems
HIU	Health Information unit
HIV	Human Immunodeficiency Virus
HLC	Healthy Lifestyle Centre
HOP/E	Hospital Preparedness Emergencies
HPB	Health Promotion Bureau
HPLC	High-Performance Liquid Chromatography
HPLC	High-Performance Liquid Chromatography
HPV	Human Papilloma Virus
HESP	Health System Enhancement Project

ABBREVIATIONS

HTA	Health Technology Assessment
ICCPR	International Covenant on Civil and Political Rights
ICNO	Infectious Control Nursing Officer
ICPD	International Conference on Population and Development
ICERD	International Convention on the Elimination of All Forms of Racial Discrimination
ICESCR	International Covenant on Economic, Social, and Cultural Rights
ICU	Intensive Care Unit
ICRMW	International Convention on the Protection of All Rights of Migrant Workers and their Families
IDH	Infectious Disease Hospital
IH	International Health
IHD	Ischemic Heart Diseases
IHDI	Inequality Adjusted Human Development Index
IHR	International Health Regulations
IEC	Information, Education & Communication
ILO	International Labour Organization
ILD	Interstitial Lung diseases
IMMR	Indoor Morbidity and Mortality Return/Reporting
IMR	Infant Mortality Rate
INGOs	International Non-Governmental Organizations
IOM	International Organization for Migration
IPF	Idiopathic pulmonary fibrosis
ITP	Idiopathic thrombocytopenic purpura
IUCD	Intra Uterine Devices
IVM	Integrated Vector Management
JAICA	Japan International Cooperation Agency
JMOs	Judicial Medical Officers
JEDB	Janatha Estate Development Board
KDU	Kothalawala Defence Universityv
LE	Life Expectancy
LFA	Local Funding Agency
LFPR	Labour Force Participation Rate
LIMS	Laboratory Information Management System
LMC	Lactation Management Centers
LMIC	Lower Middle Income Country
LMO	Living Modified Organisms
LRH	Lady Ridgeway Hospital
LRT	Ligation and Resection of Tubes
LSCS	Lower (uterine) Segment Caesarean Section
LTI	Latent Tuberculosis Infection
LTC	Long Term Care
MA	Management Assistant
MCH	Maternal and Child Health
mCPR	Current Modern Contraceptive
MCV	Measles Containing Vaccine
MD	Doctor of Medicine
MDG	Millennium Development Goals
MDPU	Management, Development and Planning Unit
MDR TB	Multi-Drug Resistant Tuberculosis
MDSR	Maternal Death Surveillance and Response
MDT	Multidisciplinary team
MEC	Medicines Evaluation Committee
MH-MIS	Mental Health-Management and Information System
MHPS	Mental Health and Psycho-Social Support*
MIC	Minimum Inhibitory Concentration
MICU	Medical Intensive Care Unit
MLLA	Major lower limb amputations
MLT	Medical Laboratory Technician
MMR	Maternal Mortality Ratio
MMRV	Measles, Mumps, Rubella Vaccine
MO	Medical Officer
MOEWS	Modified Obstetric Early Warning Signs
MoH	Ministry of Health
MOOH	Medical Officer of Health*
MoU	Memorandum of Understanding
MRI	Medical Research Institute
MRI	Magnetic Resonance Imaging
MRO	Medical Recording Officers
MSD	Medical Supplies Division
NSE	National Secretariat for Elders
MSM	Men who have Sex with Men
MSMIS	Medical Supplies Management Information System
MSU	Medical Statistics Unit
NAC	National Advisory Committee
NAITA	National Apprentice and Industrial Training Authority
NAMA	National Appropriate Mitigation Actions
NAP	National Adaption Plan
NAPHS	National Action Plan for Health Security
NAT	Nucleic Acid Testing
NATA	National Alcohol and Tobacco Authority
NBTS	National Blood Transfusion Service
NCACBB	National Advisory Committee on Biosafety & Biosecurity
NCCC	National Communications on Climate Change
NCCP	National Cancer Control Programme
NCD	Non-Communicable Disease
NCIM	National Cancer Institute, Maharagama
NCMH	National Committee on Mental Health
NCPA	National Child Protection Authority

ABBREVIATIONS

NCPI	National Committee for Prevention of Injuries
NCR-SL	National Cancer Registry – Sri Lanka
NDCs	National Determined Contributions
NDCU	National Dengue Control Unit
NDDCB	National Dangerous Drug Control Board
NeGS	National eHealth Guidelines and Standards
NEHC	National Eye Hospital Colombo
NeHR	National Electronic Health Record
NEQASH	National External Quality Assessment Scheme in Hematology
NFPP	National Family Planning Programme
NGO	Non-Governmental Organization
NHA	National Health Accounts
NHC	National Health Council
NHDC	National Health Development Committee
NHK	National Hospital, Kandy
NHP	National Health Policy
NHRC	National Health research Council
NHRD	National Hospital for Respiratory Diseases
NHSMP	National Health Strategic Master Plan 2016-2025
NHS	National Health Services
NHSL	National Hospital of Sri Lanka
NICM	National Institute of Cancer Maharagama
NIDP	International Institute for Population Studies
NILET	National Institute of Language Education and Training
NIMH	National Institute of Mental Health
NINDT	National Institute of Nephrology and Dialysis Trans-plantation
NIP	National Immunization Programme
NISS	National Injury Surveillance
NITAG	National Immunization Technical Advisory Group
NMCW	National Mosquito Control Week
NMMR	National Maternal Mortality Reviews
NMRA	National Medicine Regulatory Authority
NMHP	National Migration Health Policy
NMQAL	National Medicinal Quality Assurance Laboratory
NNMR	Neonatal Mortality Rate
NPTCCD	National Programme for Tuberculosis Control & Chest Diseases
NSACP	National STD and AIDS Control Programme
NSE	National Secretariat for Elders
NSFPCD	National Strategic Framework on Palliative Care Development
NSP	National Strategic Plan
NTS	Nurses Training School
NVQ	National Vocational Qualification
NYHS	National Youth Health Survey
OAE	Oto Acoustic Emission
OCP	Oral Contraceptive Pills
OGTT	Oral glucose tolerance test
OMF	Oral and maxillofacial
OOPE	Out-of-pocket Expendature
OPD	Outpatient Department
OphT	Ophthalmic Technologists
OPMD	Oral Potentially Malignant Disorders
OPV	Oral Polio Vaccine
OT	Occupational Therapist
PACS	Picture Archiving Communication System
PAMS	Psychological and psychiatric causes of Mental Suicides
PCCS	Palliative Care Consult Services
PCNL	Percutaneous Nephrolithotomy
PCR	Polymerase Chain Reaction
PCTF	Palliative and end-of-life care
PDHA	Pre-Departure Migration Health Assessment
PDHS	Provincial Director of Health Services
PENTA	Pentavalent Vaccine
PET	Positron Emergency Tomography
PGH	Provincial General Hospital
PGIM	Post Graduate Institute of Medicine
PHC	Primary Healthcare
PHDT	Plantation Human Development Trust
PHI	Public Health Inspector
PHM	Public Health Midwife
PHN	Personal Health Number
PHNO	Public Health Nursing Officer
PHNS	Public Health Nursing Sister
PHSRC	Private Health Sector Regulatory Council
PHSD	Private Health Sector Development
PHSWT	Plantation Housing & Social Welfare Trust
PMCI	Primary Medical Care Institutions
PMCU	Primary Medical Care Units
PMDT	Programmatic Management of Drug Resistant Tuberculosis
POCT	Point of Care Testing
PPIE	Public Involvement and Engagement
PR	Pulmonary Rehabilitation
PrEP	Pre-Exposure Prophylaxis
PRS	Pulmonary Rehabilitation Service
PSM	Professions Supplementary to Medicine
PSSP	Primary Care System Strengthening Project

ABBREVIATIONS

PT	Physio Therapist
PTA	Pure Tone Auduiometry
PWS	Psychiatric Social workers
QMO	Quality Medical Officers
QMS	Quality Management System
QMU	Quality Management Unit
RDHS	Regional Director of Health Services
RE	Regional Epidemiologist
RHMIS	Reproductive Health Management Information System
RPCs	Regional Plantation Companies
RT_PCR	Reverse transcription polymerase chain reaction
SAARC	South Asian Association for Regional Cooperation
SB	Stillbirth
SBCC	Social Behavior Change Communication
SDC	School Dental Clinics
SCM	Supply Chain Management
SDG	Sustainable Development Goals
SDGC	Sustainable Development Council
SDT	School Dental Therapists
SEM	Sport and Exercise Medicine
SHA	System of Health Accounts
SHS	Superintendent of Health Services
SJGH	Sri Jayawardenepura General Hospital
SKS	Saukya Karya Sahakara
SLAEB	Sri Lanka Atomic Energy Board
SLBFE	Sri Lanka Bureau of Foreign Employment
SLCEP	Sri Lanka College of Emergency Physicians
SLESP	Sri Lanka Essential Health Package
SLMA	Sri Lanka Medical Association
SLMC	Sri Lanka Medical Council
SLSPC	Sri Lanka State Plantations Corporation
SLT	Speech and Language Therapists
SMCC	Special Mosquito Control Campaigns
SMS	Short Message System
SOP	Standard Operational Procedure
SOR	Scheme of Recruitment
SPC	State Pharmaceutical Corporation
SPHI	Supervising Public Health Inspectors
SPHM	Supervising Public Health Midwives
SPMC	State Pharmaceutical Manufacturing Corporation
SSB	sugar-sweetened beverages
STD	Sexually Transmitted Disease
STEMI	ST Elevation Myocardial Infection
STEPS	Stepwise approach to Surveillance
STI	Sexually Transmitted Infection
SWML	Scheduled Waste Management License
TB	Tuberculosis
TCS	Tertiary Care Services
TFR	Total Fertility Rate
TH	Teaching Hospital
ToR	Terms of References
TOT	Training of Trainers
Total CPR	current Contraceptive use of any method
TSH	Thyroid Stimulating Hormone
TT	Tetanus Toxoid
TURBT	Transurethral Resection of Bladder Tumor
TURP	Transurethral Resection of the Prostate
UDA	Urban Development Authority
UDHR	Universal Declaration of Human Rights
UHC	Universal Health Coverage
UMN	unmet need
UN	United Nations
UNCRC	UN Convention on the Rights of the Child
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Sexual and Reproductive Health Agency
UNICEF	United Nations International Children's Emergency Fund
UNODA	United Nations Office for Disarmament Affairs
USAID	United States Agency for International Development
VDRL	Venereal Disease Research Laboratory
VPD	Vaccine Preventable Diseases
VR	Vitreoretinal
WASH	Waste, Water, sanitation & Hygiene
WBTi	World Breastfeeding Trends initiative
WCB	Women and Children Bureau
WHO	World Health Organization
WWC	Well Woman Clinic
WWP	Well Women Programme
YLD	Years Lost due to Disability
YLL	Years of Life Lost

Introduction

Country Profile

Sri Lanka is an island situated immediately below the southern part of India. It has a rich cultural heritage which dates back to almost 2500 years. Sri Lanka gained independence in 1948 from the British Colonial rule. In 2020, the estimated total population was 21.9 million and the annual population growth rate was 0.53 per cent during the year 2020, which added around 116,000 persons during 2020 to the total population, due to natural increase (MoH.,2020)

It is an ethnically, linguistically and religiously diverse nation comprising of Sinhalese (75%), Sri Lankan Tamils (15%) and Sri Lankan Moors (9%). The religious distribution is as follows: Buddhism is followed by 70.2% and 12.6% Hinduism, 9.7% identify as Islam, 6.1% Roman Catholic, 13% Christians (*Department of Census* & Statistics(DC&S., *2011*).

Sri Lanka adopts a democratic political system. The President of Sri Lanka is the head of state, the commander in chief of the armed forces, and is elected by the people. The President, under the constitution and laws, appoints and heads a cabinet of ministers responsible to Parliament. A separate cabinet minister is appointed for health services. For administrative purposes, Sri Lanka is divided into 9 provinces and 25 districts. The Provincial Council system was introduced in 1987 by the 13th Amendment to the Constitution of the Democratic Socialist Republic, hence, each province is administered by a Provincial Council which is composed by representatives directly elected by people of the respective province and is headed by a Governor who is nominated by the central Government (Government of Democratic Republic of Sri Lanka., 1978).

Sri Lanka graduated to lower Middle Income Country (LMIC) status in 2010 following the end of nearly three decades of civil war and the country's Human Development indicators reflect high human development with a value of 0.782, in 2021, positioning Sri Lanka at 73 out of 188 countries. (UNDP., 2021).

Successive governments of Sri Lanka have provided free education, free health services with near universal coverage, gender equality, adoption of welfare orientated policies and programmes to achieve high levels of social and health development. The attainment by Sri Lanka of a high Human Development Index (HDI=0.78) with a life expectancy at birth of 78.6 years for females and 72 years for males and a literacy rate of over 95.7%, is a success story to celebrate for a developing country(DC&S., 2011). Further, by 2020, the maternal mortality rate was lowered to 30.4 per 100,000 live births and infant mortality to 7.5per 1000 live births. The life expectancy has increased, particularly raising the average life span to 78.6 years for females (MoH: 2020). These figures placed Sri Lanka proudly among the top five Asian countries. Gender equality is a fundamental right as enshrined in the Constitution of Sri Lanka and girls and women have equal access to the benefits of state education, social and health policies (Government of Democratic Republic of Sri Lanka., 1978)

The governments of Sri Lanka, used several strategies such as high political commitment, free education, universal access to health through a non-fee levying preventive and curative healthcare delivery system, evidence based health intervention, strong social welfare measures for meeting the basic needs of people such as agricultural credit, food subsidies, free school meals, free maternal nutrition package to achieve these remarkable indices. Heavy investments towards the free of charge healthcare system have resulted in access to equality and quality care. Consistent prioritization and investment in basic healthcare and in critical elements of maternal healthcare at a relatively low cost had had its impact.

The health system in Sri Lanka: History

The formalized health system was established during the pre-independence era, by the British colonial rulers and in 1949, the Government of Ceylon appointed Dr J.H.L. Cumpstone, former Director General of Health services of Australia to look into the working of the Health Department and advice on reforms and improvements to the health sector. Based on the recommendations of the Cumpstone report (1950) the Health Services Act No 12 of 1952 was enacted. According to the section 2. (1) of the Act, the Department of Health was established and according to the section 3.(1), the head of the department was appointed from the medical profession with the designation of Director of Health Services. The Director of Health Services should be supported by three Deputy Directors, each to be in charge of Medical Services, Public Health Services and Laboratory Services (Jones.,2020).

In 1953 , the Director of Health Services - Dr. D. L. J. Kahawita, took a decisive step to bring about changes to establish a close liaison of the curative and preventive sectors to counter diseases through research and community action in keeping with national health policies and principles adopted by developed countries. His argument was that, with this activity there will be an associated increasing recognition of the broader implication of the terms “environmental health” and “occupational health”. Under the terms of an Act, a central administrative structure was established, comprising of a Director, three Deputy Directors and five other officers to advise the Director with the support of a health council, as Cumpston had suggested. The Director Health Services was principally responsible for coordination and advice for overall health (Jones.2020).

In 1954, fifteen administrative health districts were established under the Superintendent of Health Services (SHS) in Sri Lanka. The SHS was also responsible for the supervision and of administration and harmonization of the curative and preventive services at sub-divisional level to improve healthcare delivery. By 1956 it was observed the main obstacles in the health sector were the lack of coordination with other government departments that had an impact on health, in particular, those which were responsible for housing and environment. In addition, the reluctance of the medical profession to serve and take leadership in prevention services was an added problem. These issues were addressed by improving the attitude towards preventive medicine through changes in the medical curriculum in the 1950s and 1960s. The absence of a National Health Policy was noted for 40 years (from 1952 to 1992) (Jones.2020).

A noteworthy, intervention was the introduction of Family Planning services in Sri Lanka in 1953. The “Family Planning Association” of Sri Lanka (FPASL) which is a non-governmental organization, took the first step in this endeavor and together with a financial from the GoSL inaugurated the first family planning clinic of FPASL on the 2nd of September in 1953 at the De Zoysa Maternity Hospital in Colombo. In 1965, family planning was accepted as a part of the national programme, and its service components were integrated into the Maternal and Child Health (MCH) services. In 1968, the Maternal and Child Health (MCH) Bureau was established in the Ministry of Health, to oversee the maternal and child health and family planning services in the country.

Based on the findings of a survey conducted in 1971 by a WHO consultant and expert consultations on the country health needs, the first Five Year Health Plan of Sri Lanka, 1972–76 was developed giving priority for preventive services and highlighted specific preventive measures, such as improved immunization services, aggressive health education, control of nutritional anemia in pregnant mothers, construction of rural water supply and sanitation schemes, and the adoption of a population policy. Primary healthcare system was gradually improved during the 1970s. It was further improved when Sri Lanka signed the Alma-Ata Declaration in 1978 to improve the primary health care system with the theme of “Health for all” (Jones.2020).

The first ever drafted National Health Policy of Sri Lanka was formulated in 1992. The said health policy had identified many policy issues pertaining to health issues at that point in time. Unfortunately, some of those identified issues are still prevailing even after three decades, and the health sector has yet to identify sustainable new strategies to overcome those issues identified in the health policy of 1992. A situation analysis of the health sector was conducted with assistance from Japan International Cooperation Agency (JICA) in 2003 and the National Health Master Plan (2007 to 2016) was developed.

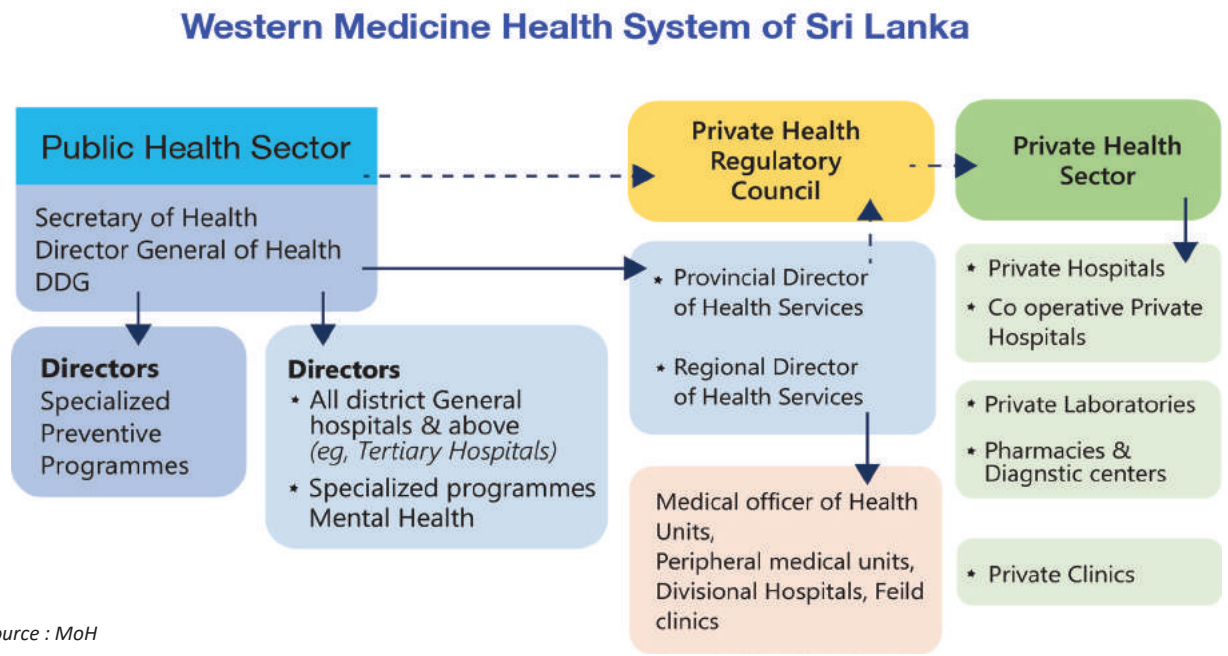
The main legal Framework for health services of Sri Lanka was the Sri Lanka Health Services Act 12 of 1952, with revisions in 1956 and 1962. The Medical Service Minute of Sri Lanka No. 662/11 gazette in 1991 and amended in 2001, 2014 and 2016 is applicable to medical consultants and medical officers employed in the Ministry of Health.

National Health System as of 2022

The Sri Lankan healthcare comprises of different systems of medicine; Western, Ayurveda, Unani, Siddha, Homeopathy and Acupuncture. Out of these, Western or Allopathic medicine is the leading sector catering to the needs of the majority. Western medicine is provided through both public and private sectors, but the share of care is different for inpatients and outpatients.

The health services are under a Cabinet Minister appointed by the President. The Ministry of Health, (MoH), also referred to as the line ministry, is the apex body at the central government level responsible for managing and developing the country's health sector. The line ministry has authority over policy-making and strategic planning, health legislation, infrastructure development, human resource development and deployment, national health procurements, financial management, health sector monitoring and evaluation and is responsible for regulating both public and private provision of healthcare. Following the 13th amendment to the constitution, health became a partially devolved subject and preventive services, primary and a significant share of secondary levels of curative care came under the nine Provincial Ministries and the Ministry of Health manages all the public health programmes, the teaching hospitals, tertiary care hospitals and selected secondary level hospitals (www.health.gov.lk).

The central government apex body is the Ministry of Health, and it is responsible for managing and developing the country's health sector. The Ministry of Health is primarily responsible for provision of western healthcare in the public sector. The main responsibilities of the central ministry are: policy development, planning, financial management, technical guidance, health sector monitoring and evaluation and regulating both public and private provision of healthcare. The Secretary to the Ministry of Health is appointed by the President on the recommendation of the Minister of Health. An Additional Secretary (Public Health) and Additional Secretary (Medical services) are subsequently appointed. The Director General Health Services (DGHS) is the head of the Department of Health and is ably assisted by 17 Deputy Director Generals of Health Services. Provincial health authorities are responsible for regional level preventive and curative management. The health sector of the Provincial Council is headed by the Provincial Director of Health Services (PDHS) and is supported by the Regional Director/s of Health Services (RDHS). The Directors of specialized preventive programmes and hospital directors, PDHS, RDHS have to report to the respective DDGs, DGHS, Additional Secretary and Secretary Health.



Source : MoH

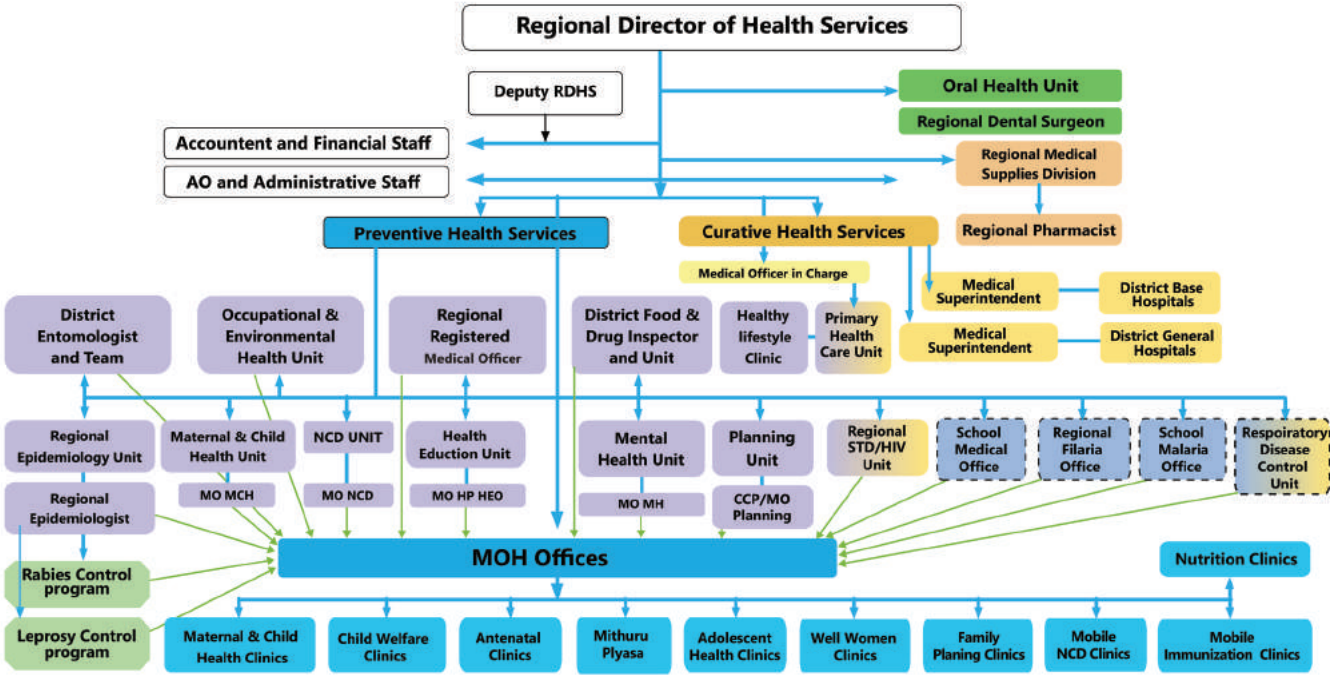
Figure 01: Public Sector -Western Medicine health administrative system, Sri Lanka

Sri Lanka has a wide network of healthcare institutions which provides promotive, preventive, curative and rehabilitation services reaching to the grass root level. Curative sector provides both out- patient and in-patient care. Bulk of in-patient care is provided by the public sector with a safety net to citizens.

Preventive care delivery system

The preventive health services for the public are provided mainly through the provincial and regional level via the Medical Offices of Health (MOH). The MOH is responsible for a catchment area of 60,000-100,000 people in the grass root level and consisted of 346 MOH areas in the country. MOH reports to the respective PDHS and RDHS. Four of MOH units are managed by the Municipal Councils and the others are managed by the provincial health authorities.

A MOH unit consists of a preventive and primary health care team, led by a trained Medical Officer, and assisted by Public Health Nursing Sisters (PHNSs), Supervising Public Health Midwives (SPHMs), Supervising Public Health Inspectors (SPHIs), Public Health Inspectors (PHIs), Public Health Midwives (PHM) and other supporting team. The MOH also provides technical assistance to the smaller curative care institutions in the area and other local bodies in the area. The Medical Officer of Health units provide a range of services relevant to communicable and non-communicable diseases including the antenatal, natal, and postnatal care, family planning, well women services, immunization, nutrition services, communicable disease prevention, school health, and environmental & occupational preventive services.



Source : MoH

Figure 02: District Level Western Medicine health administrative system

Curative services delivery system

The provision of curative healthcare from the public health sector is carried out through a network of hospitals which consist of Teaching Hospitals, Provincial General Hospitals, District General Hospitals, Base Hospitals, Divisional Hospitals and Primary Medical Care Units. In the private sector, there are three main groups of providers: hospitals, clinics and diagnostic services.

Table 01: Different categories of Medical Care Institutions-2020

Type of hospitals	Number
National Hospitals	02
Teaching Hospitals	09
Specialized Hospitals	15
Provincial General Hospitals	02
District General Hospitals	20
Base Hospitals Type A	28
Base Hospitals Type B	52
Divisional Hospitals Type A	77
Divisional Hospitals Type B	139
Divisional Hospitals Type C	259
Medical Officer of Health units	358

Source: Secretary of Health circular no. 01-18/2020 on 3rd March 2020

The total bed strength in the government sector was 86,974 giving a bed strength of 4.0 beds per 1000 population in 2020. There is a specialized hospital for infectious diseases and there are a few specialized teaching hospitals for the treatment of chronic communicable and non-communicable diseases, such as tuberculosis, leprosy, cancer, mental illnesses, etc. The public sector model offers free services at all levels of healthcare. The public sector delivers 90% of in-patient care, and out-patient care is delivered more equally between the public and private health sector (MoH., 2019). Over 7 million hospitalizations and over 58 million outpatient visits occurred in 2019 in the public sector. Out Patients Department attendance

in government sector hospitals was 2,696.2 per 1,000 Population in 2019. The total government hospital first time clinic visits were 6,757,308, and the total clinic visits were 31,545,497 in 2019. The majority of clinic visits were for medical clinics, followed by dental , gynaecology and obstetrics, eye, diabetic and surgical clinics.

The utilization of hospitals has been decreased during 2020 due to COVID 19 epidemic. Over 5 million hospitalizations and 38 million outpatient visits occurred in 2020 in the public sector. Outpatient Department attendance in the government sector hospitals was 1,775 per 1000 population in 2020. The total government hospital first-time clinic visits were 5,040,026 and the total clinic visits were 23,402,668 in 2020. According to the Annual Health Bulletin 2020, Outpatient attendance was affected by the COVID – 19 pandemic and the ratio of OPD attendance per 1000 population has declined by nearly 34 per cent from 2019 to 2020. It was the lowest ratio reported for the last 50 years.

Table 02: Utilization of public hospitals during year 2019 and 2020

Indicator	2019	2020	Reduction % during 2020
Total Hospitalizations	7,477,860	5,788,147	22.60%
OPD visits in the Government sector	58,784,912	38,912,622	33.81%
Outpatient Department attendance in the government sector hospitals			
per 1000 population	2,696.2	1,775	34.17%
First-time clinic visits in Government Hospitals	6,757,308	5,040,026	25.41%
Total clinic visits in Government Hospitals	31,545,497	23,40 2,668	25.81%

Source – Annual Health Bulletin 2019 & 2020

Overall Bed Occupancy Rate of public health sector of Sri Lanka was 61.08, 61.23, 48.44 in Sri Lanka during the year 2018, 2019 & 2020, respectively, and the Overall Bed Turn Over Rate was 93.06, 97.58, 77.27 in Sri Lanka during the year 2018, 2019 & 2020, respectively. Both Bed Occupancy Rate and Bed Turnover Rate have severely decreased during year 2020 due to COVID 19 epidemic situation.

Table 03: The average duration of hospital stay, Bed Occupancy Rate and Bed Turnover Rate of different hospital categories of public health sector during the year 2019 & 2020

Type of institution	The average duration of hospital stay		Bed Occupancy Rate		Bed Turnover Rate	
Teaching Hospitals	2019	2020	2019	2020	2019	2020
Provincial General Hospitals	2.94	2.85	73.04	58.25	93.00	74.31
District General Hospitals	2.81	2.97	69.84	52.47	92.94	64.28
Base Hospitals - Type A	2.13	2.10	68.78	56.31	119.87	97.40
Base Hospitals - Type B	1.93	1.96	71.15	54.98	136.72	102.30
Divisional Hospitals (Type-A)	2.02	1.81	64.21	46.50	117.84	93.66
Divisional Hospitals (Type-B)	1.62	1.62	27.23	27.23	61.28	61.28
Divisional Hospitals (Type-C)	1.55	1.55	26.33	26.33	61.88	61.88
	1.43	1.43	26.30	26.30	67.32	67.32

Source: Annual Health Bulletin 2019 &2020

Sri Lankan health system has recorded impressive achievements in health by implementing high impact but low cost evidence based interventions. Reasons for such achievements could be the strong focus on preventive and public health services delivered by a robust network of preventive healthcare units named Medical Officer of Health (MOH) and easy access to non-fee levying, public financed, three tiered (primary medical care institutions, secondary and tertiary hospitals) curative care services coupled with a commitment to implement welfare orientated policies and programmes which resulted in high standards in health and social development including education. Public health services and public education are provided free of charge to all citizens in the country.

The public health sector consists of institutions that are funded by national and sub-national government budgets. The private health contribution to the health sector is significant. Government health expenditure as a percent of GNP was 1.68% in 2020 (lower than previous allocations) and Government health expenditure as a percent of total government expenditure was 5.63% (MoH., 2020)

The current maternal mortality ratio is recorded as 30.2 per 100,000 live births by the Family Health Bureau and is well below that of countries with similar levels of per capita income. Infant mortality rate is around 7.5 per 1,000 births, fertility is near replacement level, under 5 mortality rate is 9 per 1000 live births and the low birth weight rate per 1000 live births in government hospitals was 15.8 in year 2020. Provision of free healthcare at the point of delivery and free education have contributed to achieving many remarkable health and social indicators, and the Sri Lankan healthcare system has been identified as a low-cost high impact one. This would be further complemented through the Universal Healthcare Policy in the country. The World Health Organization (WHO) declared Sri Lanka as polio-free in 2014, having eliminated Leprosy in 1995, Malaria in 2016, Lymphatic Filariasis in 2016, Measles in 2019, Rubella and Congenital Rubella Syndrome in 2020 and Mother-to-Child transmission of HIV and Syphilis in 2020. The vaccine preventable diseases are well controlled (e.g. Pertussis, Diphtheria, Japanese Encephalitis, and Tetanus) and it was observed that significant reduction in food and water-borne disease such as dysentery, typhoid and hepatitis leading to zero mortality. The curative sector has also shown many achievements including managing epidemics and carrying out advanced surgeries up to organ transplantation level. With all the above remarkable achievements in the health sector, non-communicable diseases have become the leading causes of pre-mature mortality and disability in the country.

However, since Sri Lanka is at the stage of a demographic, epidemiological and economic transition, country preparedness is vital to face the challenges of the aging population, non-communicable diseases, and degenerative diseases in adults such as heart diseases, cerebro-vascular diseases and diabetes and adult and childhood cancers. The population of Sri Lanka is ageing progressively. The population of those 65 years and over has increased from 3.7% in 1970 to 10.8% in 2019, while those 80 years and over has increased from 0.5% to 1.6% during the same period (MoH., 2020: World Bank. 2020). An important feature of this process is its feminization, as indicated by the higher life expectancy at birth for females (78.6 years) compared to males (71.9 years). Population projections (standard) suggest that the share of the population 60 years and over will reach 16.3% by 2022 and 23% by 2024. By the year 2052, one in every four persons will be 60 years or over. This amounts to an addition of 4 million old-age persons during the period 2012–2052 (De Silva and De Silva., 2015). Adding to these challenges are the health issues of the unpredictable COVID 19 disease pandemics and those due to the current economic crisis in the country such as malnutrition among children, iron deficiency anemia among pregnant and lactating women and being prepared for future humanitarian and disease epidemics.

In this backdrop, Sri Lanka needs to take steps to revisit the National Health Policy to sustain the hard earned social and health indicators especially in the context of the economic down turn the country is currently experiencing due to fiscal mismanagement over the years, political instability and insults of the COVID-19 pandemic.

Introduction to the National Health Policy 2016-2025

The first ever National Health Policy (NHP) of Sri Lanka was published in 1996. After 20 years, on completion of an extensive situation analysis it was replaced with an updated National Health Policy 2016-2025. The vision of the NHP is to achieve a healthier nation that contributes to its economic, social, mental and spiritual development. The current NHP is developed assuring patient and people centered health, assuring universal health coverage, and assuring patients' rights and social justice. It has seven broad strategies, and under each strategy, there are a total of 85 sub strategies.

The National Health Policy (NHP) was complemented by the National Strategic Framework for Development of Health Services 2016 – 2025, and its broad strategic areas provide the road map on how goals and objectives are to be achieved in the NHP. Subsequently, the National Health Strategic Master Plan 2016-2025 (NHSMP) with a sub-sectoral profile was developed to complement the NHP and National Strategic Framework for Development of Health Services 2016 – 2025. It covered many new areas which were not addressed before such as renal diseases, estate health, nutrition, stroke centers, cath labs, cataract surgery, cardiac-bypass surgery.

It spells out how objectives are to be achieved, time frame to work and the responsible institutions. It has four main domain areas and consists of: I - Preventive Services, II - Curative Services, III - Rehabilitative Services, IV - Health Administration & HRH, as shown below.

Source: NHP 2016-2025

Figure 03: The seven broad strategies of the National Health Policy 2016 -2025

In September 2015, Sri Lanka as a Member State of the United Nations adopted a plan for achieving a better future for all-laying out a path over the next 15 years to end poverty, fight inequality and injustice and protect our planet. At the heart of the "Agenda 2030" are the 17 Sustainable Development Goals (SDGs) which are based on the principle of "leaving no one behind". Through the National Health Strategic Master Plan 2016-2025, the GoSL commits to achieve people centered healthcare as expressed in universal health coverage which is embedded in SDGs : equity of distribution of services to all patients living in all areas in the country, accessibility to health facilities by every patient, quality of service provided to each patient and financial protection of all patients. The Ministry of Health will work together with

the full engagement of other relevant government ministries, private health sector, business community, civil society and international partners, to ensure universal health coverage while protecting and fulfilling the rights of all people in Sri Lanka, particularly those from vulnerable and marginalized groups.

Justification

A regular systematic review of the National Health policy is an important part of the health system development of the country to provide evidence on the effectiveness and efficiency of the implementation of the current policy directions, how and in what settings these interventions work and its cost-effectiveness, and the impact it has made to improve the quality of services which in turn would improve the quality of life of the end-user: the patient. Further, to learn the existing gaps, reasons for the work undone and use the generated evidence to improve on-going routine work as well as in emergency contexts and epidemics for revision of policy or procedures, future policy development to improve effectiveness of health sector professionals and the implementing organization. Systematic health policy reviews also inform other policy areas: legal, education, social welfare, environment, etc. Bottom line, regular monitoring and evaluation of national health policies, strategies and plans are essential as a core function in health governance. It helps to learn whether the policies and procedures are outdated or not, the reasons why some policy directions are not providing the desired effect and what should be done differently. A policy review will also help the Ministry of Health to introduce revisions, reforms and be up to date based on new innovations, latest guidelines for public health interventions and clinical management, latest regulations and technology, as well as be consistent with the health related best practices.

The Ministry of Health has a Results Based Monitoring and Evaluation Plan with relevant indicators to track performance outcomes and impact of interventions. A comprehensive monitoring and evaluation process for the public health programmes in the preventive sector (maternal care, child health care, vaccine preventable communicable diseases, control of HIV/AIDS, malaria, tuberculosis, leprosy, filariasis, rabies, etc..) has been established. The respective preventive health directorates conduct M&E of their activities and identify the strengths and intensify such activities and take steps to mitigate weaknesses. Yet, a comprehensive policy review has not been done to synthesize data to develop the holistic performance of the public health sector in the country and identify gaps. Although preventive sector has a relevant routine data flow, there are some gaps in the curative and rehabilitative sectors. Some of the data need to be collected from special surveys as well as routine national surveys such as the Demographic and Health Survey (DHS) conducted from time to time. In emergency situations such as the COVID 19 pandemic, the Ministry of Health developed a National Strategic Plan and a National M& E plan. Further, Sri Lanka is committed to achieve SDG related targets and it is the duty of the MoH to ensure health related data on different goals are available to construct the given indicators. Although some of the curative data is received by the Medical Statistics Unit, a detailed break-down of the curative sector data according to the ICD classification is still lacking (e.g., no. of cataract surgery in the country). A systematic review of policies and procedures will throw light in identifying gaps in the routine data flow of the curative sector from the grass-root level to the central level. Further to that, Directorate of Healthcare Quality & Safety (DHQS) also receives certain quality related data and indicator data from institutions above Base Hospitals at quarterly/ bi-annual performance reviews. A common platform to synthesize data of the curative health system is needed. It is the responsibility of the Directorate of

Policy Analysis & Development to carry out the overall review process for the National Health Policy and Health Master Plan 2016-2025. This includes the monitoring of performance indicators, strengths and gaps, and make recommendations to strengthen the existing National Health Policy which will be ending by 2025. The results of the review will be used to inform policy decisions and produce guidance for health systems in routine as well as in emergency situations for the balance period of the NHP and make recommendations for policy reforms and for the new NHP which will be commencing from 2026. It is also their responsibility to demonstrate results and accountability including value for money spent by the Ministry of Health.

General Objectives:

To review the National Health Policy 2016-2025 to identify the content of the policy, implementation strengths & gaps, and its impacts for achieving the highest attainable health among Sri Lankans.

Specific Objectives:

- To review the Policy content of the National Health Policy 2016-2025 in relevance to the policy development , content, and implementation of the policy
- To identify the implementation strengths & challenges of the National Health Policy 2016-2025.
- To identify the impact of the National Health Policy 2016-2025
- To identify the strengths and gaps of a centrally led monitoring database for the health system of Sri Lanka.
- To make recommendations to strengthen the existing National Health Policy 2016-2025 and to make recommendations for the National Health Policy starting from 2026.

Although routine monitoring and evaluation of some health programmes were done by the respective focal point, a total review of the current NHP has not been done up to date. It is important to carry out a review to identify the achievements, implementation gaps, and challenges, for planning for future directions to achieve the vision and mission of the Ministry of Health based on the centrally led impact indicators. When implementing the NHP and NHMP, there are many strengths that can be identified and further promoted to improve the health sector performance to improve the health of the people. In addition to that, implementation gaps and weaknesses due to different reasons can be identified with current, new and future health problems.

The time was appropriate for the Directorate of Policy Analysis & Development to carry out this review to gather valuable data to strengthen the existing National Health Policy, to identify innovative strategies and priority actions and assessing key attributes of the M&E platform and selection of key core indicators especially those which would enable reporting on international needs such as SDGs and make recommendations for the new National Health Policy which will be commencing from 2026, to identify the areas of new strategies and to give recommendations for a centrally led monitoring system. Also, this will be a situational assessment for the new national and sectoral policy development. Once the evaluation is concluded, the results would be analyzed to determine the effectiveness of the evaluation and the results of the process need to be conveyed to policy stakeholders.

2 Methodology of the Policy Review

2.1 Establishment of a Policy review team

Director General of Health Services has given permission to the conduct this policy review under the supervision of the Deputy Director General of Planning. Team leader was the Director, Policy Analysis and Development and eight other reviewers were involved in this task.

2.2 Time period

This policy review was conducted during the period of March 2022 to December 2022.

2.3 Literature review

A systematic literature review was conducted using many resources related to policy development, policy implementation, policy monitoring and evaluation, and policy analysis in the global, regional and local context to develop the methodology for the policy review. Electronic databases such as PubMed and Google Scholar were searched using the following MeSH terms: "Policy development, Policy monitoring, Policy evaluation, Policy analysis, Policy review,". Manual search for relevant literature was done with the support of the experts in the field, and citations from the identified literature were also searched. The desk review also included national level research articles, special survey reports, annual health bulletins, annual reports of directorates, DHS, reports of Census and Statistics, M&E indicators for the Sri Lanka health sector, and the literature relevant to the strategies of the NHP. The review team developed the methodology for the review of the NHP 2016-2025.

2.4 Methodology of the Review of the National Health Policy 2016-2025

The protocol for the National Health Policy 2016-2025 review was guided by World Health Organization and Center for Disease Control (CDC) publications listed below and other relevant documents, in consultation with policy experts.

1. Monitoring, evaluation and review of national health policies, strategies and plans in 2016
2. Monitoring, evaluation and review of national health strategies: A country led platform for information and accountability 2011
3. Policy evaluation series 1-7 issued by the Centers for Disease Control and Prevention (WHO., 2011, WHO., 2016 & CDC series- 1-7., n.d)

The Directorate of Policy Analysis & Development obtained the administrative clearance from the Director General of Health Services (DGHS) to carry out this review and it was informed to the relevant stakeholders(DGHS). Utility, feasibility, propriety and accuracy were considered during the National Health Policy review.

The first step was to map out a process to carry out this review. The methodology decided by the expert team is listed below:

- Conducted a desk review of the global and national health status, health determinants, national policies of directorates, holistic functions of the national health system and the National Health Performance Framework of 2015-2018, organization structures and management of different directorates.

- Developed objectives for the review, data collection tools, data collection technique and analysis.

- Conducted the review based on three domains

- A mixed method with an integrated approach will be used for the review. The fully integrated approach includes project design, objectives of the review and the analysis of the project. The present review adopted a flexible integrated approach. Although the project team of the Ministry of Health conducted this review, experts from other ministries were involved in developing the objectives, data collection tools and data collection methods and analysis.

- Conducted a series of expert consultations with policy experts, evaluation experts, subject matter experts, implementers and the World Health Organization for planning & budgeting, developing of the evaluation plan, guiding the team in selecting evaluation questions and design, addressing data collection issues, compiling results, facilitating discussion about interpretation of results, and preparing of the final evaluation report.

- Quantitative and qualitative data were collected. The policy review process was done through a management structure consisting of the stakeholder consultations and four thematic groups (Preventive, Curative, Rehabilitation and Administration & Human Resource) under the seven strategic directions of the NHP. There were 85 sub strategies under these seven broad strategic directions.

2.3 Methodology - Main Components of the National Health Policy Review

This review had three main components.
A mixed methodology was used, and the following are the three main domains of the methodology:

1. Evaluation of the policy content
2. Evaluation of the policy implementation
3. Evaluation of the policy Impact

Data collection tools (questionnaires) were developed to gather data on the above three domains.

2.3.1 Component 1- Evaluation of the policy content

Questions were formulated to explore the NHP development process, stakeholder involvement and structure of the policy. The purpose was to find out whether the content clearly articulated the goals of the policy, its implementation, underlying logic for why the policy will produce intended change and monitoring and evaluation of the policy with relevant responsibilities. Also, this assessed how the situation analysis was done for developing the National Health Policy 2016-2025 and engagement of relevant stakeholders (including development partners, trade unions) and public consultations. The guiding questions for the policy content evaluation is attached in Annex 1.

2.3.2 Component 2- Evaluation of the Policy implementation

It was carried out to determine whether the policy directions were implemented, strengths & challenges/ gaps of the implementation and to obtain the views of the developmental partners, trade unions and the general public regarding the implementation process. The following consultations were held to collect the data in this regard.

1. Consultations with stakeholders who are involved in the policy implementation in the Ministry of Health
2. Consultations with top level administrators in both health and non-health sectors
3. Consultations with developmental partners
4. Consultations with Non-Governmental Organizations (NGOs) and Community Based organizations (CBOS)
5. Consultations with special health projects implementers
6. Consultations with professional Colleges and Associations
7. Consultations with the plantation sector

8. Consultations with the local pharmaceutical manufacturing sector
9. Consultations with the general public
10. Consultations with trade unions

2.3.3 Component 3 - Evaluation of the Policy Impact

A set of indicators were identified by the project team based on NHMP 2016-2025, and Health Performance Monitoring Framework 2015 & 2018, clinical indicators in all four major specialties 2017 and international reporting indicators including Sustainable Development Goals (SDGs) relevant to the four domains: preventive services, curative services, rehabilitation services and health administration and HRH. The majority of the indicators identified in the NHMP were complemented by the indicators identified in those documents. During the literature review, it was observed that some indicators have not been identified in some strategies of the NHMP- 2016-2025 and National Health Performance Framework published in 2018. There were a few impact indicators developed by the relevant directorates after 2016. The current review included all the impact indicators of the NHMP. However, it did not include some output indicators identified in the NHMP.

Data collection methods

The questionnaire (DGHs Letter number PA&D/04/2022 dated 09.03.2022) was sent (via post and online) to all the stakeholders of the Ministry of Health to collect data on the implementation of the NHP (Annex II). It included implementation strengths, gaps and weaknesses and the response rate was 70%. Results were incorporated to each of the relevant sub strategies. In addition to that "A Hospital Facility Survey" was conducted via electronic indoor morbidity and mortality register (e-IMMR) to identify the available facilities in Base and above hospitals (Annex 111). Results were incorporated in each of the relevant sub strategies.

it was decided to consult the relevant focal points of the directorates and finalize the indicators. All stakeholders were informed to identify the impact indicators as well as some of the structural outcome indicators for the period 2016-2021. The written lists of indicators were obtained from the relevant stakeholders. Online meetings with relevant directorates and units were arranged to finalize the list of indicators when clarifications were needed.

Data for indicators were gathered from the routine data gathering done by the relevant stakeholders, annual reports, official reports, national surveys, websites and special surveys. Some indicator values were collected retrospectively before 2015. The project team collected the indicator values from the national reports from 2015-2021 and from the national data sources which are conducted in certain time durations: STEP survey, Demographic & Health Survey, Annual Health Bulletin 2019 & 2020, Censes & Statistics Surveys, etc. It was observed that some of the indicator values were not available. All the gathered data were validated and triangulated. The final indicator list for the relevant directorate was finalized with the unit head and the experts in the field. Separate physical/virtual meetings, in depth interviews were held with several stakeholders relevant to some of the sub-strategies (consultation with plantation sector, consultation with the local manufacturing pharmaceutical sector, consultation with the health activists, NGO groups, CBOs, Consultant Community Physicians, Professional Colleges, Hospital Directors and individual experts).

Consultations with developmental partners were conducted via online discussions (WHO, World Bank, GFATM, JAICA, UNFPA, UNICEF and ADB). The objective was to assess the contribution for the current NHP and their understanding of the strengths and gaps of the 3 domains especially of the implementation from the Health Ministry side (Annex IV). A separate meeting was conducted for all top-level policy making officers to obtain their views. All the health related trade unions (Number-137) were informed to send their views on the implementation of the NHP 2016-2025. Different area-specific experts were

contacted separately to gather more local evidence under some sub strategies. The review considered the quality of data, long-term trends, contextual changes, and equity, and compared performance at national level whereever possible based on the data category.

All results gathered from these physical and online meetings and in depth interviews were analyzed and incorporated into each of the relevant strategies. A notice was published in the MoH website as well as in social media for the general public, to obtain their views regarding the implementation of the NHP (Annex IV).

The gathered evidence regarding the overview of existing situation regarding policy content, implementation and monitoring and evaluation were completed after conducting another four stakeholder consultation meetings on different days (Prevention component, Curative component, Rehabilitation Component and Administrative component) for both government & non health government sectors, health related professional Colleges, NGOs and CBOs.

2.3.4 Data analysis

Content analysis was used for the qualitative data sets of the review. Content analysis was used to analyze the in-depth interview findings and a narrative summary was presented.

Experiential Design was not applied because this was a national policy evaluation. The relevant statistics were applied, where necessary to find out whether there were true improvements of impact indicators or not during this period compared to the baseline. Some impact indicators were assessed using a regression model. Regression was applied, if sufficient number of data values were available. The impact evaluation relies on rigorous methods to determine the changes in outcomes which can be attributed to a specific intervention based on analysis. The Annual Average Percentage Change (AAPC) was measured to identify the annual trends of the relevant indicator over time. Join-point regression analysis was used to identify the significant percentage change over time in some indicators. The significance of the change was identified via p value with 95% confidence interval, and a p value less than 0.05 was taken as a significant value. Structural indicators were identified separately and progress was reported. Forecasting for year 2030 was done for three SGD indicators by using R version 4.1.0 (2021-05-18). However, it has some limitations due to non-consideration of confounders. The results of the review will enable Programme Directors / Heads of the institutions to strengthen the existing interventions or new interventions and to improve of the quality of the interventions.

2.4 Ethical and administrative clearance

Ethical principles were followed at each step during the review, in terms of no harm basis. Anonymity of the respondents was preserved by anonymity in the review report. No personal data was collected. The administrative clearance was assured at each and every stage, and overall approval was obtained from the Director General of Health Services.

RESULTS

Overview of population dynamics and social development situation in Sri Lanka

Sri Lanka records exceptionally good heath indicators and has many outstanding records on human development dimensions compared to many other countries in the region. Sri Lanka has one of the most literate populations amongst developing nations.

Sri Lankan Population

The estimated mid-year population of Sri Lanka for the year 2016 was 21.03 million, and it has risen to 22.15 million by the end of 2021. Over half of the population is concentrated in the Western, Central and Southern provinces, which jointly covers less than one fourth of the total land area of the country.

Table 04: Mid Year Population, Crude Birth Rate (CBR) per 1000 population, Crude Death Rate (CDR) per 1000 population, Annual Growth Rate (AGR), Life expectancy (LE) for both sexes & Dependency Ratio (DR) from 2015-2021

Year	Mid-Year Population	CBR per 1000 population	CDR per 1000 population	Annual Population Growth Rate %	Life Expectancy for both sexes	Total Dependency Ratio
2015	20,970,000	16.6	6.3	0.94	78.31	49.4
2016	21,203,000	15.6	6.2	1.13	76.48	49.4
2017	21,444,000	15.2	6.5	1.14	76.64	49.4
2018	21,670,000	15.1	6.4	1.05	76.81	49.4
2019	21,803,000	14.6	6.7	0.62	76.97	49.4
2020	21,919,000	13.8	6.0	0.53	77.00	49.4
2021	22,156,000	12.9	7.4	1.1		49.4
AAPC		-2.65*	-1.61	-12.69	+0.19*	

Source: Department of Census & Statistics, Registrar Generals' Department and World Bank

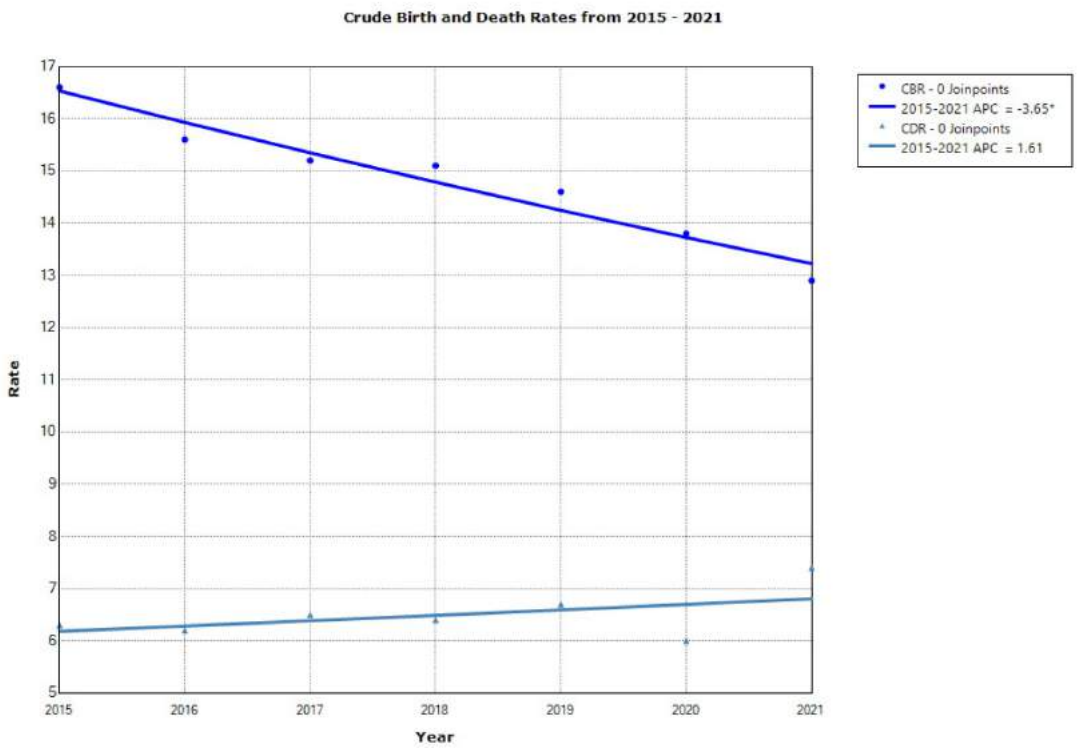


Figure 04: Trend analysis of the CBR and CDR of Sri Lanka from 2015-2021

The Joinpoint regression analysis observed that the Crude Birth Rate has significantly decreased from 2015 to 2021 with an annual percent change of CBR -3.65. Total death rate has no significant decrease.

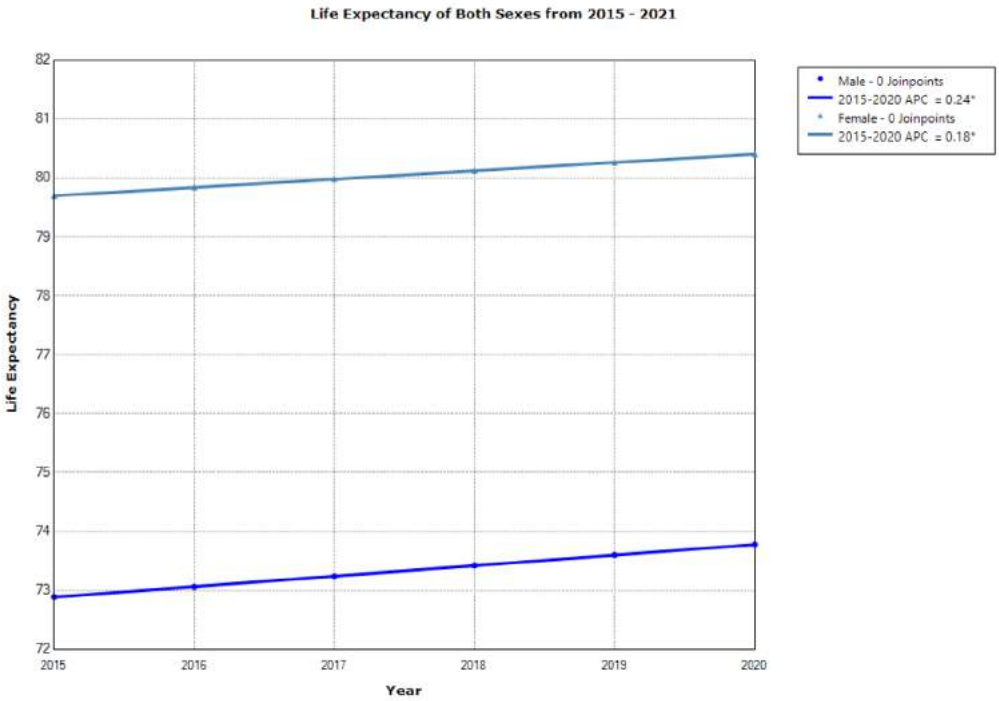
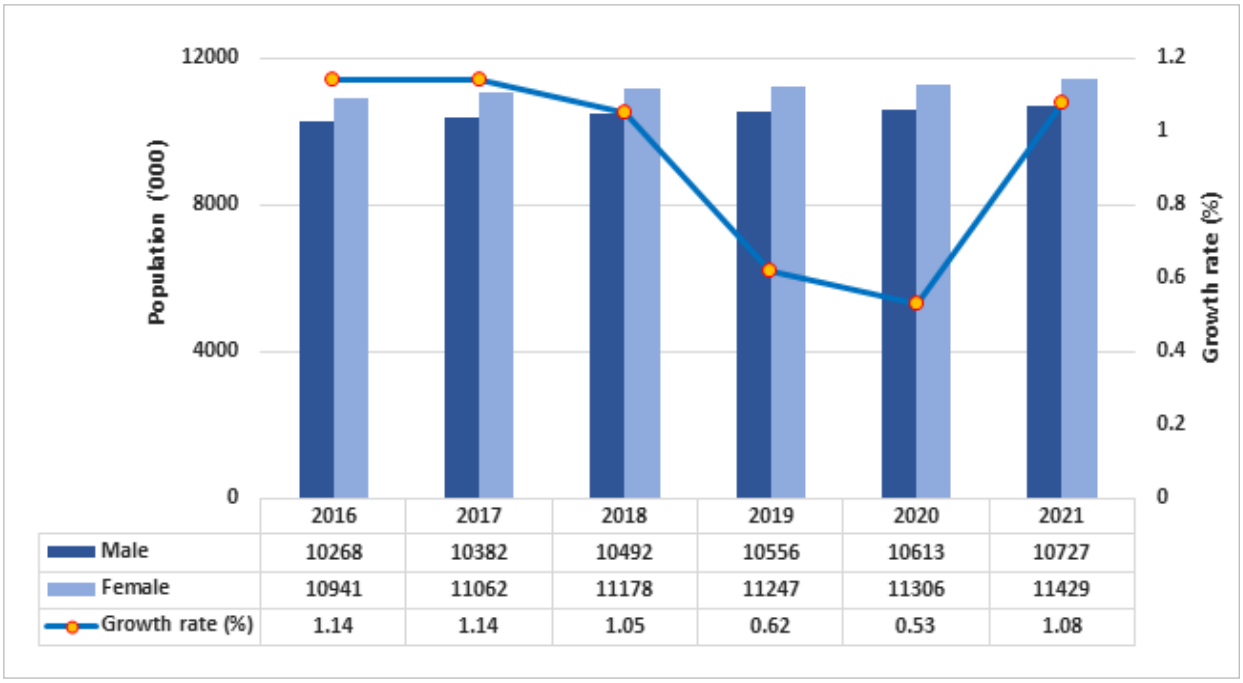


Figure 05:Trend analysis of Life Expectancy of Sri Lanka from 2015-2021

Life expectancy of both males and females showed a statistically significant increase from 2015 to 2021 with an annual percent change of +0.19.



	2016	2017	2018	2019	2020	2021
Male	10268	10382	10492	10556	10613	10727
Female	10941	11062	11178	11247	11306	11429
Growth rate (%)	1.14	1.14	1.05	0.62	0.53	1.08

Source- Census & Statistics Department 2022

Figure 06: Male and female annual population growth rate of Sri Lanka from 2015-2021

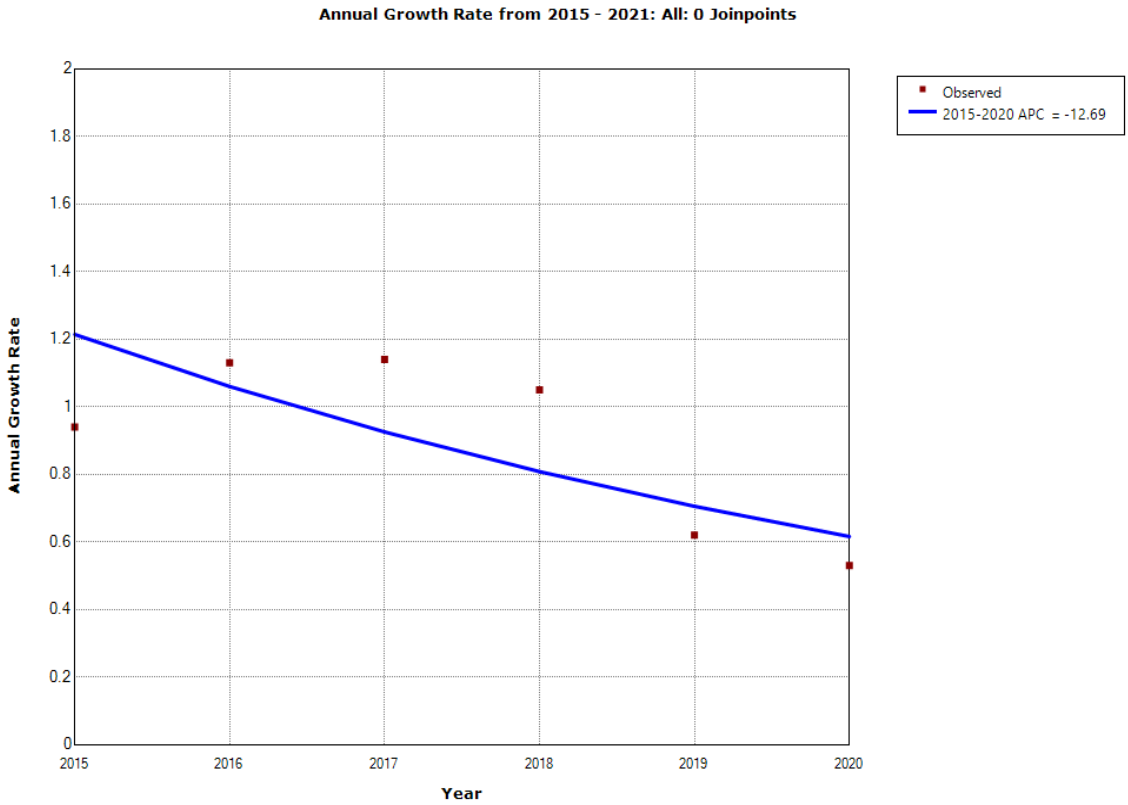
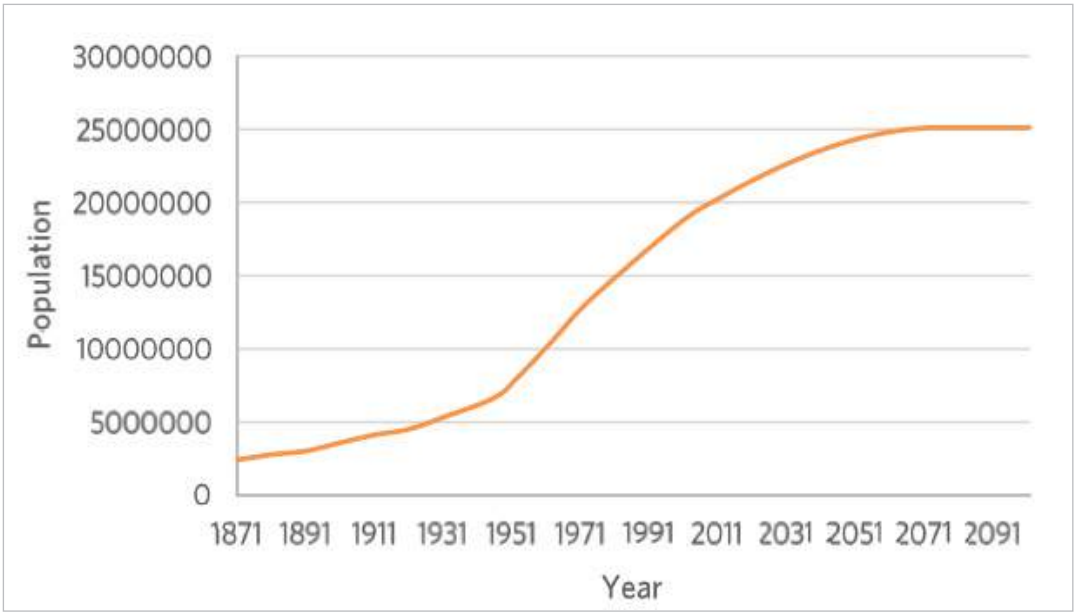


Figure 07: Trend analysis of the annual population growth rate of Sri Lanka from 2015-2021

The Joinpoint regression analysis observed that the Annual Population Growth Rate has not significantly decreased from 2015 to 2021.

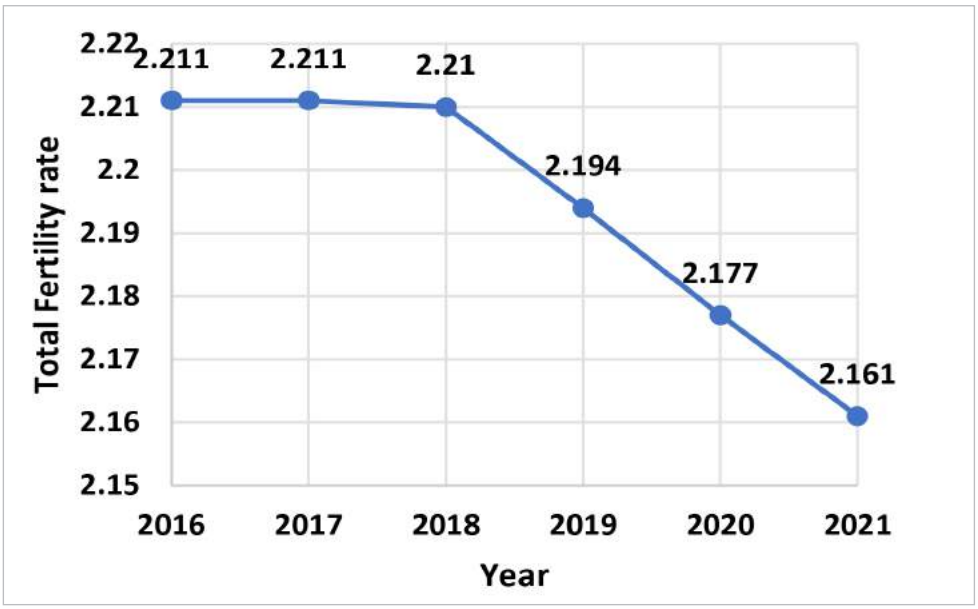


Source: UNFPA 2017

Figure 08: Predicted Future Population, Sri Lanka, from 1871-2021

Total Fertility Rate

The Total Fertility Rate (TFR) of a population is the average number of children that would be born to a woman over her lifetime if she was to experience the exact current age-specific fertility rates (ASFRs) through her lifetime, if she was to live from birth until the end of her reproductive life. In Sri Lanka, TFR was observed to have reduced from 2.21 to 2.1 from year 2016 to 2021, respectively.



Source- Census & Statistics Department 2022

Figure 09 : Total Fertility Rate from year 2016 to 2021 in Sri Lanka

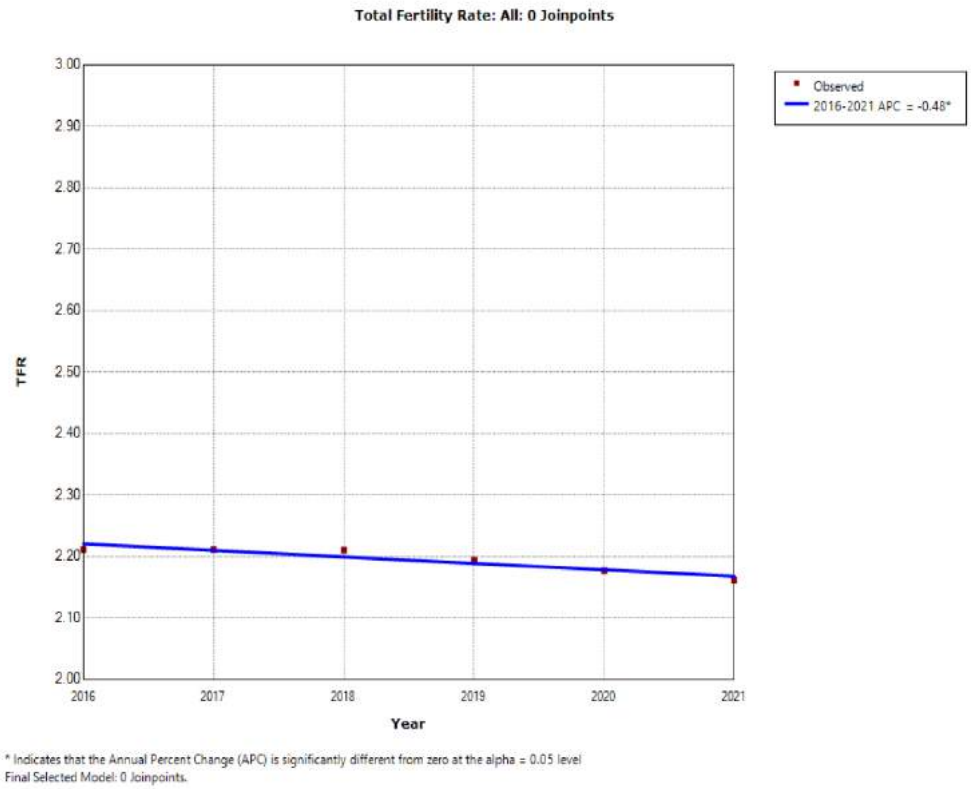
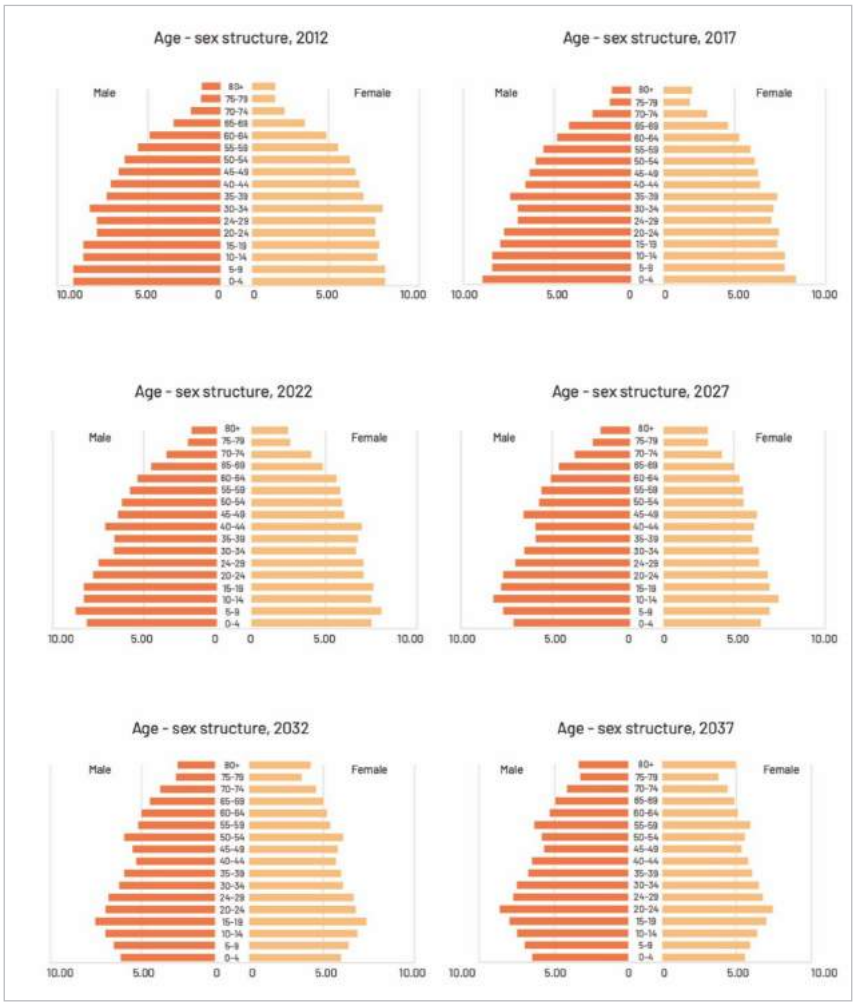


Figure 10: Trend analysis total Fertility Rate from year 2016 to 2021 in Sri Lanka

The Joinpoint regression analysis observed that the TFR decreased significantly from 2015 to 2021, with an annual percent change of -48. In Sri Lanka, TFR was declining for decades, but the decline during the period from 2015 to 2021 was statistically significant.

Projected Age-sex structure of Sri Lanka



Source UNFPA 2020

Figure 11: Projected Age-sex structure of the Sri Lankan Population, 2012-2037

Sri Lanka is the first developing country to achieve below-replacement level fertility and is well advanced in its demographic and epidemiological transition. Demographic transition in Sri Lanka started quite early compared to the other low-income countries. As a result of low fertility rates and high life expectancy, the current demographic trends in Sri Lanka include a declining number of births, increasing ageing population and an increasing working age population. As quoted by Prof. Indralal de Silva in one of his articles, "the decline of fertility commenced in Sri Lanka in the 1960's. It was largely due to the population planning drives of the government of Sri Lanka and to other socio-economic transitions that had taken place. The Total Fertility Rate (TFR) had reached the replacement level of 2.1 live births for women aged 15 - 49 years in 1994. Dramatic decline in mortality had been experienced by Sri Lanka in the post-World War II period, and longevity of life of both males and females had increased. Expansion of health services, female education, better distribution of food supplies and general improvements of the economy of the country had been contributory factors for a steady decline in the levels of mortality".

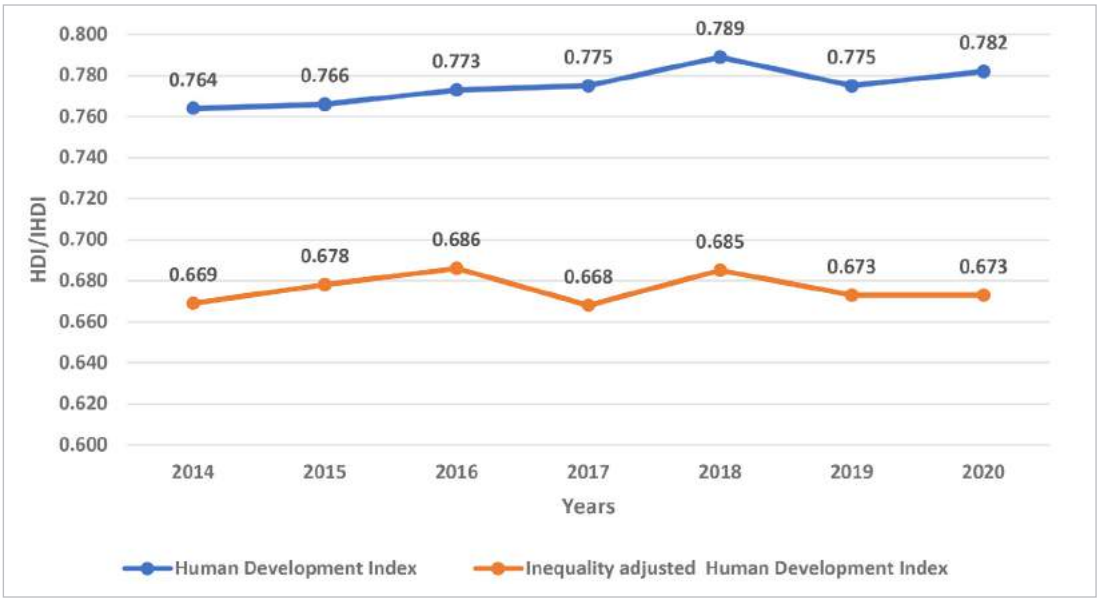
Sri Lanka has a unique window of opportunity to take advantage of the high share of working age population for the country's socio-economic progress. According to Prof. W. Indralal de Silva, the age structure transition in Sri Lanka has produced a demographic dividend during the period from year 1991 to 2017. This is conducive for an economic takeoff, since during this period, the proportion of the working age population (aged 15 - 59 years) is significantly larger than the proportion of dependents. He cautioned that the dividend wouldn't last long since the elderly dependency is increasing rapidly, and hence, this opportunity had to be used immediately. As a whole, a drastic reduction with respect to demographic indicators such as crude birth rate, crude death rate, fertility rate, maternal mortality rate,

infant mortality rate and child death rate had been recorded within the past four decades. According to standard projections done by Dissanayake (2016), the number of children below 15 years of age declined from 5.13 million in 2012 to 4.41 million in 2037, which is a 14% decrease during the 25-year projection period. The proportion of children below 15 years of age was 25.2% in 2012 while it will be 19.1% in 2037. Percentage changes in the child population below 15 years of age coincide mainly with fertility changes observed during the 2012 to 2017 it is the result of stability observed in the TFR till 2017 and thereafter the decline of fertility to replacement level in 2022. A decline below the replacement level is reflected in the percentage change of the child population from 2022 to 2037. From a policy perspective, there needs to be a greater attention to provide more facilities in the education sphere until 2022 as the child population shows growth and stability during the period from 2012 to 2022. However, the pressure on resources will be relieved after 2022 with a significant decline in the child population.

Human Development

The Human Development Index (HDI) is an average measure of basic human development achievements in a country. The HDI was increased from 0.764 in year 2014 to 0.782 in year 2020 in Sri Lanka and it shows progress. Sri Lanka ranks at the 72nd position in the Human Development Index out of 189 countries in 2020. This value for all developed countries, is above 0.8. The Universal Health Coverage (UHC) index for Sri Lanka was 67 in 2019. The UHC Index includes four components of service coverage of: 1. Reproductive, maternal, new born and child health 2. Infectious diseases 3. Non-communicable diseases 4. Service capacity and access. Sri Lanka is currently categorized as a lower middle-income country (LMIC) and the Gross Domestic Product (GDP) per capita in 2020 was US$3,682. The health spending of Sri Lanka as a share of GDP is relatively low by regional standards and is currently constrained by the very low level of overall government revenues. Out-of-pocket (OOP) spending accounts for about 45.64% of the total health expenditure in 2019 and the global figure was less than half of the Sri Lankan figure in 2019.

The 'Inequality Adjusted Human Development Index' (IHDI) is calculated adjusting the 'loss' in human development based on the inequality in all social determinants. This is ranging from 0.669 in 2014 to 0.673 in 2020 in Sri Lanka. This is a dramatic decline compared to the HDI. This means that inequalities in development are getting wider in Sri Lanka. In the developed world, there is not much of a difference between HDI & IHDI. Inequality is significantly associated with the health of a person, education and per capita income levels and affects the Human Development Index.



Source: UNDP 2022

Figure 12: Human Development Index and Inequality Adjusted Human Development Index in Sri Lanka from 2014 to 2020

The Labour Force Survey conducted in 2019 by the Department of Census and Statistics revealed that the labour force participation rate (LFPR) was 52.3% in Sri Lanka. It was 73.0% & 34.5% for men and women, respectively, out of the 8.6 million economically active population. About 8.2 million persons were employed in 2019, out of which about 5.4 million (65.6%) were males and 2.8 million (34.4%) were females. These indicators show that women are in a disadvantaged position. The survey also revealed that about 42.1% of people were self-employed while 78.9% of women were contributing as family workers. Further, the unemployment rate reported for the year 2019 was 4.8% at the national level. The unemployment rate for females (7.4%) was more than two times higher than that of the male unemployment rate (3.3%). This figure was higher among youth, and their unemployment rate was 26.8% in 2020.

Gender Inequality Index

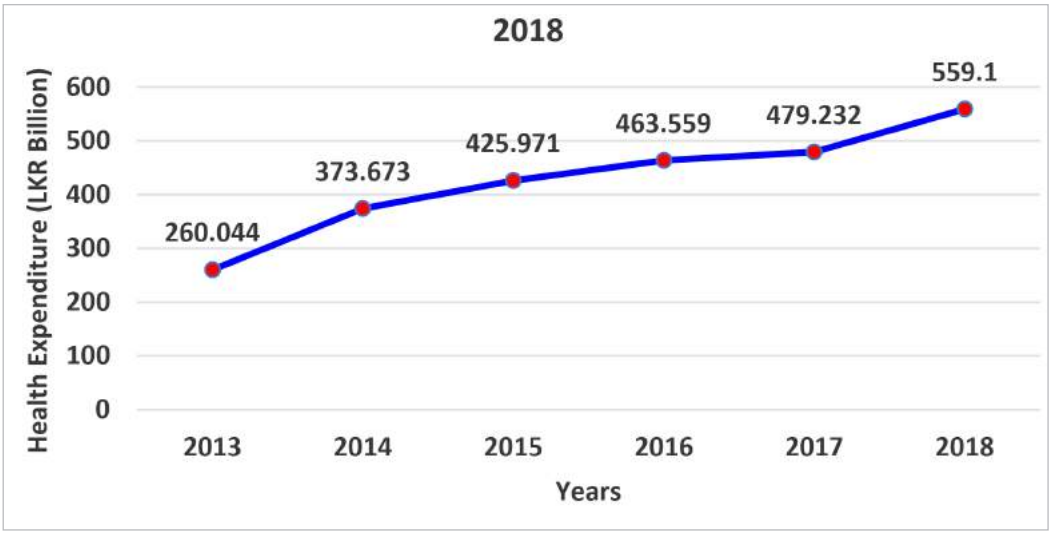
Gender Inequality Index is the inequality between women and men in the three dimensions: reproductive health, empowerment (e.g., political participation & education), and labor market participation. Gender is one of the social determinants of health. It is embedded in other social determinants like education and poverty which influence health outcomes and access to health services. The Global Gender Gap Report of the World Economic Forum in 2021 showed that the Sri Lanka Gender Gap Index (GGI) holds the 116th position out of 156 countries in 2021. Sri Lanka dropped 14 places in the Global Gender Gap Report in 2021. The Gender Gap Index is calculated based on the data on economy, education, health & political empowerment. Share of women in Parliament is below 33% in South Asian countries including Sri Lanka. Although women constitute 52% of Sri Lanka's population, the female representation in parliament is about 5.3% in 2020. Higher mortalities are observed among males, while higher morbidity is observed in females in Sri Lanka. Social isolation and poverty in females are common in addition to the diseases at old age. Gender roles and masculine identities have led men to be more vulnerable to risk behaviours and seek access to less healthcare services. The Gender equity is at the cornerstone of Universal Health Coverage. The government should target to provide health services for all individuals and communities which need them, without suffering financial hardships by 2030 (World economic forum.,2021 : Global Gender Gap Report., 2021).

National Health Accounts

Sri Lanka is known as a country which has achieved remarkable health gains by spending relatively less on health. Multiple stakeholders are involved in financing the healthcare needs of Sri Lankans, including the Government, individual citizens (households), employers, insurance companies, and international donors.

Ministry of Health publishes National Health Accounts (NHA) for each year since 2013 following the guidelines given by the System of Health Accounts 2011 (SHA 2012), published by the World Health Organization (WHO). The analysis of data and preparing the report were facilitated by the Health Account Production Tool (HAPT), which is also a standard software developed by WHO. To date, Ministry has published National Health Accounts up to year 2018.

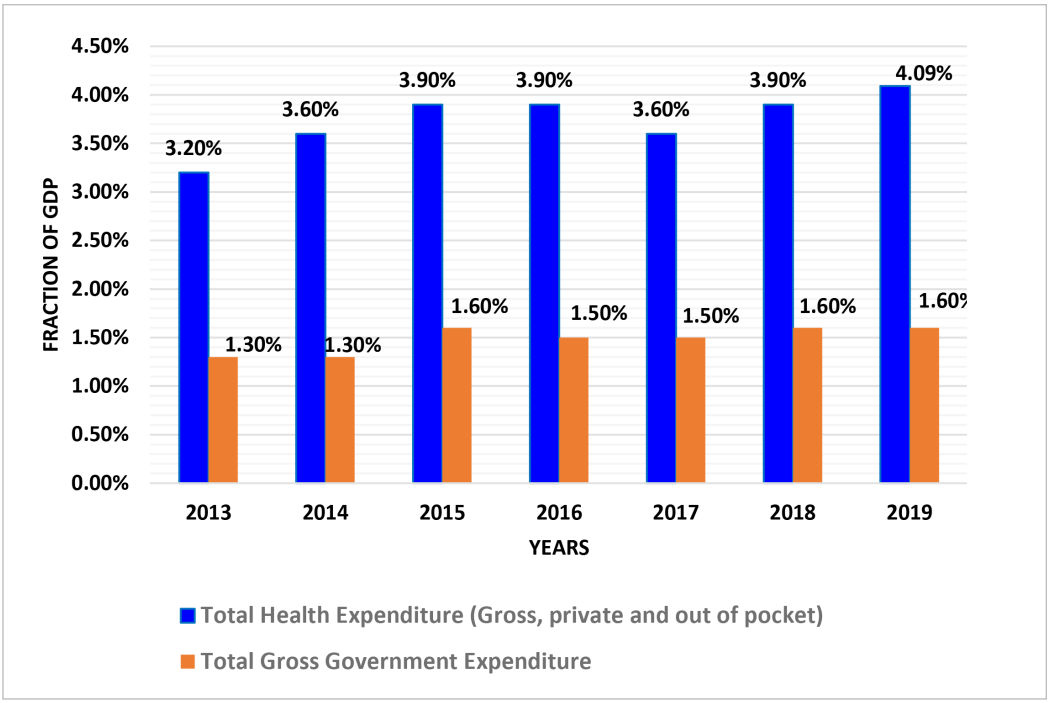
In 2013, Sri Lanka has invested LKR 21.11 billion as capital investments for health. This has been gradually increased to LKR 45.87 billion in 2016, and thereafter it has decreased to LKR 40.23 billion in 2018. In 2013, the total current health expenditure in Sri Lanka was 260.04 billion Sri Lankan Rupees (LKR). This gradually increased over time as shown in below and in 2018 it was doubled compared to 2013 (LKR 559.1 billion).



Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 13: Total current health expenditure in Sri Lanka from 2013-2018

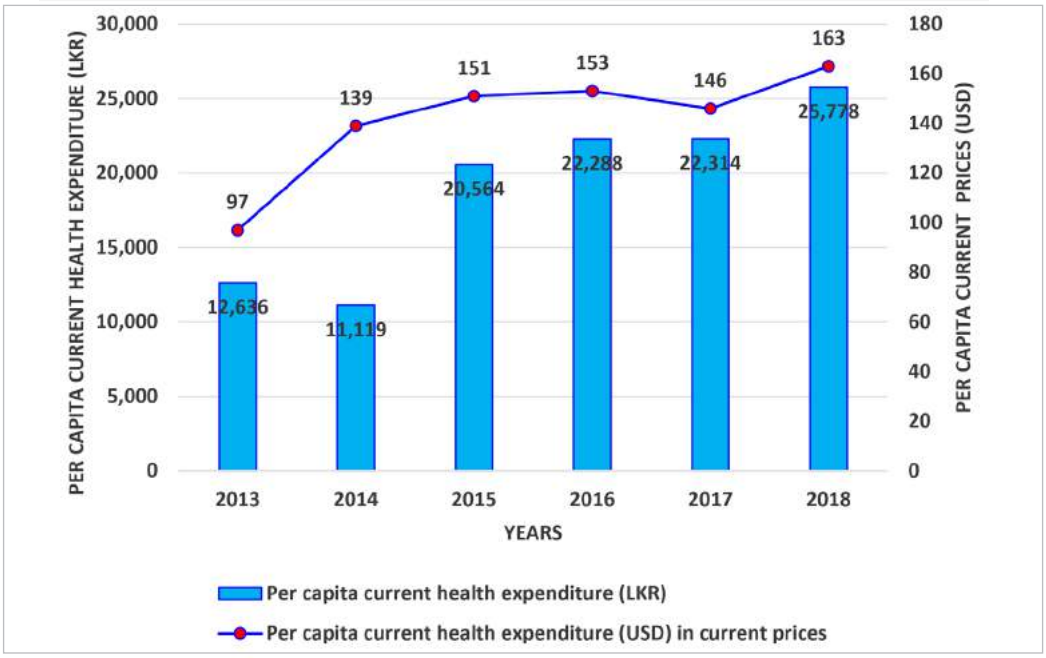
As shown in the below Table, the current health expenditure was in the range of 3.2% to 4.09% as a fraction of Gross Domestic Product (GDP) in the years 2013 to 2019.



Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 14 : Total Health Expenditure and Total Gross Government Health Expenditure as a Fraction of GDP from 2013 to 2019

The health expenditure in Sri Lanka per person was USD 97 in 2013, and it was increased to USD 163 per person in 2018. There was a dip in per capita health expenditure in 2017. Figure below shows the per capita current health expenditure in LKR and USD from 2013 to 2018.

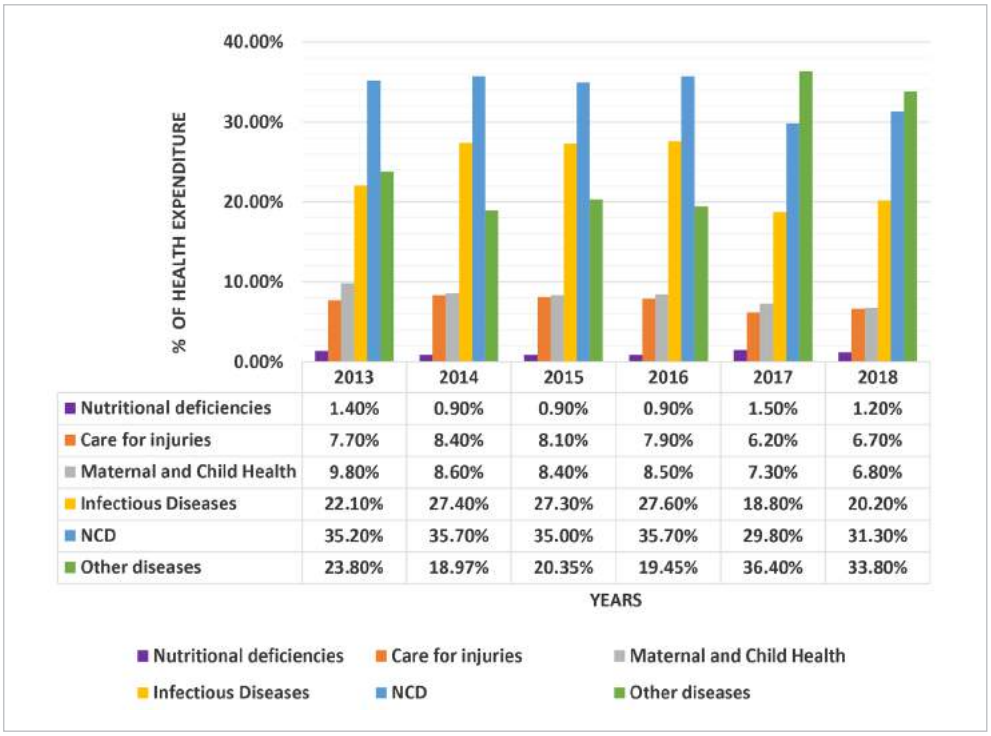


Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 15 : Per Capita Current Health Expenditure in Sri Lanka in Rupees & USD from 2013 to 2018

A noteworthy observation which should attract the attention of policy makers is that nearly three fourth of current health expenditure in Sri Lanka was spent on curative care. The expenditure on preventive care was ranging from 2.2% to 3.0%. The fraction of current health expenditure on primary care in 2018 was 40.0%.

Most of the health care expenditure in Sri Lanka was spent on non-communicable d iseases. This ranged from 29.8% to 35.7% in the years 2013 to 2018. Infectious diseases consumed 18.8% to 27.6% of health expenditure during the reported years. Expenditure of Maternal and Child Health services ranged from 6.8% to 9.8% out of total health expenditure. Care for injuries ranged from 6.2% to 8.4%. Nutritional deficiencies consumed nearly 1% in each year.



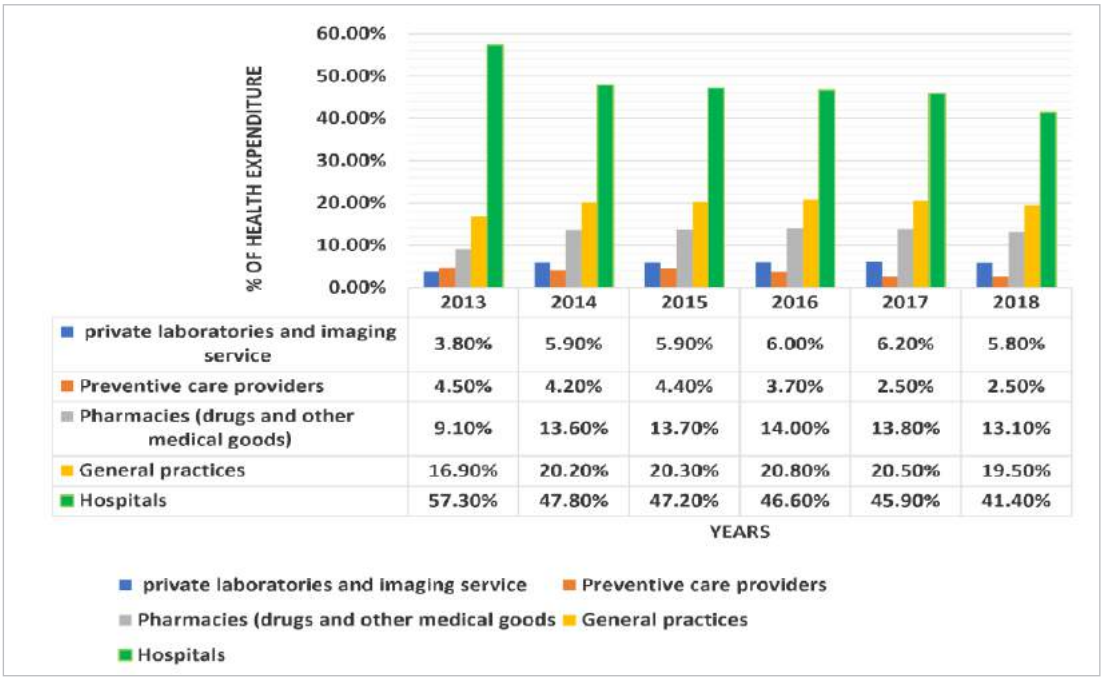
	2013	2014	2015	2016	2017	2018
Nutritional deficiencies	1.40%	0.90%	0.90%	0.90%	1.50%	1.20%
Care for injuries	7.70%	8.40%	8.10%	7.90%	6.20%	6.70%
Maternal and Child Health	9.80%	8.60%	8.40%	8.50%	7.30%	6.80%
Infectious Diseases	22.10%	27.40%	27.30%	27.60%	18.80%	20.20%
NCD	35.20%	35.70%	35.00%	35.70%	29.80%	31.30%
Other diseases	23.80%	18.97%	20.35%	19.45%	36.40%	33.80%

Data Source: National Health Accounts, Sri Lanka (2013-2018)

Figure 16: Disaggregation of current health expenditure by broad categories of diseases from 2013 - 2018

Majority of the health expenditure in Sri Lanka was incurred by hospitals. It ranged from 41.4% to

57.3% during the reported years of 2013-2018. General practices incurred nearly one fifth of the health expenditure. Pharmacies incurred 9.1% to 14.0% of health expenses. Private laboratories and imaging services incurred 3.8% to 6.2%. Expenditure on preventive care was less than 5%, and in the years 2017 and 2018 it was only 2.5% of total health expenditure.

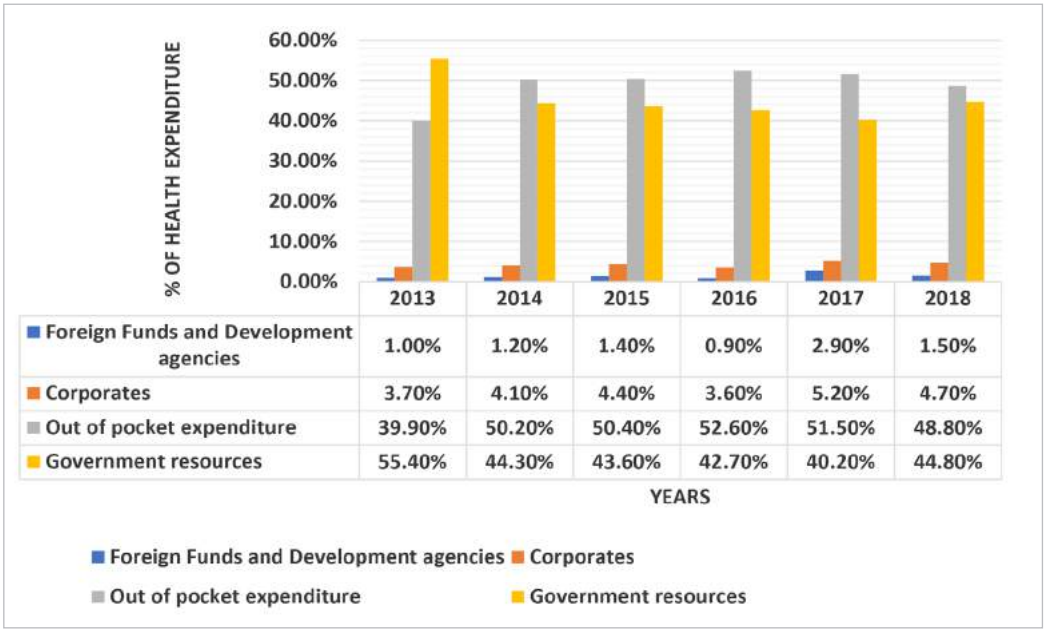


	2013	2014	2015	2016	2017	2018
private laboratories and imaging service	3.80%	5.90%	5.90%	6.00%	6.20%	5.80%
Preventive care providers	4.50%	4.20%	4.40%	3.70%	2.50%	2.50%
Pharmacies (drugs and other medical goods)	9.10%	13.60%	13.70%	14.00%	13.80%	13.10%
General practices	16.90%	20.20%	20.30%	20.80%	20.50%	19.50%
Hospitals	57.30%	47.80%	47.20%	46.60%	45.90%	41.40%

Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 17 : Current health expenditure by providers of healthcare in Sri Lanka

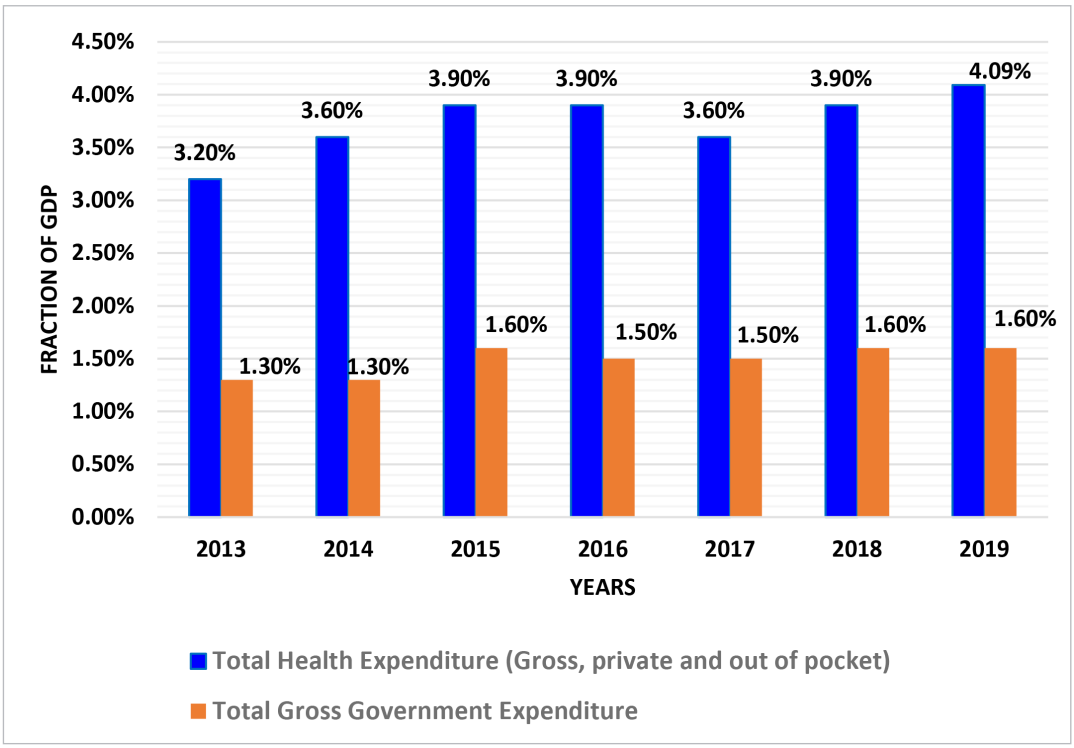
Out of pocket expenditure in health in Sri Lanka is around 50%. In 2013, it was 39.9% and by 2016, it had increased up to 52.6%. In the years 2017 and 2018 it had dropped and in 2018 it was 48.8%. Government expenditure in health in Sri Lanka in 2013, was 55.4%. From 2014 to 2018 it ranged from 42.7% to 44.8%. The contribution to health by the corporates in Sri Lanka ranged from 3.7% to 4.7%. Foreign governments and development agencies contributed to health in Sri Lanka from 0.9% to 2.9% during the reported years of 2013-2018. More details on current health expenditure by sources of funds is shown in below.



	2013	2014	2015	2016	2017	2018
Foreign Funds and Development agencies	1.00%	1.20%	1.40%	0.90%	2.90%	1.50%
Corporates	3.70%	4.10%	4.40%	3.60%	5.20%	4.70%
Out of pocket expenditure	39.90%	50.20%	50.40%	52.60%	51.50%	48.80%
Government resources	55.40%	44.30%	43.60%	42.70%	40.20%	44.80%

Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 18 : Current health expenditure in Sri Lanka by sources of funds



Data Source: National Health Accounts, Sri Lanka Year 2021

Figure 19 : Total Health Expenditure and Total Gross Health Expenditure as a Fraction of GDP from 2013 to 2019

The COVID-19 pandemic has been an enormous challenge to health services during 2020 and 2021. The Government of Sri Lanka has spent a total of LKR 117.5 billion in 2020 and LKR 53 billion from January to June for COVID 19 related activities. These expenses comprised of relief and livelihood support extended to affected families, expenses on mitigation measures such as quarantine facilities, and importation of vaccines.

Results Section 2 - Content Analysis

The vision, mission and strategic directions of the National Health Policy 2016-2025 were compared with the Ministry of Health vision, mission and objectives, all sectoral policies as well as the concept of UHC and the relevant health targets of Sustainable Development Goals. Alignment in the following domains were observed: patient and people centered health, considering the concept of universal health coverage (equitable access to services by all people, equitable distribution of services to all people, quality service to all people, financial protection of all patients), assuring people' rights and social justice towards attaining of the highest level of health status for all people living in Sri Lanka. The NHP ensured provision of all health services for the people in need without suffering financial hardship by 2030.

Further, the present NHP highlights the vision of a healthier nation that contributes to economic, social, mental and spiritual development of Sri Lanka through the provision of high quality and accessible promotive, preventive, curative and rehabilitative services to achieve the highest attainable health status by people. However, it does not include the sustainable fanatical strategies and health technology assessment directly.

The National Health Policy Sri Lanka (2026-2025) is also in line with the Sustainable Development Goals and its relevant health targets and principles to improve the quality of each person's life, leaving no one behind by 2030. Also, the NHP recognizes the need for working closely with other sectors to ensure better and sustainable health status through concurrent and consistent strategies that provide impact on the key social determinants of health in Sri Lanka.

The current NHP was developed through a wide range of stakeholder consultations displaying inclusiveness, considering available evidence and has followed all the key elements of the policy cycle. The core components and broad strategic directions of the National Health Policy have been supported by the National Health Strategic Master Plan 2016-2025. Implementation of the National Health Policy has been supported by the National Health Master Plan 2016-2025 in terms of the stakeholders' roles and responsibilities. It has been approved by the Cabinet of Ministers, Sri Lanka and has been disseminated among the relevant stakeholders. The Administration part of the NHSMP includes many new reforms in the health sector.

The sectoral policies which were developed before 2016 have been acknowledged by the current NHP and the ones which were developed after 2016 have been in alignment with the current NHP. The available sectoral policies (listed below) have aligned with the seven strategic directions of the NHP.

The current NHP does not have separate sub-strategies to address the internal medical care component, pediatric care component, forensic pathology, organ transplant, sports medicine, pathology and substance abuse disorders except tobacco and alcohol. However, some of these areas have been addressed in an indirect manner.

There are several strategic and activity plans relevant to each of the above policies which contribute in implementing the National Health Policy.

Table 05 : Available sectoral health policies in Sri Lanka at the end of 2021

Sectoral Health Policies	
1. Population and Reproductive Health Policy	15. National policy and strategic framework on prevention of injuries
2. National policy on maternal and child health	16. National policy and strategy on the health of the young persons
3. National immunization policy	17. National policy on alcohol control 2016
4. National policy and strategy on cleaner production for the health sector	18. National policy on health information
5.National policy and strategic framework for cancer prevention and control	19. The national policy and strategic framework for prevention and control of chronic non-communicable diseases 2010
6. National medicinal drugs policy for Sri Lanka	20. Policy on healthcare delivery for universal health coverage
7. National health promotion policy	21. National nutrition policy of Sri Lanka
8. National HIV-AIDS policy for Sri Lanka	22. The national occupational safety and health policy
9. National blood policy	23. Prison HIV prevention, treatment, and care policy
10. National policy and strategic framework for prevention and control of NCD	24. National elderly health policy of Sri Lanka
11. National health laboratory policy	25. Sri Lanka national migration health policy
12. Accident and emergency care policy of Sri Lanka	26. National Policy on Organ Tissue and Cell Transplantation 2021
13. National policy on healthcare quality and safety	27. National Mental Health Policy 2020 - 2030

Results according to the sub strategies are described in the next chapter

STRATEGY 1
STRENGTHEN SERVICE DELIVERY TO ACHIEVE PREVENTIVE HEALTH GOALS

Sub strategy 1.1 : To provide an equitable and efficient healthcare delivery system to improve Maternal Health Care including Family Planning, Child Healthcare, and School Health

Background

Maternal and child health (MCH) in Sri Lanka has a very long history, which dates back to the early 20th century. Over the years, MCH services evolved under the directions of several policies. The National Health Policy of 1992 followed by that of 1996, both identified maternal and child health as a priority concern. The evolution of the MCH services in Sri Lanka has been nurtured by a number of international health initiatives which include the Safe Motherhood Initiative launched in Nairobi in 1978, and the Reproductive health initiative following the International Conference on Population and Development (ICPD) in Cairo in 1994. Sri Lanka was committed to achieve the Millennium Development Goals and is now a signatory to the agenda 2030 of sustainable development to achieve the Sustainable Development Goals (SDGs). The well- organized health system and functions have contributed to Sri Lanka achieving remarkable health indices in South Asia namely low maternal mortality rate, low infant mortality rate, low under-5 mortality rate and almost all child births taking place in health institutions by skilled attendance. The Family Health Bureau (FHB) is the focal point for maternal and child health, family planning, school and adolescent health and gender and women's health programmes and reachs out to a large population through its Family Health Programme (FHP). Sri Lanka gives priority to the Family Health Programme as women who remain healthy during pregnancy and after birth are more likely to stay healthy later in life and have better birth outcomes, influencing children's health from infancy through to adulthood.

National policies and strategic directions relevant to maternal and child health

The National Maternal and Child Health Policy (2012) was developed by the Family Health Bureau and is the overarching policy which gives direction to the implementation of the Family Health Programme. The objective is improvement in the health status of women, children, and their families. The policy has 12 goals which encompass a wide range of care for maternal, newborn, infant, child and adolescents up to 18 years (including school children), focusing on pre-conception care, promoting antenatal care, delivery care and care during postpartum, family planning, reproductive health, gender and women's health and strategic information and management. The policy incorporates additional components such as prevention of NCDs and STD/HIV/AIDS, which have a bearing on maternal and child health. The FHB was cognizant of the fact that focusing on certain behavior patterns related to pregnancy, delivery and postpartum periods of women themselves and their families and the community was equally important to achieve positive maternal and infant outcomes. Thus, the maternal and child health programme was renamed as the Family Health Programme (FHP). The MCH policy however does not cover all aspects of reproductive health which is a much broader concept that extends beyond the childbearing years and covers all aspects relating to the reproductive system, its functions and processes.

There are several strategic and action plans which have been developed by the respective national programme managers, built upon the National MCH Policy and the National Health Policy. Although the current National Health Policy 2016-2025 and the National Health Development Plan were developed later, the policy directions and strategies related to reproductive, maternal, newborn, child and adult health (RMNCAH) harmonize with the MCH policy (2012).

The MCH policy implementation is facilitated by several key programmatic strategic plans of the Family Health Bureau. The Maternal and Newborn Health Strategic Plan (2017-2025) of Sri Lanka provides the backbone to implement these policies with the vision of ensuring "A country in which there are no preventable deaths of mothers, fetuses and newborns, where every pregnancy is planned and wanted, every birth is celebrated, and women, babies and children survive, thrive and reach their full potential". The other key documents are: National Strategic Plan on Child Health 2018–2025, National Strategic Plan on Adolescent and Youth Health 2018–2025, National Strategy for Infant and Young Child Feeding

2015–2020 and the National Strategic Plan for the Well-Woman Programme (2019-2023). In 1998, a Population and Reproductive Health Policy with eight goals was developed, out of which, six fall within the direct ambit of the MCH/FP services or the Family Health Programme. The National AIDS Policy (2011) recognizes the need to prevent mother-to-child transmission of HIV and syphilis by using the 4-prong strategy of prevention of HIV, early diagnosis of HIV among women, provision of treatment and care and support for women living with HIV and their families.

Central level administration of the Family Health Programme

The national focal point for the Family Health Programme is the Family Health Bureau of the Ministry of Health and it is under the guidance of the Director who reports to the Deputy Director General Public Health Services-II. The FHB is well structured to perform the central role in policy making and planning of services, advocacy, capacity building, logistics management and monitoring and evaluation of the implementation of several evidence-based essential service packages to suit all important life events throughout the life course of women. National Programme Managers are responsible for the main service components of maternal health, newborn health, child health, adolescent health, gender and women's health, family planning and strategic information management. Family programme viability, universal health coverage, quality and efficiency depend on a well-organized health system structure and functions and a committed workforce.

District level implementation

Over the years the Ministry of Health has been able to build a strong health system comprising of a network of preventive and curative services to deliver comprehensive healthcare throughout the life-cycle of women by district level field health teams of health units led by the Medical Officer of Health (MOH) and in hospital settings by clinicians, to reduce maternal and child morbidity and mortality and improve physical and mental wellbeing and quality of life.

The MOH area is the smallest health unit serving a population around 60,000 headed by a graduate medical officer designated as Medical Officer of Health (MOH). The MOH is assisted by a trained healthcare team who are visiting the field and also conducting facility-based services and consists of public health nursing sister (PHNS), public health inspector (PHI), and public health midwife (PHM) and supervising public health inspector (SPHI), supervising public health midwife (SPHM) who serve as supervising officers. Currently, the MCH programme has reached almost all eligible families in the country, forming a well-organized healthcare system network, with 356 MOH areas distributed in 25 Districts and 3645 island wide polyclinics providing MCH care. The health units form a large network across the country and have linkages to the respective curative health institutions (MoH., 2020).

Goal 1 of the MCH policy is the strongest pillar in the policy and as articulated in the policy, encompasses all life events of women to promote health of women and their partners to enter pregnancy in optimal health, and to maintain it throughout the life course. The FHB has developed several essential service packages (ESP) to provide basic care including pre-conception package, antenatal care package, delivery care package (including emergency obstetric care in life threatening situations), maternal post-partum care package and new-born care package.

The public health midwife (PHM) is the "front line" healthcare provider to pregnant women, providing domiciliary door-to-door care, which is supplemented by the care provided in clinic facilities at the MOH office and in hospital settings. The essential maternal healthcare package includes pre-conception care, antenatal care, identification of high-risk pregnancies, counselling for institutional birth, assist in home birth in an emergency, postnatal care including promotion of breastfeeding, counselling and care for post- partum depression, reproductive health including family planning, nutrition of pregnant and lactating women, mental healthcare, child health promotion, nutrition promotional and monitoring

activities. Environmental sanitation, occupational health, food sanitation, school health and control of communicable diseases are some of the other responsibilities of the unit. Coverage of the MCH programme for special groups such as urban populations, plantation workers, free trade zone workers, geographically difficult to reach groups, marginalized and vulnerable groups has been suboptimal.

Policy goal 1, permeates to the subsequent two goals directly (Goal 2): provision of quality care during pregnancy and delivery and post-partum care to ensure a safe outcome and (Goal 3): reduction of perinatal and neonatal morbidity and mortality through the provision of quality care. The majority of deliveries take place in hospital settings by skilled healthcare providers. This intervention is a major contributory factor for the reduction of maternal deaths. A vital step in lowering maternal and newborn mortality and morbidity in Sri Lanka is the availability and accessibility of an essential obstetric care (EOC) package, and an essential newborn care (ENBC) package, and emergency obstetric and newborn care (EmONC) to be delivered by trained medical personnel to respond to direct obstetric and newborn issues by an advanced newborn care (ANBC) package and availability and accessibility to an appropriate referral system for advanced maternal and newborn care (Care during intra-partum period is addressed in strategic direction 1.2). The FHP has reached this remarkable height due to the guidance provided by the central level and the responsiveness and accountability in providing quality maternal and child healthcare by district level implementers led by the respective Provincial Directors of Health Services, Regional Director of Health Services and the team including MO-MCH and the MOH and the public health team.

Human Resources

On average, one Public Health Midwife (PHM) is appointed for a population of 3000 based on a MoH decision. At the end of the 2017, the PHM rate per 100,000 populations was 26.8. The Public Health Inspector (PHI) is responsible for immunization, disease surveillance, school health, environmental health, water and sanitation and occupational health. At the end of 2017, the PHI rate per 100,000 population was 8, with 1720 PHIs in number (UNICEF., 2020).

In the curative sector, obstetric care and childcare are provided at the primary care as well as Base and above hospitals. The Obstetricians & Gynecologists and Pediatricians are based in Base and above hospitals. The Obstetricians and Gynecologists rate was 0.78 per 100,000 population in 2020, and 171 of them are working in the public sector hospitals. There are 209 Pediatricians working in the public sector, and the rate is 0.95 per 100,000 population at the end of 2020 (Annex VI). Human resource development and deployment of resources to cater to specific maternal, infant, child and adolescent care needs is a requirement to further enrich the positive health outcomes the country has achieved.

Monitoring & Evaluation

The MCH policy identifies the need to have an effective monitoring and evaluation system of the maternal and child health programme that would generate quality information to support decision making. In 2018, FHB was able to establish a well- functioning Strategic Information Management (SIM) system to generate information for decision making. The digital database of reproductive health management information system (RHMIS) captures the comprehensive information flow from the community to the MOH level, followed by the district level and the national level. However, it does not include private sector data, and data inputs from government hospitals (eIMMR system) is insufficient. The subject specific strategic plans of the FHB have identified a set of indicators for monitoring and evaluation of the different components as given in Goal 10 of the National Health Policy. However, the district level disparities in the MCH indicators exist for years. Disaggregated data should be used to inform and improve equitable healthcare programming and outcomes. This digital platform and the interoperability of the HMIS should be explored. The research data is being used as evidence for decision making (Goal 11).

Partnerships

The College of Obstetricians and Gynecologists, College of Pediatricians, College of Community Physicians , Perinatal Society of Sri Lanka and also developmental partners give strong partnership to improve the MCH services and increase the coverage.

Overall, the National MCH Policy is a comprehensive policy which encompasses all stages of the life course. The supporting national strategic plans of other areas such as child health, prevention of SGBV have detailed out the strategies and activities which help in achieving positive maternal and child outcomes. To move forward and achieve the set targets of SDG, a comprehensive external evaluation of the FHP is essential to highlight the gaps and make recommendations.

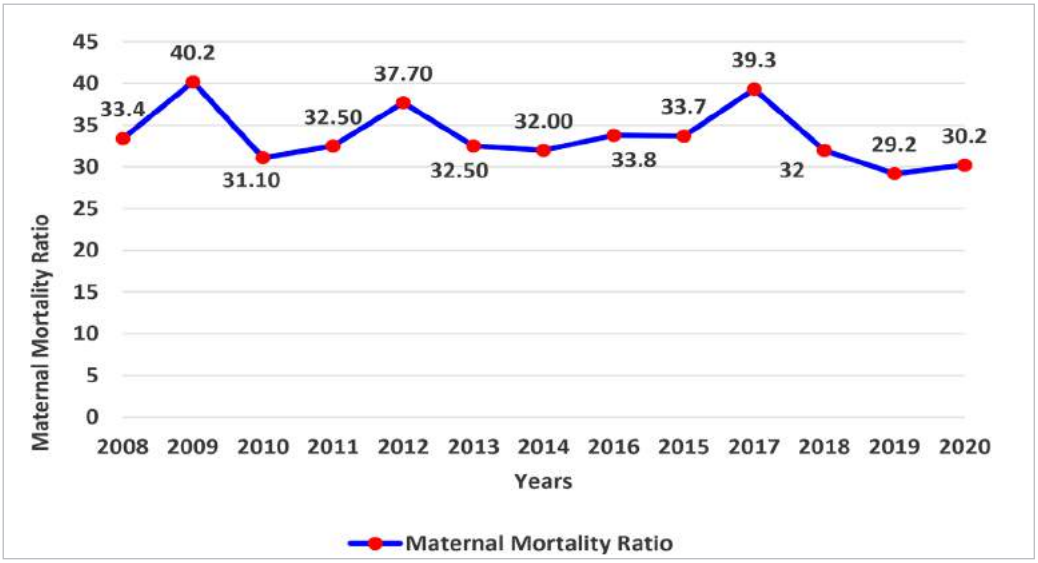
Achievements: SDGs and maternal and child healthcare indicators

Table 06: SDG Indicators Relevant to Maternal and Child Health

Indicator Number	Indicator	Baseline	End 2021	Target 2030
3.1.1	Maternal mortality ratio	33.7 per 100,000 live births (2015)	30.2 (2020)	16 per 100,000 live births
3.1.2.	Births attended by skilled health personnel	99.5% (2016)	99.9%	100%
3.2.1.	Children under 5 mortality rate	9.8 per 1000 live births (2013)	10.5	7 per 1000 live births
3.2.2.	Neonatal mortality rate	5.9 per 1000 live births	6.5	4 per 1000 live births
3.8.1.2.	Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care four or more times	98.8% (2016) (DHS 2016)		>99%

SDG 3.1.1 - Maternal mortality ratio

The maternal mortality ratio is assumed as a pivotal index of human and social development. It reflects women's overall status, access to healthcare and the responsiveness of a country's healthcare system to their needs.



Source : FHB data

Figure 20 : Maternal Mortality Ratio from year 2008 to 2020 in Sri Lanka

The maternal mortality ratio in Sri Lanka from 2008 to 2020 shows a gradual decline. The MMR in year 2020 was 30.2 per 100,000 live births. There are district level disparities which need urgent attention. In 1981, Sri Lanka established a Maternal Death Surveillance and Response (MDSR) system, and a gazette regulation was issued on mandatory notification of probable maternal deaths. Maternal death surveillance has observed that a reasonable number of deaths are yet preventable with improved quality of antenatal and intra-partum care. The FHB should focus on bringing about stronger policies to prevent maternal deaths.

SDG 3.1

By 2030 reduce the global maternal mortality ratio to less than 70 per 100,000 live births. Sri Lanka has identified a lower figure since the country has achieved reasonable low MMR levels. In 2015, MMR was 33.7 per 100,000 live births, and the Sri Lankan SDG target is to achieve a MMR of 16 per 100,000 live births by 2030.

A modeling exercise using 2008-2020 data shows a higher value of 33 per 100,000 live births for MMR than the set target for Sri Lanka which is to achieve 16 per 100,000 live births by 2030. If business as usual goes on it may be difficult to achieve the SDG set target. Therefore, the MoH has to accelerate the on-going overall strategic activities and address gaps such as improving quality of care.

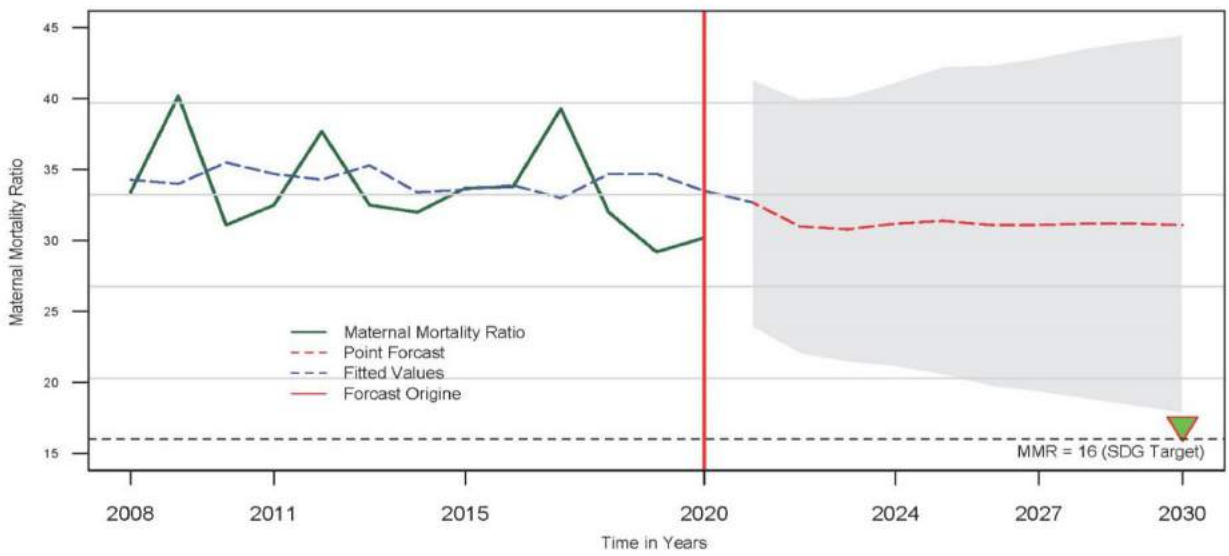
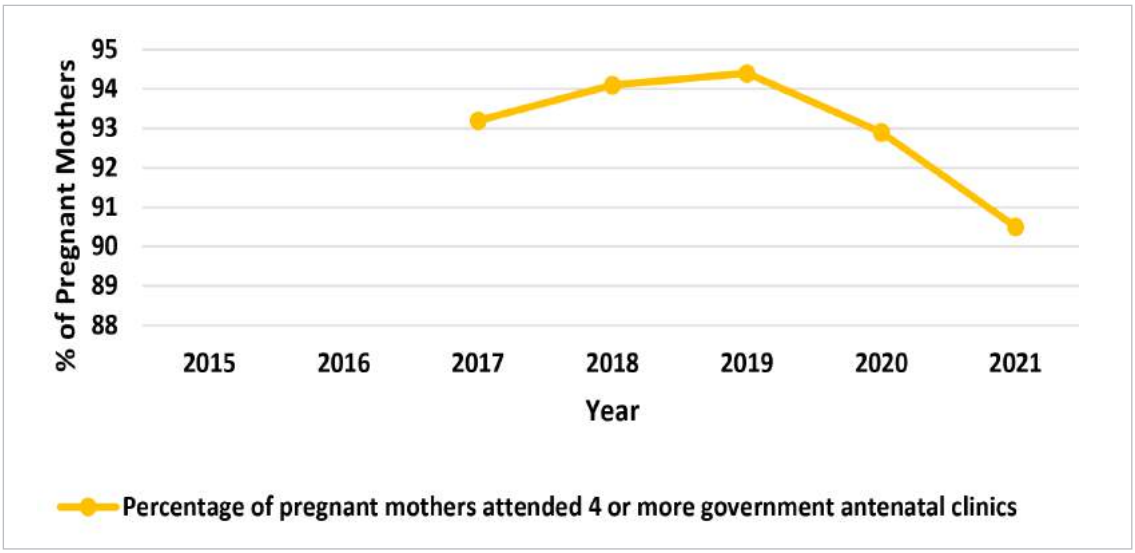


Figure 21 : Comparison between SDG target and forecast of maternal mortality ratio

SDG 3.2- Births attended by skilled health personnel

The MCH policy ensures skilled attendance at birth and institutional deliveries, and this has contributed for reduction of maternal deaths in Sri Lanka. It is reported that by 2021, nearly 99.9% of deliveries have occurred in healthcare institutions with skilled attendance. A large majority of them take place in specialized hospitals. The FHB has identified a delivery care package which will be described in strategy 1.2.

SDG 3.8.1.2 indicates the percentage of women aged 15-49 with a live birth in a given time period that received antenatal care four or more times.



Source : FHB data

Figure 22 : Percentage of pregnant mothers who attended 4 or more government antenatal clinics

Having at least four antenatal visits of pregnant mothers is an SGD indicator, and the target is to achieve 99% at the end of 2030. It was 93% in 2017. FHB data does not specify whether the value is for the pregnant mothers who were 15-49 years or all pregnant mothers.

National reporting indicators

Maternal health care programme has achieved many health targets over the years through the implementation of evidence-based policies in a planned manner.

- Eligible families: The percentage of eligible family registration was 94%, and 98.7% of pregnant mothers were registered in 2020 in Sri Lanka. The maternal care programme promotes early commencement and regular antenatal care. Following the registration at the clinic or home, the pregnant mother should receive clinic antenatal care as early as possible, preferably around 6-8 weeks of gestation.
- Early registration of pregnant mothers: Registration before 8 weeks is considered early registration, and an average of 80% have been registered before 8 weeks of pregnancy from 2015-2021.
- PHM home visits: From 2015-2021, an average of 91% of registered women received at least one PHM visit, and in the meantime, an average of 95% PHMs visited pregnant mothers at least once at home during the pregnancy.
- Post-partum visits: Around 82% of postpartum mothers receives at least one home visit by the PHM within the first 10 postpartum days and on average 77.4% of postpartum mothers were visited by PHM at or around 42 days. The average number of post-partum visits by PHM is between 1.7-1.8 days throughout 2015-2021.

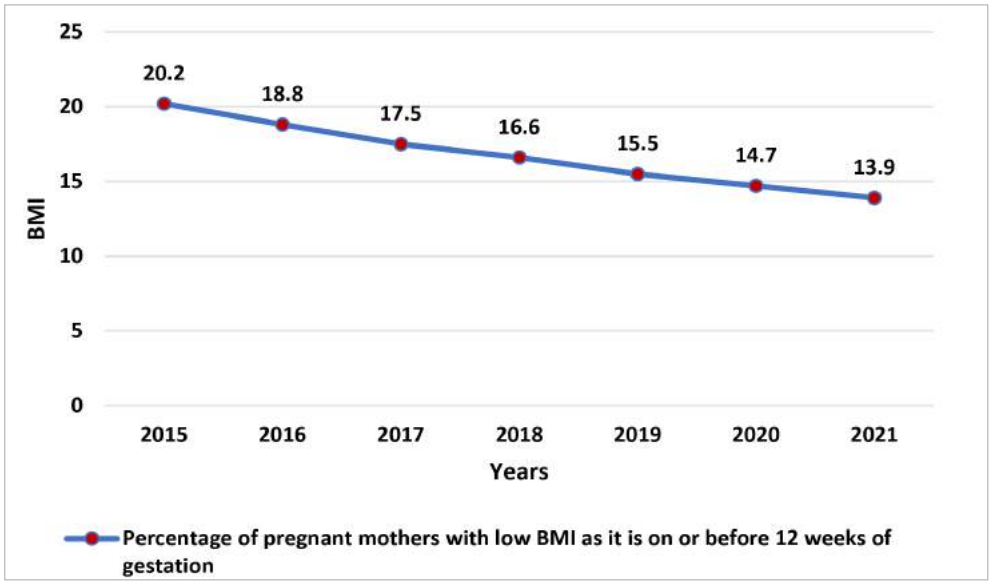
Sri Lankan status by 2021

Grand multipara (P5 and above) and primi mothers are thought to have a significantly greater risk during pregnancy than other groups.

- A total of one-third of registered pregnancies from 2015-2021 were first pregnancies (32%), and around 2% of those were carried by mothers who had gravida 5 or more. Prevalence of grand multi-parity is an indicator to measure the effectiveness of family planning interventions.

- The multiple interventions during the life cycle approach have led to reduce the low Body Mass Index (BMI) on or before 12 weeks of gestation. Investing for a life course approach brings a triple dividend effect. It includes reducing death and disability, promoting health and productivity across the life-course, and providing the best possible start to life.

The following figure depicts the percentage of pregnant mothers with low BMI as it is on or before 12 weeks of gestation. It shows and improvement for 2015 to 2021.



Source : FHB data

Figure 23: Percentage of pregnant mothers with low BMI on or before 12 weeks of gestation from 2015- 2021.

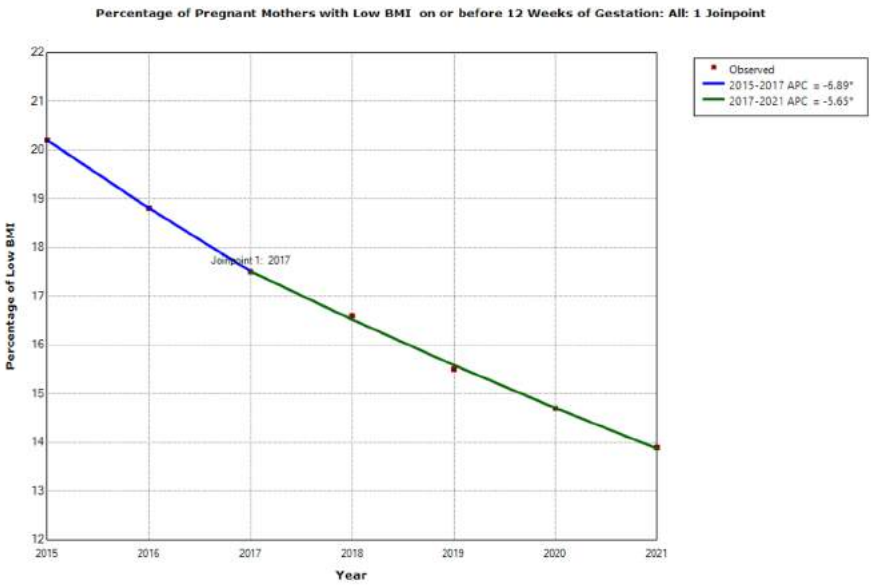


Figure 24: Trend analysis of percentage of pregnant mothers with low MI on or before 12 weeks of gestation from 2015- 2021.

The above graph shows the trend of low BMI of pregnant mothers on or before 12 weeks of gestation from 2015-2021. The analysis shows a statistically significant reduction with two trend lines from 2015 to 2021. From 2015-2017, the annual percent decrease was -6.89* and from 2017-2021 the decrease was -5.65*. It is evident that women enter pregnancy with a low BMI level which will have an impact on

the pregnancy outcome and it is decreasing with time. However, it has to be carefully assessed during the economic crisis period which has started from 2022. Pre-pregnancy interventions for socio-economic development are warranted.

The proportion of pregnant women who had undergone a VDRL test by the time of delivery, as reported at the initial postpartum visit, was an average of 99% from 2015-2021, and has contributed to the elimination of mother-to-child transmission of Syphilis and HIV. Antenatal screening for syphilis by the VDRL test has been in place for over five decades and universal testing of antenatal mothers for HIV infection was introduced after the MCH policy was developed. WHO has declared that Sri Lanka has eliminated mother to child transmission of syphilis and HIV.

The policy of including measles, mumps and rubella (MMR) vaccine in the Expanded Programme of Immunization (EPI) has been implemented successfully and the coverage of all pregnant mothers against rubella and tetanus is more than 98% during the period of 2015-2021. WHO has declared that Sri Lanka has eliminated congenital rubella syndrome. Antenatal mothers are also checked for blood grouping and Rh factor to prepare for a safe delivery.

Antenatal anemia

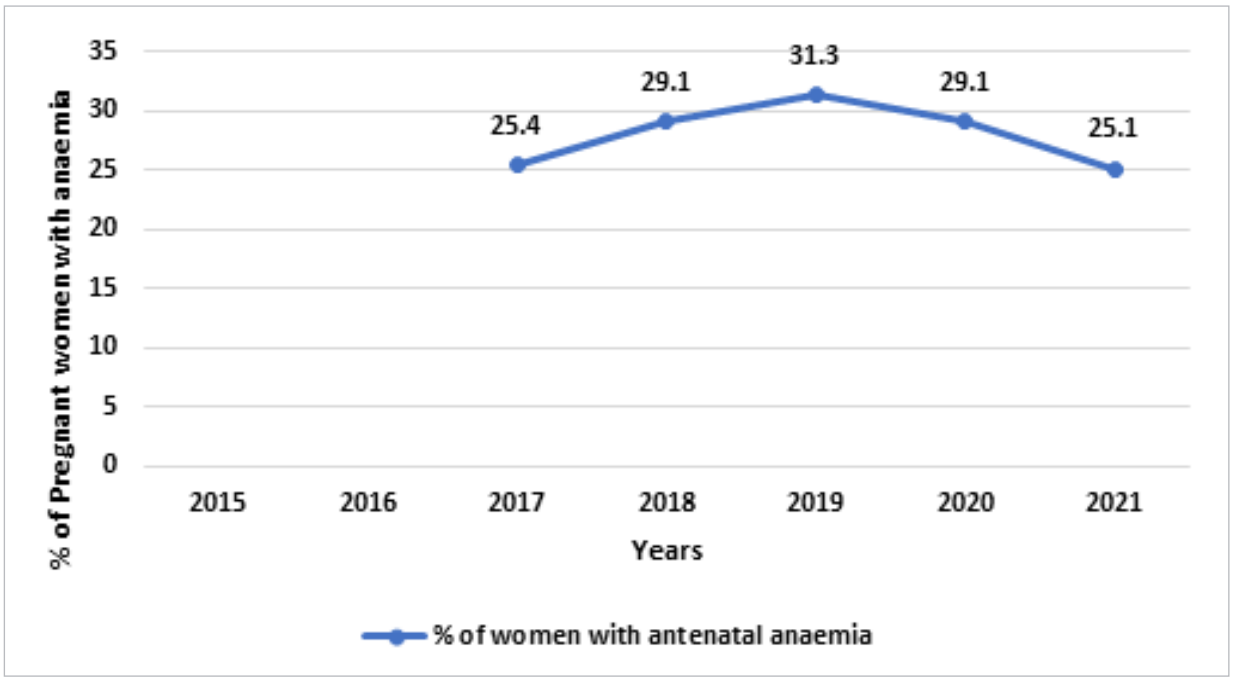
The MCH policy recognizes that nutritional deficiencies such as anaemia during the pregnancy and postpartum period, may contribute to maternal and newborn morbidity and mortality. In its Goal-1, it calls to promote health of women and their partners to enter pregnancy and post-partum period in optimal health and to maintain it throughout the life course. A strategy of the National Nutrition Policy -2021 of the Ministry of Health is to promote nutrition throughout the life cycle to improve maternal and child well-being.

A cut off level of 11g/dl at sea level, throughout pregnancy, is recommended by the WHO. This will enable comparison of prevalence and effects of iron deficiency anaemia (IDA) in different communities, regions and countries. Iron deficiency (ID) is the commonest nutritional deficiency among pregnant women worldwide. ID can manifest in a wide spectrum, with IDA being the most severe form. The WHO estimates IDA to affect approximately 42% of pregnant women and it has been found to be commoner in the non-industrialized countries. In a country like Sri Lanka where wide variations are noted in socioeconomic status as well as in diet, the prevalence could show variations in different geographical and demographic subgroups. Since IDA is a major contributory factor for maternal morbidity as well as mortality, screening of all pregnant women for anaemia is recommended at the booking visit as well as in the early third trimester. Women with multiple gestations, teenage mothers and those with reduced inter pregnancy intervals are at a higher risk of IDA. (Pallihawadana et al., 2014).

Routine, daily, antenatal oral iron supplementation has been shown to be associated with a reduction of low birth weight, prematurity and maternal ID and IDA at term, and the antenatal care package of services of the Family Health Programme provide routine, daily iron supplementation for many decades. Furthermore, correcting ID and IDA in the mother will reduce the risk of maternal morbidity and mortality occurring due to a combination of anaemia with obstetric haemorrhage and sepsis as well as possible long-term adverse effects in the newborn (Pallihawadana et al., 2014).

The benefits of iron supplementation in pregnancy extend well beyond the period of pregnancy. It has been associated with improved maternal iron stores in the postpartum period, which is especially important when inter pregnancy intervals are short, as the woman will enter a subsequent pregnancy with a better iron status. The WHO recommends routine postnatal iron supplementation with the same antenatal oral iron supplementation regimen for at least three months. (WHO 2013)

The figure below shows a marginal decline in antenatal anaemia from 2017-2021. However, it is unclear if this decline was a true decline or a result of underreporting due to the COVID 19 pandemic. Importantly, the overall decline was not statistically significant. Therefore, further interventions are need to be implemented to reduce the antenatal anemia in Sri Lanka.



Source : FHB data

Figure 25 : Percentage of pregnant women with antenatal anemia from 2015-2021

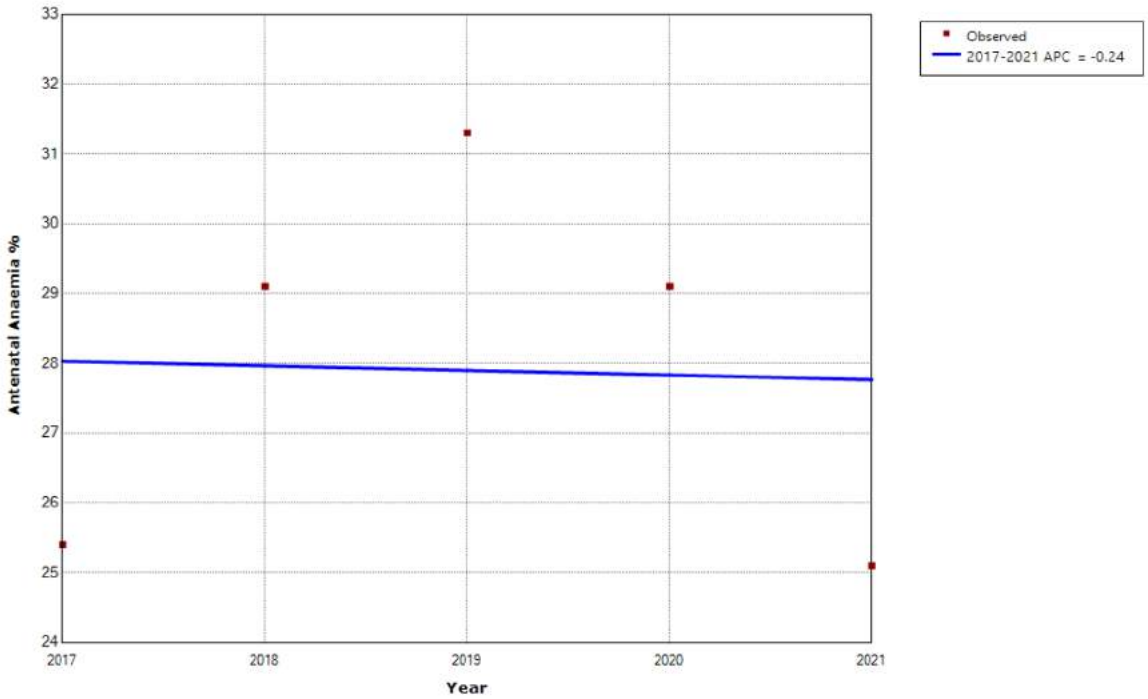


Figure 26 : Trend analysis of Percentage of pregnant women with antenatal anemia from 2015- 2021

Although trend analysis showed a slight decreasing trend (APC -0.24) of antenatal anemia from 2017 to 2021, this decline is not statistically significant.

Section 2

Family Planning Programme in Sri Lanka

Background

Sri Lanka has a long history with regard to the family planning programme. In 1965, family planning was accepted as a part of national policy and its service component was integrated with the maternal and child health services. The Ministry of Health has identified the Family Planning (FP) Programme as a strong pillar of safe motherhood. It was only by shifting the emphasis to the benefits of family planning on maternal and child health, and by integrating the Family Planning Programme with the Maternal and Child Health Programme, that success was finally achieved. The National Family Planning Programme (NFPP) has shown remarkable progress in providing a wide array of family planning services and has contributed to reduce the maternal mortality and morbidity, infant mortality and morbidity, and the under 5-year mortality and morbidity including the national indicators. At present, the NFPP supplies services enabling couples to have the desired number of children with optimal timing and spacing, along with the service provision for the sub-fertile couples.

National policies, strategic and action plans

The Population and Reproductive Health Policy (1998) and the National Maternal and Child Health Policy (2012) guide the programme. Goal 7 of the MCH policy is to provide strategies to enable all couples to have a desired number of children with optimal spacing whilst preventing unintended pregnancies. This policy statement is clearly formulated in the sense that family planning is entirely the choice of the couple and not coerced by healthcare providers and in no way infringe the rights of people. Family planning services should be looked from the lens of an investment which yield social and economic returns. The policy statement also includes services for infertile and subfertile couples in the spirit of leaving no one behind. However, although the National Family Planning Programme has shown successful results to a certain extent, there are some disparities such as district differences, and family planning services for married women and women in union have not done well. The male family planning methods remain at a dismal level. Marketing of the condom as a device for dual protection (prevention of STIs and unwanted pregnancies) needs a booster. The performance of the district level implementers is commendable to take the NFP programme to this height. Central level administrative and technical guidance and coordination has been a strong foundation to achieve high level of efficiency.

Service provision

Sri Lanka has already achieved replacement level fertility. However, reaching zero growth rate is a challenge due to the presence of a large number of females in the reproductive age groups. Therefore, it is important to sustain an effective family planning programme throughout the country.

The success of the family planning programme has been the main factor behind the current fertility pattern. Providing family planning counseling in their homes by the Public Health Midwife (PHM) and providing continuous supplies of contraceptive commodities free of charge to fertile couples have been the main pillars of success. Thus, training of PHMs in family planning methods and counseling have been proven to be effective interventions. These activities have to be continued to sustain an effective family planning programme not only to control population growth but also to reduce unwanted pregnancies and induced abortions. Further, it is important to ensure the continuous supply of contraceptive commodities to the growing number of fertile couples. In addition, needs of sub-fertile couples (around 10%) have to be addressed and services need to be provided.

Oral contraceptive pill (OCP), DMPA injection, Intra Uterine Device (IUD), condoms and implants are the modern temporary methods offered by the present-day public sector programme. The modern permanent is female sterilization by ligation and resection of tubes (LRT). The grass-root health workers,

namely, PHM, PHI, PHNS and MOHs provide family planning counseling and offer a cafeteria of methods for clients to select a method suitable to them. There were 1469 functioning family planning clinics in Sri Lanka as at the end of 2019. All relevant registers at the clinics are maintained by the PHM. FHB provides regular training for healthcare providers and training material were updated with UNFPA support in 2019. The NFPP procures contraceptives from WHO prequalified suppliers for the public sector programme from GOSL funds. The contraceptives are included into the essential drug list of Sri Lanka. The private sector involves in the social marketing. However, private sector is not involved in forecasting contraceptive requirements together with the public sector. Family Health Bureau is involved in the annual estimate of the contraceptives for the public sector, and estimations are sent to the Medical Supplies Divisions (MSD).

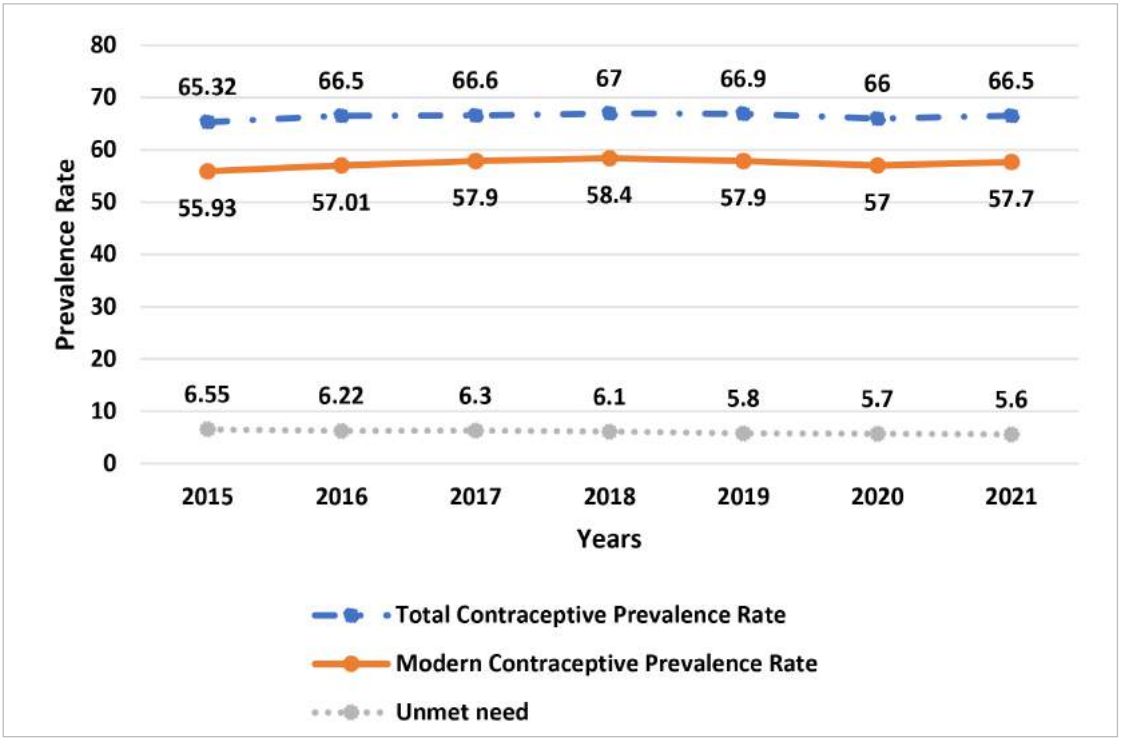
Provision of services for sub-fertile couples is an important component of the NFPP. National Subfertility Center at the FHB was established recently, and it ensures the availability and accessibility of services such as sperm storage and in-vitro fertilization facilities. Currently, sperm storage and in-vitro fertilization facilities are not available in the public sector. The FHB is developing infrastructure facilities to establish a fully-fledged fertility clinic at the central level.

Indicators relevant to Family Planning

Contraceptive prevalence rate is an indicator of health, population, development and women's empowerment. It also serves as a proxy measure of access to reproductive health services that are essential for meeting many of the SDG Goals, especially those related to child mortality, maternal health, HIV/AIDS and gender equality. It is the percentage of women aged 15-49 years, married or in-union, who are currently using, or whose sexual partner is using, at least one method of contraception, regardless of the method used (modern or traditional). The FHB is taking steps to make people aware of the need of FP services through the engagement of youth leaders, religious dignitaries and community opinion leaders.

The results of the Demographic and Health Survey (DHS) 2016 revealed that the contraceptive prevalence rate among women aged 15-49 years was 65% in Sri Lanka and was the highest in the region. However, it was only 43% among the currently married 15–19-year-old group, which was equal to the lowest value in the region. This indicates that the country needs to pay more attention to making family planning services available and accessible to all married women in the younger age groups and unmarried women in union who are ineed of such services. There are two additional indicators which are useful for the NFP, and they are: new acceptor rate and current user rate.

Nevertheless, a certain percentage of eligible families are using traditional methods of contraception and it is around an average of 9% during the period of 2015 to 2021. Unmet need of contraception is defined as women who are fecund and sexually active but are not using any method of contraception, and report as not wanting any more children or wanting to delay the next child. It is an important national indicator in relation to reproductive health in a country. The modern and total contraceptive prevalence and unmet need of Sri Lanka during year 2015 to 2021 are shown in the following figure.



Source : FHB data

Figure 27: Contraceptive Prevalence Rate and unmet need from 2015 to 2021

This graph shows the trend of prevalence of using a modern method of contraception and the total usage of contraceptive prevalence in Sri Lanka from year 2015 to 2021. It shows an insignificant increase during this period. The SDG target for total contraceptive prevalence is to achieve 81% by 2030, but however, it was only 66% in Sri Lanka in year 2021. Although the SDG target for modern contraceptive prevalence is to achieve 81% by 2030, it was 55% in Sri Lanka in 2021. Considering the current situation, it is important that the NFPP takes steps to implement the recommendations of the Family Planning Programme review 2020.

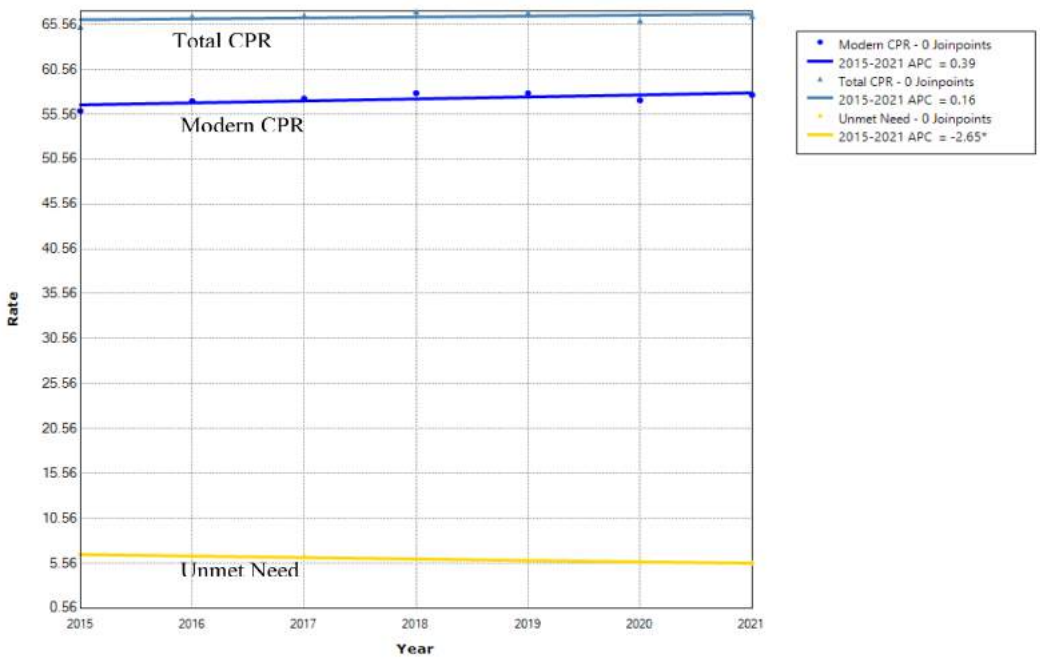


Figure 28 : Trend Analysis of Contraceptive Prevalence Rate and unmet need from 2015 to 2021

According to the trend analysis, unmet need from year 2015 to 2021 in Sri Lanka shows a declining trend which is statistically significant with an annual percentage change of -2.65. This demonstrates that the strategies are working in the correct direction for achieving the desired impact in relation to reducing

the unmet need of family planning in Sri Lanka. This result is reported in a background of observing a discrepancy between the unmet need reported in the DHS 2016 (7.2) and data of the NFPP (6.2) for the same year.

Another SGD indicator is the proportion of demand satisfied by modern methods of contraception among reproductive women. It is calculated using current modern contraceptive use (mCPR), unmet need (UMN) and current contraceptive use of any method (Total CPR).

$$\textbf{Demand satisfied by modern methods (\%)} = \frac{\text{mCPR} \times 100}{\text{(Total CPR + UMN)}}$$

SDG indicator - 3.7.1

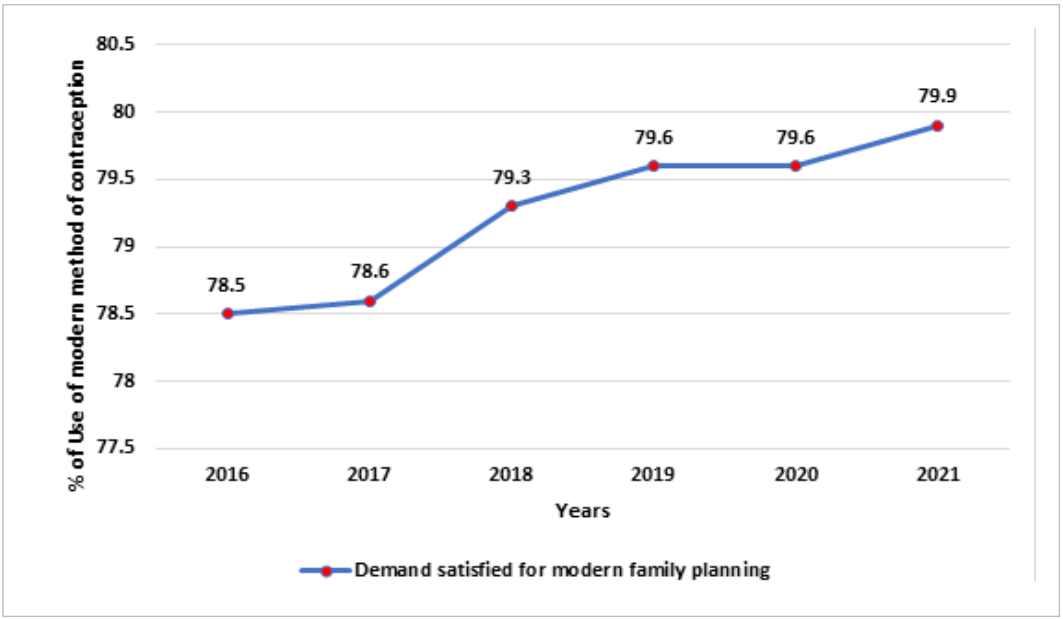
Table 07 : Sustainable Development Goal (SDG) indicator 3.7.1, "Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods."

Indicator number	Indicator	Baseline	End 2021	Target 2030
3.7.1	Percentage of women of reproductive age (aged 15-49 years) who are married or in union who have their need for family planning satisfied with modern methods	74.2% (DHS 2016)	79.9% FHB data)	81%

The above indicator is useful in assessing overall levels of coverage for family planning programmes and services. Access to and use of an effective method to prevent pregnancy helps enable women and their partners to exercise their rights to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so. Meeting demand for family planning with modern methods also contributes to maternal and child health by preventing unintended pregnancies and closely spaced pregnancies, which are at a higher risk for poor obstetrical outcomes. Levels of demand for family planning satisfied with modern methods of 75 per cent or more are generally considered high, and values of 50 per cent or less are generally considered as very low. (WHO., 2022).

This indicator is calculated from nationally representative household survey data and the baseline is calculated from the DHS survey done in 2016. The DHS for 2021 was not held due to the COVID 19 pandemic.

Demand satisfied by modern methods should achieve 81% by 2030. The eRHMIS data shows a progressive increase in the proportion of demand satisfied by modern methods from 78.6% to 79.9% from 2016 to 2021. However, DHS 2016 data was lower than eRHMIS and it was 74%.



Source : FHB data

Figure 29 : Demand satisfied by modern family planning

On the recommendations of the National Family Planning Review 2016, a Multi-Year Costed Action Plan for the National Family Planning Programme in Sri Lanka was developed in 2019.

Section 3

Child Health Programme

Background

Designing and planning of the National Child Health Programme is carried out by the FHB. The FHB has the responsibility of policy making, planning, monitoring and evaluation and providing technical support to the provincial and district level teams on implementation of the NCHP. The FHB works in collaboration with the Epidemiology Unit, Health Education Bureau and other relevant central technical units which facilitate the provision of relevant technical inputs. The Child health programme provides immunization, disease surveillance, growth monitoring as well as promotional programmes at the MCH poly clinics. Regular growth monitoring takes place in field weighing posts located in 23906 centers island wide. In addition, curative care is provided by all levels of healthcare institutions from primary care and above.

National policies, strategic and action plans

The National Strategic Plan on Child Health 2018-2025 and several related strategic plans have secured the policies of the National MCH Policy. The strategic directions cover immediate newborn care including effective newborn life support, identifying birth defects and referral for interventions, exclusive breast feeding, immunization, child growth monitoring, nutrition care and they have all helped in reducing the neonatal mortality rate. The expected outcomes are safe maternal and neonatal outcomes, the results of which are impressive with a low MMR, neonatal mortality rate and under 5 mortality rate which make Sri Lanka a proud forerunner in the South Asia region.

Service delivery

The child health programme implemention is led by the MOH and the team of the respective district under the guidance of the Provincial Director of Health Services (PDHS) and Regional Director of Health

Services (RDHS). Provincial Consultant Community Physicians (CCPs) attached to Provincial Directorates and the Medical Officers of Maternal and Child Health (MOMCHs) attached to Regional Directorates are responsible for the technical coordination of child health programme interventions in the MOH areas. MOMCHs also act as the principal link between the FHB and the provincial health system. MOMCH is supported by Regional Supervising Public Health Nursing Officer (RSPHNO) and Divisional Supervising Public Health Inspector (SPHID) in monitoring of the Child Health Programme activities in the district. Curative services are provided in primary, secondary, and tertiary care health institutions.

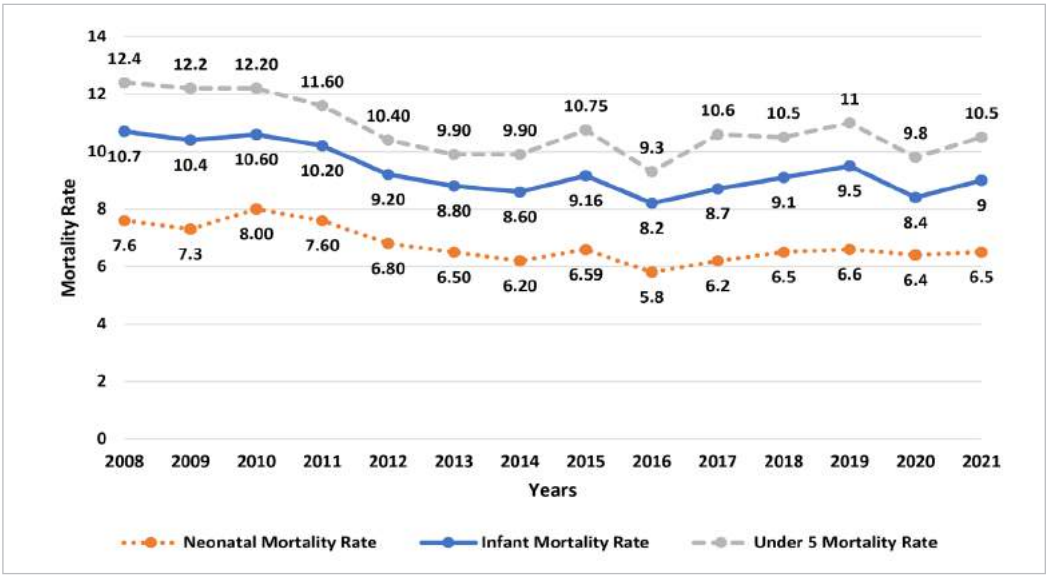
All infants are expected to be registered by PHMs in the field soon after birth during the first postnatal home visit. Exclusive breast-feeding for 6 months is highlighted in several MCH related policies. Exclusive Breastfeeding (EBF) and appropriate complementary feeding are promoted by the PHM and in all MCH field clinics. DHS 2016 revealed that breastfeeding during the first hour after birth was 80-90% with disparities on breastfeeding initiation across districts. The prevalence of EBF declines from 93% at 0–1 month, to 87% at 2–3 months and to 64% at 4–5 months. These percentages may have changed during the last few years. The MCH policy recommend breastfeeding to achieve optimal growth and development of infants and children under 2 years.

Infants are brought to the field postnatal clinic at 4 weeks of age and both the mother and the baby are examined by the MOH. Subsequently at regular prescheduled interval the baby is brought to the Child Welfare Clinic for a package of evidence-based interventions which include health screening, growth monitoring and promotion, immunization, micronutrient supplementation, preventive deworming, development assessment and promotion. Child development and screening programmes were established in 2019. Care pathways for children with developmental risk factors and developmental care for newborns were introduced to improve the development of high-risk newborns (it is described under the sub strategy 3. 13). Furthermore, surveillance of perinatal deaths, birth defects, child deaths, and injury-related child deaths are being carried out through capacity building programmes.

Table 08: SDG 3.2.1 3.2.2 - Child Health Indicators

Indicator number	Indicator	Baseline	End 2021	Target 2030
3.2.1.	Children under- five mortality rate	9.8 per 1000 live births (2013)	11.1 (FHB)	7 per 1000 live births
3.2.2.	Neonatal mortality rate	5.9 per 1000 live births	6.8 (FHB)	4 per 1000 live births

The graph given below demonstrates the trend line of Neonatal Mortality Rate, Infant Mortality Rate and under 5-year Mortality Rate in Sri Lanka from 2008 to 2021. Although it shows a slight increase during the last few years after a significant earlier decrease, the increase observed is statistically not significant during this period.



Source : FHB data

Figure 30 : Neonatal Mortality rate, Infant Mortality Rate and Under 5-year mortality Rate From 2008-2021

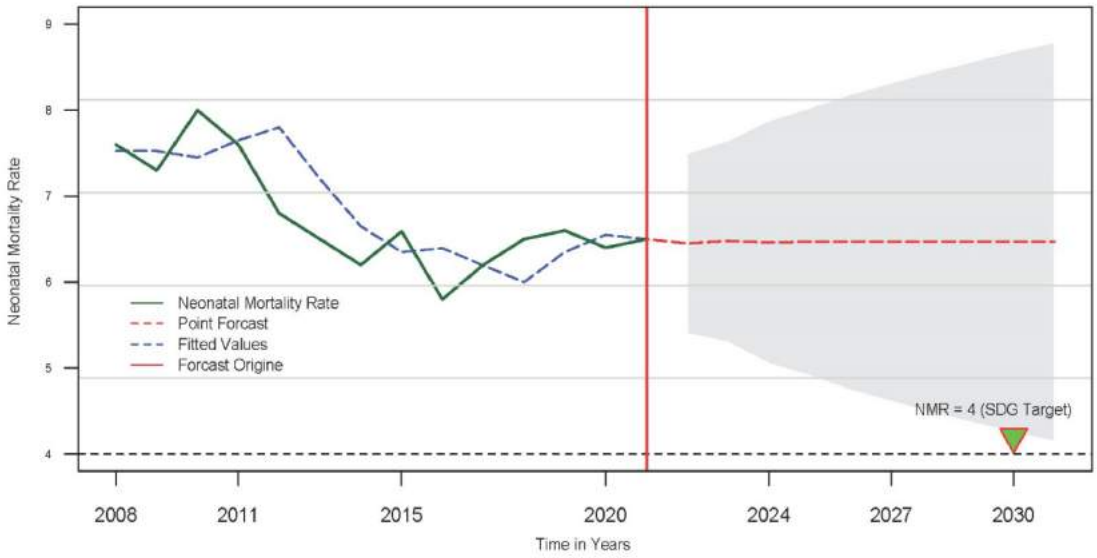


Figure 31 : Comparison between SDG target and forecast of Neonatal mortality Rate (2008-2030)

The SDG target is to reduce the neonatal mortality rate to 4 per 1000 live births in the year 2030 from 5.9 per 1000 live births in the year 2013. However, it was noted that the predicated NNMR for 2030 modelled with recent data is 6.5 per 1000 live births, if business as usual goes on without any disruptions due to the current economic crisis and political instability. It indicates a higher value than the value identified in the SGD country target. During the next few years, it has to reduce more than one third from the 2021 value of 6.8 per 1000 live births to achieve SGD targets.

Under five-year mortality rate

The National Health Policy, National Maternal and Child Health Policy, and the National Policy on Early Childcare and Development are the overarching guides which gives direction to policies and strategies of the FHB. The NHP, identifies the need to further strengthen preventive programmes, continuous upgrading of healthcare facilities to include and accommodate new advances in childcare and making healthcare accessible and equitable with quality of care. The National policy on Maternal and Child Health (2012) devotes three goals for children under five years of age. These goals focus on reduction of perinatal and neonatal morbidity and mortality, ensuring survival and reaching the optimal potential in growth and development of under 5 children, and rehabilitation of children with special needs.

National Policy on Early Childhood Care and Development emphasizes the need for ensuring early childcare and development services. This policy specially advocates the coordination of the activities of different stakeholders involved in childcare so that roles are clarified, duplication is prevented and thereby synergy is maximized.

The National Strategic Plan on Child Health (NSPCH) in Sri Lanka 2018-2025 was developed by the FHB in collaboration with stakeholders to focus on children from infancy to 15 years of age to provide life cycle continuum of care. The NSPCH harmonizes with three strategic documents of the FHB 1) National Strategic Plan on Maternal and Newborn Health (2012-2016), 2) National Strategic Plan on Adolescent Health (2018-2023) National Strategy on Infant and Young Child Feeding Sri Lanka (2015- 2020).

The NSPCH identifies strategic directions under nine thematic areas that include: nutrition promotion and growth monitoring, early childcare and development, prevention of illnesses and injuries, school health, vulnerable children, curative child care, underserved areas, cross cutting issues, and issues related to allied sectors. The NSPCH guides the national and provincial level stakeholders to plan and implement interventions in a synchronized manner to achieve the ultimate goals in providing quality child healthcare services which are accessible in an equitable manner.

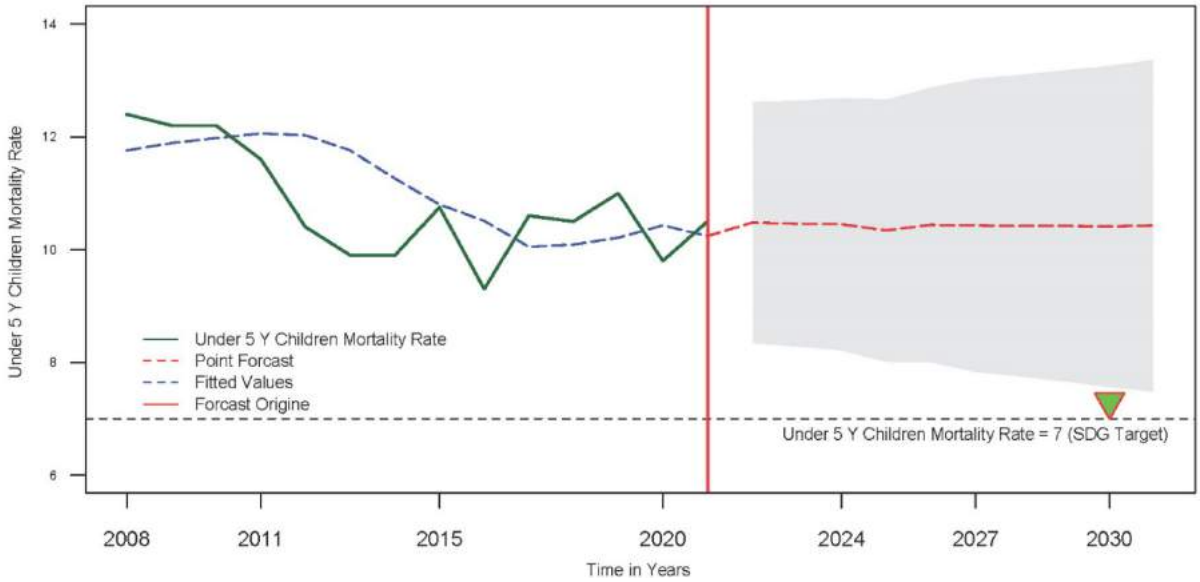
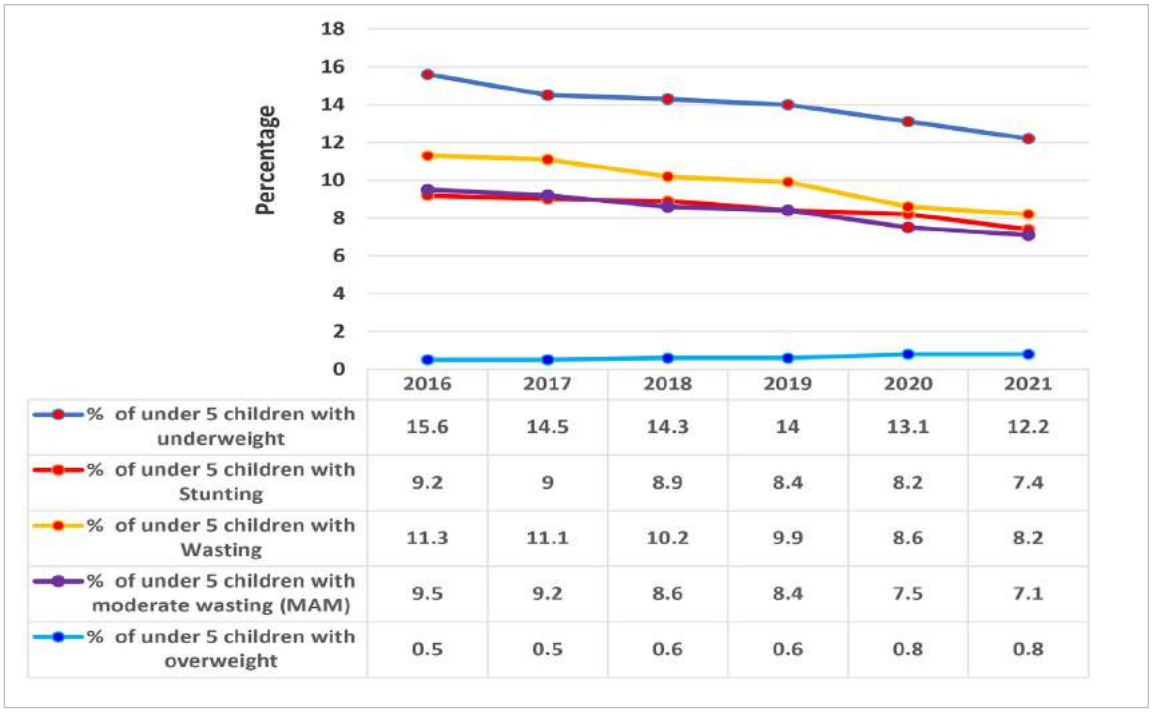


Figure 32 : Comparison between SDG target and forecas of under 5 years mortality Rate (2008-2030)

The under 5-year mortality rate is an SGD indicator and it should be achieved by reducing from 9.8 per 1000 live births in 2013 to 7 per live births at the end of 2030. However, it was noted that 2030 might indicate a higher value than the value identified in the SGD country target. These values imply that more attention should be given to all mortality rates of under 5 years and more strategies need to be identified with a good monitoring mechanism.

Further, it is important to address core issues relating to child health, in order to combat the issue of child endurance. The child health promotion programme should be strengthened to reduce the rates and achieve the SDG targets by the valuve for 2030.



	2016	2017	2018	2019	2020	2021
% of under 5 children with underweight	15.6	14.5	14.3	14	13.1	12.2
% of under 5 children with Stunting	9.2	9	8.9	8.4	8.2	7.4
% of under 5 children with Wasting	11.3	11.1	10.2	9.9	8.6	8.2
% of under 5 children with moderate wasting (MAM)	9.5	9.2	8.6	8.4	7.5	7.1
% of under 5 children with overweight	0.5	0.5	0.6	0.6	0.8	0.8

Source : FHB data

Figure 33: Percentage of under 5 children who are underweight, stunted, wasted, moderately wasted and overweight 2016-2021

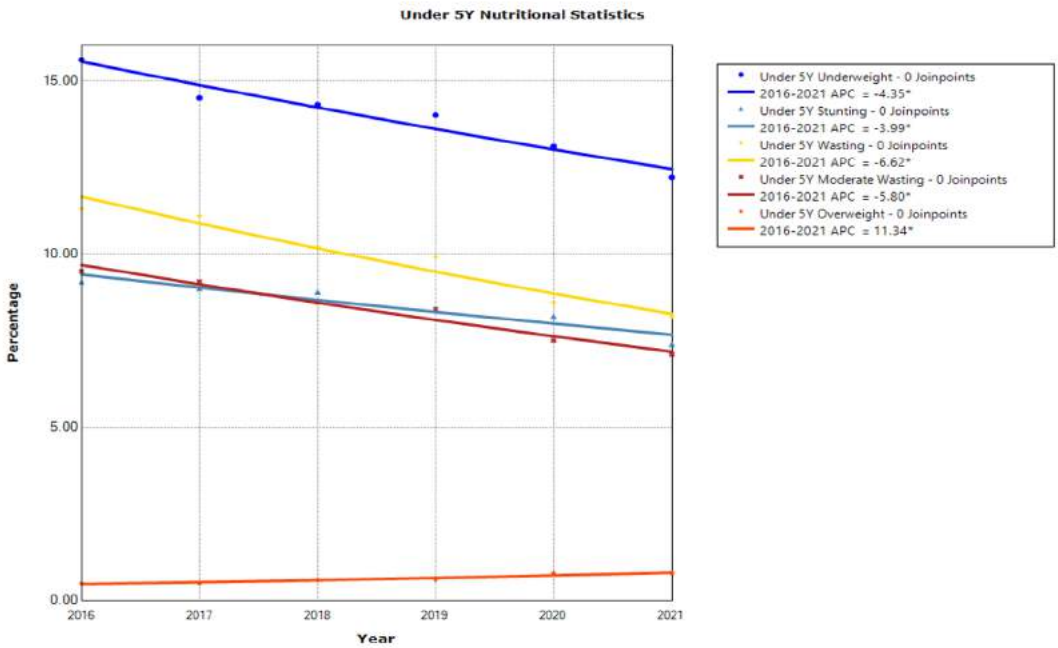


Figure 34 : The trend analysis of the under 5-year nutritional status from year 2016 to 2021 in Sri Lanka

The trend analysis showed a statistically significant increase in under 5-year overweight with an + 11.34* annual percentage increase. This indicates that strategies to reduce obesity among those who are under 5 years should be identified and monitored at the MOH area and district level.

Further, the graph shows a statistically significant steady decline of proportion of children with underweight (APC= - 4.35*), stunting (APC= -3.99*), wasting (APC= - 6.62*) and under 5 years moderate wasting(APC= -5.85*). However, deepening economic crisis and food insecurity may change the trend with marked increases in undernutrition in the coming years.

The children aged 5-9 years and adolescents (including school children) are included in Goal 5 and the National Strategic Plan for Adolescents and Youth Health 2018-2025 gives anchorage into implementing national policies. The National MCH Policy has recognized the need to provide services for optimal development of children with special needs to function as productive members of the society (Goal 6), but the translation of policies into actions has been slow and it needs more attention. Although the National Strategic Plan on Child Health in Sri Lanka addresses child abuse, the National MCH Policy has not given due attention to child abuse and the generational effect of sexual and gender-based violence in the family. These are important areas which need to be addressed directly in the National Health Policy. The FHB as a key service provider in prevention of child abuse has not emerged in any documents. There is sparse evidence on the linkages of FHB with other institutions such as the National Child Protection Authority (NCPA) and the district and divisional Secretariat (Women and Child Protection Desks). The role of MOH and the team in prevention of child abuse and care for the survivor is questionable.

Section 4

School Health Programme

In Sri Lanka, universal accessibility and participation in primary education are impressive and the primary education enrolment rate was 100% during the year 2019. The education system provides equal opportunities for both girls and boys. There were a total of 10,194 of all types of schools functioning at the end of 2017. These values are more when the private schools are added.

National policies, strategic and action plans

The school health programme encompasses a multitude of cost-effective, evidence-based interventions delivered at the school setting, and a part of the lifecycle approach with triple dividend of investment approach. At present, the school health programme focuses on five major thematic areas. These include school medical services including School Medical Inspection (SMI) of children and making relevant referrals. The PHI carries out the initial screening of children and the MOH conducts the medical inspections. In small schools (with 200 or less students), all the children are examined once a year, while in the larger schools (with more than 200 students), all students in grades 1, 4, 7 and 10 are examined annually. On average, in 92% of schools, SMIs are conducted and an average of 77.7% of students have been screened from 2015 to 2021. Assessment of nutritional status, detection and correction of health problems, providing immunization and worm treatment and provision of micronutrient supplementations to children are the main activities conducted during the SMI. From 2015 to 2021, around 34% of children with defects were identified during SMI and children detected with defects are either treated locally or referred to the closest specialist clinic for necessary management. Thereafter, they are followed up by the PHIs to ensure the correction of defects.

In addition, the MOHs complement the Behaviour Change Communication programmes aimed at children with a view to promoting their health. The behaviour change communication specifically targets sexual and reproductive health and substance abuse. Life skills promotion is another vital component of the school health programme.

Apart from the SMI, the PHIs conduct a school health survey in the schools annually, the findings of which are used to make the school environment safe and healthy. The necessary recommendations are sent to the school principals for corrective actions. An average of 96% schools have completed the school health survey from 2015 to 2021. The Health Promoting School Guide (2007) and Psycho-social Health Promotion of School Children for teachers (2017) have been developed by the FHB to streamline and improve the quality of the school health programme.

Section 5

Birth Defect Surveillance

The Birth Defect (BD) surveillance monitoring activities were established in 2017 from the central level and the number of hospitals enrolled for the Birth Defect Surveillance Programme were 87, 105 and 105 during the years 2018, 2019 and 2020, respectively. At the same time, training was given for hospital staff on surveillance during 2018 and 2019. All the specialized hospitals (n=105) are included in the web-based system in the DHS-2 platform starting from the year 2020. The majority of them are at present entering data. Still there are gaps which were identified in data collection.

Table 09 : Results of birth defect surveillance from 2018-2020

National	2018	2019	2020
No. of live births (Vital Registration System)	328,112	319,010	-
No. of stillbirths	978	1010	435
Total no. of babies with birth defects	535	470	518
No. of live births with a birth defect	412	419	-
No. of stillbirths with a birth defect	13	06	-

Prevention and management of birth defects

Prevention of BD starts from pre-pregnancy to delivery of the baby and continues in the life cycle approach. After marriage, the couples are invited for pre-pregnancy counselling sessions and several health promotion activities such as avoidance of substance abuse, maintaining BMI (prevention of overweight/obesity), balanced diet, and use of iodized salt. The policy of peri-conceptional folic acid supplementation is being implemented (starting 3 months before pregnancy and continued) via pre-pregnancy clinics and antenatal clinics.

Many preventive measures and screenings are included in the ante-natal care package, such as prevention of diabetes in pregnancy by maintaining maternal BMI for prevention of overweight/obesity, blood sugar screening at the booking visit (FBS/PPBS) and OGTT at 24 - 28weeks, screening for syphilis and HIV infection, and screening for anaemia by Hb estimations at 28 weeks of POA and other Haemoglobinopathies by history taking and clinical examination. Provision of iron and folate supplementation, is done, and triposha nutrition pack are provided at clinic visits. Blood grouping and Rhesus screening are carried out at the booking visit to prevent Rh incompatibilities. Further to that, screening for thalassemia is carried out in school children in high-risk areas.

Almost all new-borns are screened by a medical officer for birth defects after birth since almost 99% deliveries take place in hospitals. Pulse oximetry is used in all specialized hospitals to detect critical congenital heart diseases. In addition, screening for congenital hypothyroidism is carried out before discharge from the hospital using the 'heel prick test' or 'Guthrie' test. If the results show a high Thyroid Stimulating Hormone (TSH) level and a low thyroxine level, then the baby is thought to have congenital hypothyroidism, and parents will be contacted before the baby is three weeks old and referred to a specialist. Only six specialized hospitals screen for congenital deafness. Screening of birth defects continues in the School Medical Inspection at ages 6, 9, 12, and 15 years for eye, heart, hearing and dental problems, and children are referred for further treatment when indicated.

Addressing Sexual and Gender Based Violence

Background

Sexual and gender-based violence (SGBV) is defined as any harmful act perpetrated against a person's will because of their factual or perceived sex, gender, sexual orientation and /or gender identity. SGBV is one of the most widespread human rights violations in the world. It crosses all social, economic, and geographic borders. SGBV can take place anywhere, but it is exacerbated during humanitarian settings such as floods, tsunami, and disease epidemics such as the COVID-19 pandemic. SGBV is a global problem faced by both men and women, but women are disproportionately affected. Globaly,1 in 3 (30%) women have reported to have been subjected to SGBV by an intimate partner during their lifetime. The root cause of SGBV is a structural problem that is deeply embedded in the traditional patriarchal social and cultural norms of unequal power relationships between men and women which place women in a subordinate position. It is important to note that GBV also includes violence perpetrated against men and boys, for instance, boys may become subjected to sexual abuse by family members or trafficked for the purpose of sexual exploitation. In addition, sub-groups of people such as lesbians, gay, bisexual, transgender, queer, intersex (LGBTQI+) groups, people living with HIV, and internal and external migrants are experiencing violence.

The severity of the problem in Sri Lanka is shown in the results of the Women's Wellbeing Survey carried out by the Department of Census and Statistics in 2019, among 2300 ever-married women above 15 years in all 25 districts. One in five (20.4%) ever-partnered women have experienced physical and/or sexual violence by an intimate partner in their lifetime. One in four (24.9%) women have experienced physical and /or sexual violence since the age of 15 years by a partner or a non-partner. The overlap of violence indicates that most women have experienced physical and/or sexual violence by an intimate partner in their lifetime.

SGBV is considered as a public health challenge since it can lead to death (homicide and suicide), permanent disability and long standing health consequences including forced and unwanted pregnancies, unsafe abortions, sexually transmitted infections including HIV, and psychological trauma. Although the socio-economic and health related consequences have an impact on the individual, family and the country, it still remains masked in a culture of silence. SGBV goes on as a vicious circle as it has an inter-generation effect, as violence in one generation can influence the behaviour of the next generation through a process of learned behaviour. Since SGBV can affect anyone including the marginalized and vulnerable groups, it requires population level preventive measures and patient centered management of survivors. In this background, Sri Lanka is committed to eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation.

National policies, strategic and action plans

The national commitment to equal rights without discrimination on the grounds of sex commenced with the granting of the universal franchise to all in 1931 and is clearly articulated in the Constitution of the Democratic Socialist Republic of Sri Lanka (1978) in Articles 12 (2) and 12 (3), which specifically prohibitany form of discrimination based on sex and gender. The Ministry of Women and Child Affairs (MWCA) is the focal point at the national level, and the national response to SGBV is guided by the Policy framework and National Action Plan 2016-2020 which has involved nine-line ministries, and the document is being updated at the moment.

The MWCA, works in partnership with the Department of Census and Statistics and completed the Women's Wellbeing Survey to collect valuable data on SGBV which contributes to fulfilling key SDG indicator on Gender Goal 5. Human Rights commission, with the support of the UNFPA and the Ministry of Health, conducts capacity building to address the issues of SGBV from a human rights perspective.

The health response to SGBV is spelt out in the National Health Policy. The Ministry of Health developed the Population and Reproductive Health Policy in 1998 and it contains several provisions related to addressing SGBV and rights of women. The National Mental Health Policy, and the National Maternal and Child Health Policy are two important policies which address SGBV. The National Strategic Plan on Maternal and Newborn Health 2017-2021 of the FHB has dedicated strategy 4 to address SGBV through a wide range of interventions.

There are several policies and strategies of different ministries and agencies which have addressed the issue of SGBV and rights of women. e.g., National Policy on Youth, National Family Policy, Prevention of Domestic Violence Act (2005) and Plan of Action supporting the Prevention of Domestic Violence Act, Policy on Anti-trafficking, Policy on Protection and Promotion of Human Rights.

The interventions of the FHB to prevent sexual and gender-based violence have progressed. Survivor care is provided through Women Friendly Health Services (WFHS) established in hospital settings and this should be extended to community settings. Liaisons with other sectors is crucial especially in areas such as provision of safe shelter care for survivors. The existing safe shelter homes are mainly run by non-government organizations, and a policy statement in support of this should be included as changes or updates to the current policy. The Women's Wellbeing Survey done in 2019 shows the high levels of intimate partner violence, types of GBV which are used for reporting on SGDs. The results of the WWBS should be used to strengthen the policy framework and the action plan which are being drafted by the Ministry of Women and Child Affairs. The survey should be repeated at frequent intervals as a policy to provide data on the magnitude of the SGBV issue and as a monitoring and evaluation tool.

International conventions and frameworks

The GoSL has ratified several major international conventions and human rights treaties displaying its commitment to gender equity. Some of them are the Convention on the Elimination of All Forms of Discrimination of Women (CEDAW) and Sri Lanka, periodically reports to the Universal Periodic Review (UPR). In 1993, Sri Lanka signed the Vienna Declaration on the Elimination of Violence Against Women –which specifically recognizes violence against women as a social phenomenon. Beijing Platform for Action, and the United Nations Security Council Resolution (UNSCR) 1325 on Women, Peace and Security are worthwhile mentions. The GoSL is committed to achieve Goal 5 of SDG: gender equality and empower all women and girls by 2030.

In the year 2020, Sri Lanka was ranked 102 in concerning Global Gender Gap Index; scoring 0.680. Countries are ranked as per the current state of gender parity across four dimensions: economic opportunities, education, health and political empowerment. Sri Lanka has been performing relatively poorly during the past ten years compared with peer South Asia countries. It is the political empowerment dimension which drags down the country to a low level.

Legal system to protect against SGBV

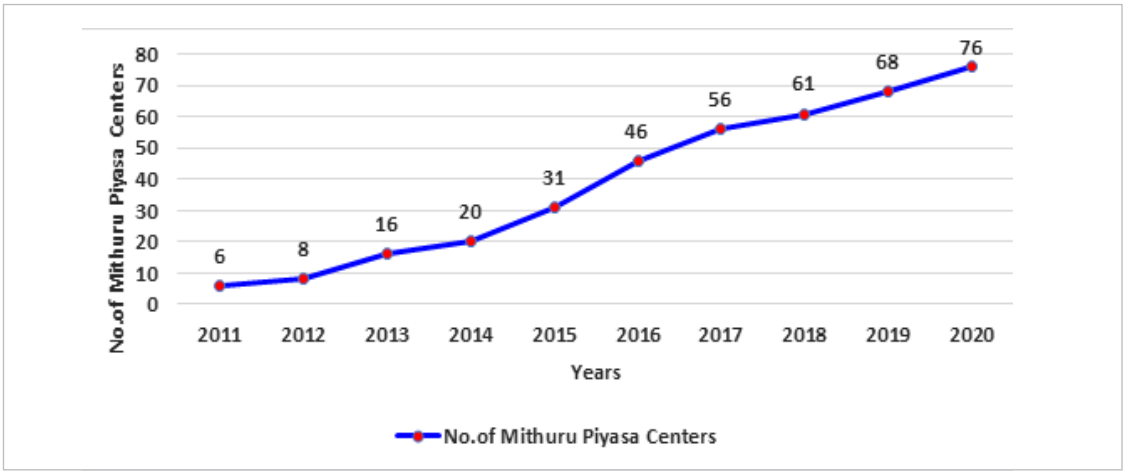
Legally, SGBV is addressed under the Penal Code 345 of 1995 (sexual harassment), 363 (rape), 364A (incest) and the Prevention of Domestic Violence Act of 2005. The Prevention of Domestic Violence Act recognizes the phenomenon of violence within the family or the domestic sphere.

Health system response to SGBV

The Family Health Bureau is the nodal agency in the Ministry of Health which spearheads the national health response to SGBV. Under the guidance of the Director-FHB, the National Programme Manager for Gender & Women's Health plans and coordinates activities based on the National Action Plan for Health Sector Response on Prevention and Management of Gender Based Violence (GBV) in Sri Lanka (2017). The health sector response is based on the principle that SGBV is a major cause of disability and death and is a threat to women's physical and psychological integrity.

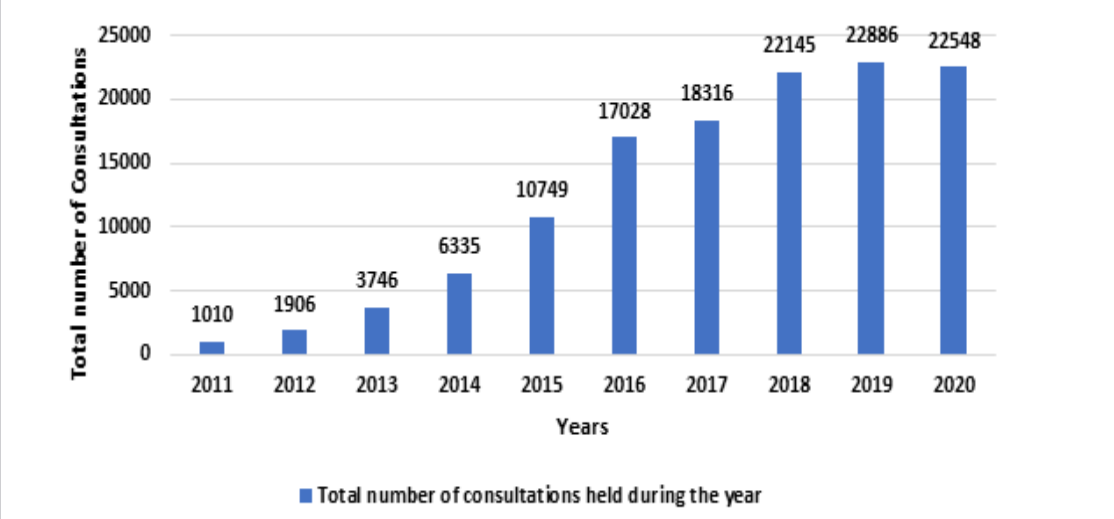
Violence in a relationship limits access to sexual and reproductive services. Healthcare providers have a unique role to play in providing highest attainable care and support for survivors and prevention of SGBV. In keeping with the health sector policies, by 2020, FHB has established 76 Mithuru Piyasa centers island wide and developed cordinates two useful guidelines - Health Sector Response to GBV: National guideline for first contact point healthcare providers (2019), and Standard Operation Procedures for first contact healthcare providers (2019), to increase the knowledge and skills of healthcare providers. FHB has trained grass root health workers and middle level managers in the preventive sector and hospital workers in the curative sector to increase the coverage and quality of care. Service utilization has shown a dramatic increase. FHB has commenced an electronic system of data collection from the Women Friendly Health Service centers – "Mithuru Piyasa". The "hotline" services on SGBV was useful for women and girls especially during the lockdowns and travel restrictions during the COVID 19 pandemic. The MWCA also operates a "hotline" and links survivors to appropriate services such as the MOH office, Accident and Emergency care, safe shelter homes, women and child police desks, and the National Child Protection Authority (NCPA).

The following figure shows the number of Mithuru Piyasa centers from 2011 to 2020.



Source : FHB data

Figure 35 : Number of Mithuru Piyasa centers from 2011-2020



Source : FHB data

Figure 36: Consultation services provided by Mithuru Piyasa centers from 2011 to 2020

As per the policy, all individuals subjected to violence have the right to the highest possible standard of health care without stigma and discrimination. The FHB has taken steps to integrate GBV prevention and survivor care and responsibilities of medical officers into the teaching curricula of medical undergraduates

and postgraduate trainees in community medicine. In the spirit of public-private partnership to provide survivor care, safe shelter homes have been established in Colombo, Kandy, Galle, Jaffna and Batticaloa. Dedicated staff have been trained to serve in these centers with technical and financial support of the UNFPA. It is reported that these centers were safe spaces for survivors of SGBV during lockdowns and travel restrictions during the COVID 19 pandemic. Interim guidelines for service providers in safe homes/ temporary shelters was issued by the DGHS in May 2020. A comprehensive guide on Management of Safety Centers was issued by the Disaster Management Center during the pandemic in collaboration with the Disaster Preparedness and Response Division (DPRD) of the Ministry of Health, United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA) and International Organization for Migration (IOM).

To guarantee that women and girls receive support services, FHB collaborates with the State Ministry of Women and Child Development, Education, School health services, and numerous other Government, private sector, and non-government entities (Goal 10 of the National MCH Policy).

A guideline to address sexual harassment in workplaces was developed. The Director General of Health Services issued a circular for the prevention of sexual harassment in healthcare institutions (2018/02/07). Another circular was issued for all medical professionals to refrain from any form of female genital mutilation (02-33/2018). Though it is not commonly seen, it has been reported that this practice is carried out among some groups of individuals in some regions in Sri Lanka.

Both national & international frameworks highlight the importance of gender equality and equity plus, and the United Nations Economic & Social Council (ECOSOC) revealed that gender mainstreaming is an integral part of public health. The focal points have to concentrate on gender analysis (WHO gender analysis matrix), where the gender-responsive assessment considered gender unequal, blind, sensitive, specific and transformative approaches. The SGD Goal no 5 clearly states the importance of achieving gender equality and empowering all women and girls to improve women's health and prevent SGBV.

Challenges of the family health programme

Whilst the current national programme seems to be making progress to achieve the SDG targets related to maternal, newborn and child health by maximizing efforts to provide an equitable and efficient health care delivery system, it is faced with many challenges. Scaling up services to increase coverage and quality needs a well-trained workforce with budget allocations as per costed action plans. Some regions are failing to allocate funds to the Family Health Programme, and the impact it will have is bound to reverse the impressive health gains which have increased the well- being of families, especially of women and children. Lack of human resources and maldistribution aggravate the issue. The increasing challenges faced by the health sector during the pandemic and the current economic downturn have aggravated the situation. There are several factors identified as detrimental to the effectiveness of the PHM services that affect the overall effectiveness of the MCH programme. Coverage of services is not optimal due to human resource problems such as non filling of vacancies, language and transport related barriers especially in the plantation sector, difficulties of accessing urban population, gender norms and expanded scope of work. The plantation sector is affected the most due to these barriers. According to the DHS 2016, overall poor MCH indicators prevailed in the estate population.

The National School Health Policy has been drafted, and it has not been finalized and presented to the Cabinet of ministers. In the meantime, it was observed that the follow-up after school medical inspections (SMIs) is challenging, and certain gaps including data gaps have been identified. The last goal (Goal 12) set in the National MCH Policy is towards changing risky behaviors to promote maternal and child health. The National MCH Policy recognizes the need of multi-sectoral involvement, as changing

behaviors take time, and the effect of the COVID 19 pandemic which promotes unsafe sex, indulgence in substance use, alcohol and tobacco and sexual and gender-based violence is a challenge for programmes. Strengthening partnerships with NSACP, National Dangerous Drugs Control Board, etc are challenges, as human resources are needed for such joint activities.The multi-sectoral interventions in place for women empowerment and prevention and control of SGBV should have a strong advocacy component to integrate comprehensive age-appropriate comprehensive sexuality education (CSE) into the school curriculum in a spiral manner. There should be regular monitoring of performance indicators using the M&E system. The political empowerment dimension of the Global Gender Gap Index for Sri Lanka has had a nose-dive, and bracing it up in the current political turmoil is a huge challenge.

People with special needs and marginalized groups do not access services due to a variety of reasons. Women with disabilities and special needs should be offered case-by-case care. Women who suffer from various chronic diseases such as diabetes who can have adverse effects on pregnancy outcomes, leading to stillbirths, neonatal deaths, and birth defects should also be given targeted interventions during preconception and antenatal period to prevent adverse pregnancy outcomes.

The supply management chain disruptions that took place during the pandemic should be corrected and, stock-out situations of healthcare products and devices for various procedures including for family planning services, vaccinations, and essential drugs for chronic diseases (drugs for hypertension and diabetes for pregnant women) should be corrected to reduce the resulting poor health outcomes. Quality of the FHP across all stages of the life-course has not been assessed and a quality improvement plan is not available.

Sri Lanka records the best family planning performance in the region. However, in the recent past, stagnation has been observed in the family planning practices and services due to social and political disturbances. This will have far reaching adverse consequences on the population at large and the health and non-health sectors. High level advocacy for policy makers, politicians, religious leaders, and opinion leaders is essential.

The FHP has the capacity, subjected to strengthening some interventions (moving away from business-as-usual concept) to achieve universal health coverage (UHC) as envisaged in the sustainable development 2030 agenda to reach SDGs identified for Sri Lanka based on the principle of 'leaving no one behind', by making efforts to ensure equity in service distribution.

Recommendations

Strategic recommendations

1. A high-powered external programme review of the FHP is recommended. The FHP has achieved excellent social and health indicators and has become a success story in the South Asia region by adopting evidence-based policies, strategies, interventions and a strong network of curative and preventive services together with a committed and competent workforce. Focus on equity, efficiency and effectiveness should be high on the agenda of the FHB. The FHP needs to be evaluated with a view to understand the gaps/bottle necks, which is needed to reach the stipulated goals.

2. Based on the recommendations of the external evaluation report, FHB should arrive at a consensus on policy, strategic changes, and appropriate interventions to close the identified gaps and strengthen the National MCH Policy or develop a fresh policy.

3. Strengthen multi sector involvement making the relevant ministry secretaries accountable for their respective roles as identified in a TOR to further reduce nutritional problems, antenatal anaemia, neonatal, infant and under 5-year mortality, considering the existing country economic crisis with ever widening gap of inequity, and prevent and control NCDs and improve adolescent and youth health.

4. At the MoH level, the reproductive maternal, newborn, child, adolescent, and youth health programme needs to be strongly linked with the National NCD prevention programme for better resource management and coverage, with the focus of contributing to primary prevention of NCDs through appropriate life cycle interventions.

5. The RMNCHY Health Information Management System should be developed in an environment of data system governance, interoperability, etc.

6. A Health workforce assessment should be completed and lobbing should be done for filling cadre positions.

Human resource development

1. Cadre identification and timely renewal of vacancies are suggested to alleviate human resource challenges with a special focus on recruitment, training and retaining the staff. Existing gaps in PHM and PHI cadres should be urgently addressed.

2. A top-down system needs to be established to make individuals accountable for non-performance.

3. Develop a performance appraisal system to keep the motivation of staff at a high level, especially the grass root level workers and middle level staff such as PHMs, MOHs, PHNSs and SPHMs. This should be linked with a grievance redress system for public health staff and regular motivation programmes.

4. Ensure that government interventions for gender equality confront the challenges of violence against women, especially among marginalized and vulnerable women, and issues of sexual orientation.

5. A Supply- Chain-Management system should be in place to ensure an uninterrupted supply of health products and devices necessary for the FHP including family planning. Healthcare providers should be trained in making projections and estimations for health products and devices.

Programmatic Recommendations

1. The following points have been highlighted in the policy review which need to be addressed.

Improving coverage and quality of MCH services and further reduce MMR

1. Special emphasis should be given to improve quality of antenatal and postnatal care by regular timely supervisions covering all the service delivery components across the country.

2. Develop an essential service package for, post-abortion care including prevention,counselling and stigma & discrimination and, train field and hospital-based staff. The module on stigma and discrimination should be accessible to the community through civil society organizations
3. Identify and introduce innovative targeted interventions to ensure provision of MCH services to marginalized and vulnerable groups and geographically difficult to reach populations

(women in urban slums, plantation and other geographically disadvantaged areas, women with disabilities, women in poverty) and programmatic M&E indicators should be identified.

4. New strategies and activities should be identified to reduce under 5-year obesity, with a monitoring process.

5. MCH indicators should be analyzed considering the setting (estate and urban sector disaggregation) each year by the relevant directorate for special groups and other marginalized and vulnerable women.

6. Low-birth-weight babies should be linked to a structured nutrition programme under a group of experts- pediatricians, nutritionist, etc.

7. Growth monitoring and nutrition promotion should be strengthened to minimize existing gaps at the sector and area level.

8. Integrate EMTCT into the FHP for better resource management of services, leaving the primary responsibility to the NSACP for patient management including ART, and supply of test kits. Develop a protocol for referral and back-referral of HIV positive antenatal mothers.

9. Appoint a group of experts to study the WHO recommendations published recently to reduce the MMR and make recommendations to adapt and implement new strategies.

10. Implement the recommendations given in the National Family Planning review 2016 in relevance to the demand, rebranding and enabling environment.

11. Services for sub-fertile couples should be scaled up to cover all districts in a scaled-up manner after conducting a feasibility study.

Reduce birth defects and stillbirths

1. Strengthen the pre-conception service package by ensuring awareness of couples on birth defects, availability of screening for birth defects, and genetic testing facilities.

2. Ensure newborn birth defects are identified early and referred to appropriate services.

3. Establish counselling facilities for parents of a baby with birth defects.

4. Care and management for children with birth defects are suboptimal, therefore, identify designated in-patient wards to cater to 100% of children with birth defects until a national designated hospital could be made available. A network of clinicians comprising of pediatricians, neonatologists, plastic surgeons, anesthetists, counsellors, and nursing officers, should be developed.

5. Reorganize, strengthen and expand the birth defects (BD) surveillance & stillbirth (SB) reporting with regular healthcare staff training.

6. Expand genetic testing & counselling to reduce birth defects.

7. Establish bone marrow transplantation service in selected specialized centers after eveloping multi-disciplinary teams.

8. Stillbirths are already included in the national HIS & Vital Registration System. Integration of BD and SB surveillance into the National Health Information System (HIS) is vital.

9. Strengthen the thalassemia screening programme and bone marrow transplant programme.

Children with special needs

1. The follow up of school children with special needs, suspected heart diseases, visual impairments and hearing defects has to be strengthened. The follow up visits by the public health care provider for the students identified with correctable defects should be closely monitored at the MOH level. Education sector should be advocated, and actively involved in the follow-up process.

Adolescent health

1. Develop strategies to reduce teenage pregnancy and review policies on legal age at marriage and different ages for different population groups.

2. Advocacy for integrating comprehensive sexuality education (CSE) into the school curriculum.

3. School health policy should be developed and implemented with strong advocacy for the education sector with a view to integrate CSE into the school curriculum.

Gender and women's health and empowerment

1. The FHB should be strongly linked to the country programme – the Ministry of Women and Child Affairs, and include the health sector response in the proposed National Plan for prevention of SGBV and thereafter develop a robust M&E plan for the health sector component.

2. Gender and Healthcare should be included in all health workers' curricula and ensure LGBTQI+ groups also have the right to health.

Quality control and quality assurance

1. Develop a Quality Assurance and Quality Control Plan for the FHP giving special emphasis to improve quality of antenatal, delivery and postnatal care and timely supervisions covering all the clinics and conducting regular programme reviews.

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2. Implement the directions given by DGHS circular (FHB/MCU/QoCTool/2021) on National Maternal and Newborn Care Quality Assessment Tool for the antenatal ward, labour room, post-natal ward, and newborn unit to increase quality of care.

3. The FHB should develop a strong link with the Directorate of the Healthcare Quality and the Health Information and Quality Improvement (HiQi) project of the MoH funded by the GFATM. An evaluation is necessary to assess the programme in relation to provision of quality MCH care and its outcomes.

4. FHB should identify the training needs of all MCH related staff and develop a training plan and allocate resources and work in partnership with respective Colleges and Associations and the private sector.

Strategic Information and Management

1. MCH indicators should be analyzed considering the setting (disaggregated – sectoral- estate and urban sector, age, etc.) each year by the relevant directorate.

Sub strategy 1.2-: To improve intra partum care by identified national standards (Clinical Governance in Labour Room)

Sri Lanka has been able to halve the number of neonatal deaths over the past decades, but however, around 2000 babies die during the neonatal period and another 1000 are lost as stillbirths. Essential new-born care, care for the sick newborn, early initiation of breastfeeding, coupled with high institutional delivery rates by skilled healthcare staff with evidence-based interventions such as use of partogram to monitor the progress of labour, pain relief, availability of an package of emergency obstetric and newborn care (EmONC), use of Modified Obstetric Early Warning Signs (MOEWS) for pregnant mothers with obstetric complications, have contributed to the favourable outcome of neonates. Sri Lanka has set an ambitious target under SDG to reduce the newborn mortality to less than 2.2 per 1000 live births by 2030.

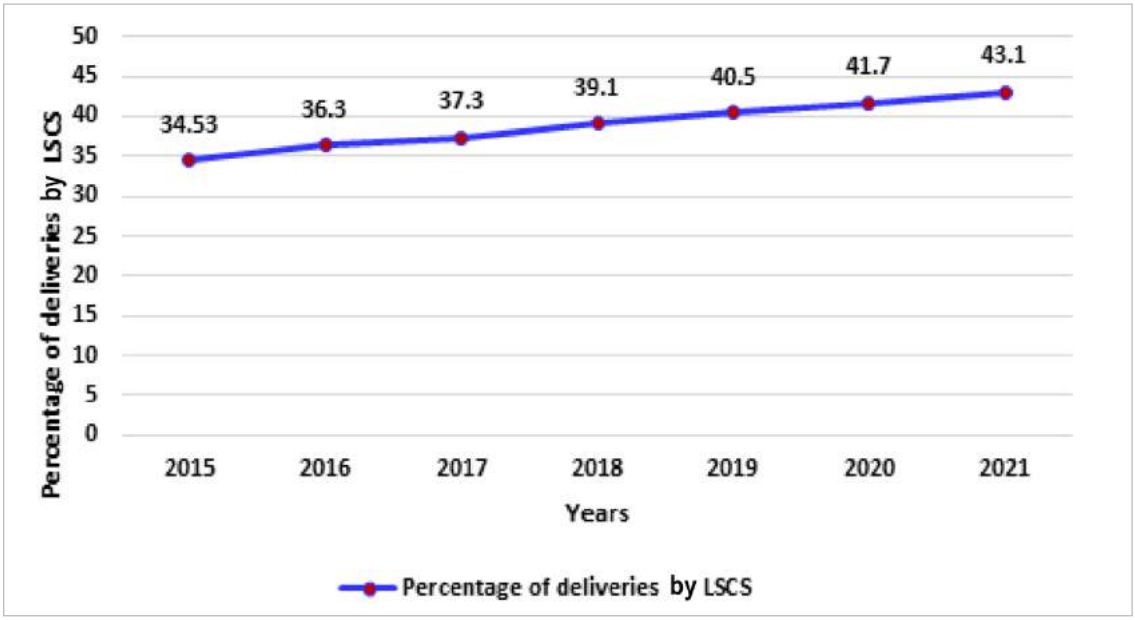
National Policies

The National MCH Policy (2012) gives direction to the provision of intra-partum care. The FHB is responsible for policy implementation as per the National Strategic Plan: Maternal and Newborn Health (2017-2025), With the support of several stakeholders including obstetricians, neonatologists, paediatricians, Medical Officer of Health team and mothers support groups. NMP is also responsible in giving leadership to developing evidence-based guidelines for essential newborn care, newborn screening for selected diseases, monitoring and evaluation of programme outcomes and impact and coordinating interventions such as infrastructure development and human resource development. According to the WHO, routine or liberal use of episiotomy is not recommended for women undergoing spontaneous vaginal birth to reduce maternal morbidity. WHO has recommended to have an episiotomy rate below 10% for all normal deliveries. However, in Sri Lanka, episiotomy is used almost routinely in vaginal deliveries without anaesthesia, despite the national recommendation, and 92% of deliveries taking place in specialized hospitals. Many local studies confirm widespread use of routine episiotomy in the local setting. In 2013, the episiotomy rate at the Castle Street Hospital for Women was 97.8% for primiparous women and 94% for multiparous women, and at Teaching Hospital Anuradhapura the rate was 85% for primiparous women and 29.9% for multiparous women. Nevertheless, Sri Lanka does not have routine collection of data on the practice of episiotomy which has fallen out of favour in several countries since it actually contributes to worse tearing than that might occur naturally during labour.

Sri Lanka has a high Lower Section Caesarean Section (LSCS) rate. The reported rate in 2015 was 34.5%, Improving quality of care in all service delivery platforms is a major need. It should be matched with client expectations and demands including the accessibility and availability of services during convenient hours. The post-LSCS surgical site infection rates in recent years are as follows: 0.75% (2017), 0.6% (2018), 1.97 (2019), 0.59% (2020), 0.64%(2021). In this background, the DGHS alerted the healthcare providers on the collection of post LSCS surgical site infection data by General Circular 01-41/2015 dated 04.05.2015. The vision of the FHB is to reduce the primary LSCS rate by 25% from the value in 2015 by 2025.

It is said that one of the most successful labour room interventions is having a companion present during labour and delivery. Although it is explicitly not mentioned in the National MCH Policy, the National Strategic Plan: Maternal and Newborn health 2018-2025 has identified this need as it has been demonstrated to benefit the mother, the newborn, and the labour process. Benefits include a

reduced need for analgesia, shortened labour, a greater likelihood of normal delivery, greater maternal satisfaction and better breastfeeding success. In alignment with the National Strategic Plan on Maternal and Newborn Health 2017-2025, the Director General of Health Services (DGHS) by General circular letter 2017:03 has issued guidelines to accommodate a companion to support the pregnant mother during labour. The individual institutions implement this practice within the logistics available including space in labour rooms, privacy of other women in the labour room and safety of female employees, etc.



Source : FHB data

Figure 37 : Percentage of deliveries by LSCS from 2015 to 2021

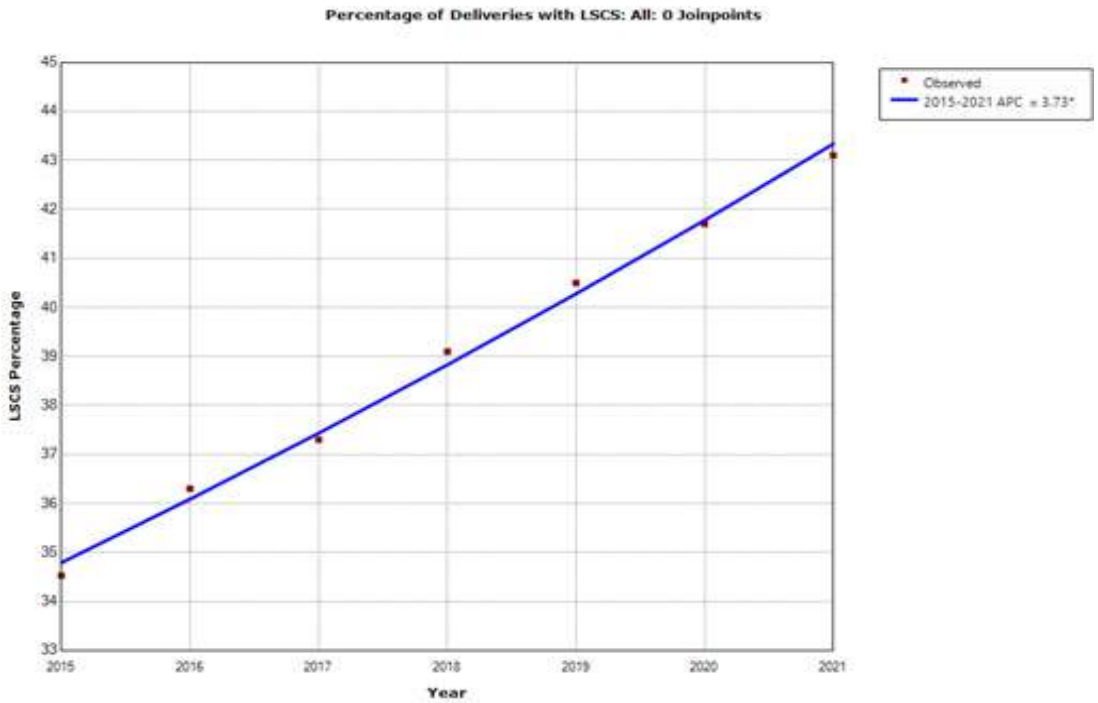
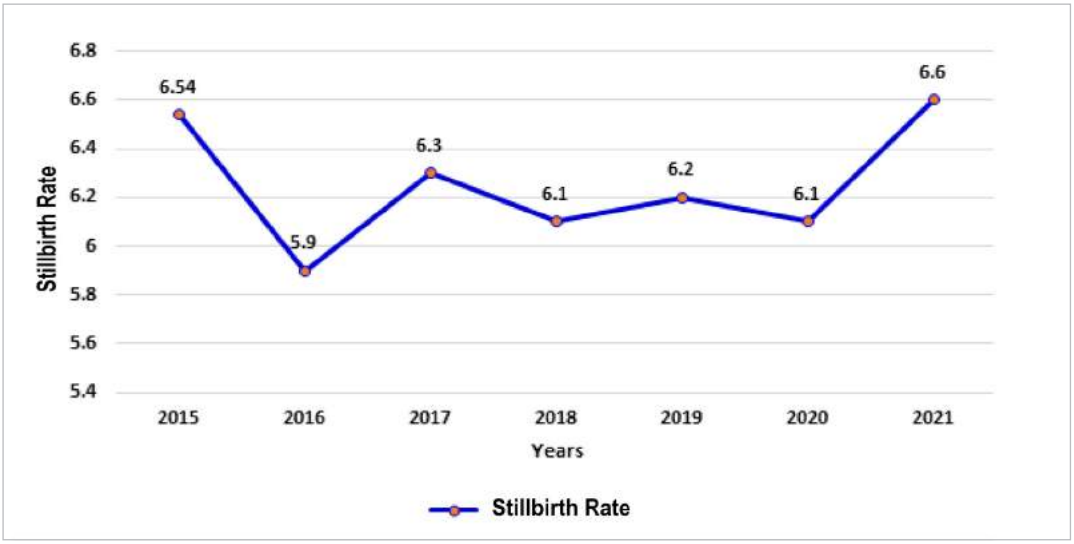


Figure 38: Trend analysis for percentage of LSCS

The trend analysis shows a statistically significant increase of LSCS rate with a +3.73 annual percentage change in the period from 2016 to 2020 in Sri Lanka. LSCS are absolutely critical to save lives in situations where vaginal deliveries would pose risks, however, there should be a critical analysis of the factors which resulted in this situation and steps should be taken to address this issue.

Births attended by skilled health personnel has been identified under the SDG as a target. For Sri Lanka, this percentage is targeted as 100% by the year 2030. The number of deliveries by untrained personnel was less than 0.6% average during each year from 2015-2021. Moreover, the number of home deliveries from 2015 to 2021 was less than 0.1% in each year from 2015-2021 and the percentage of health institutional deliveries was 99.9% for each year during this period. Reducing babies dying in utero after 28 weeks of gestation (stillbirths) is given due attention in Sri Lanka. The aim is to reduce the Stillbirth rate to 3.5 per 1000 births by 2030.



Source : FHB data

Figure 39 : Stillbirth Rate from 2016 to 2021

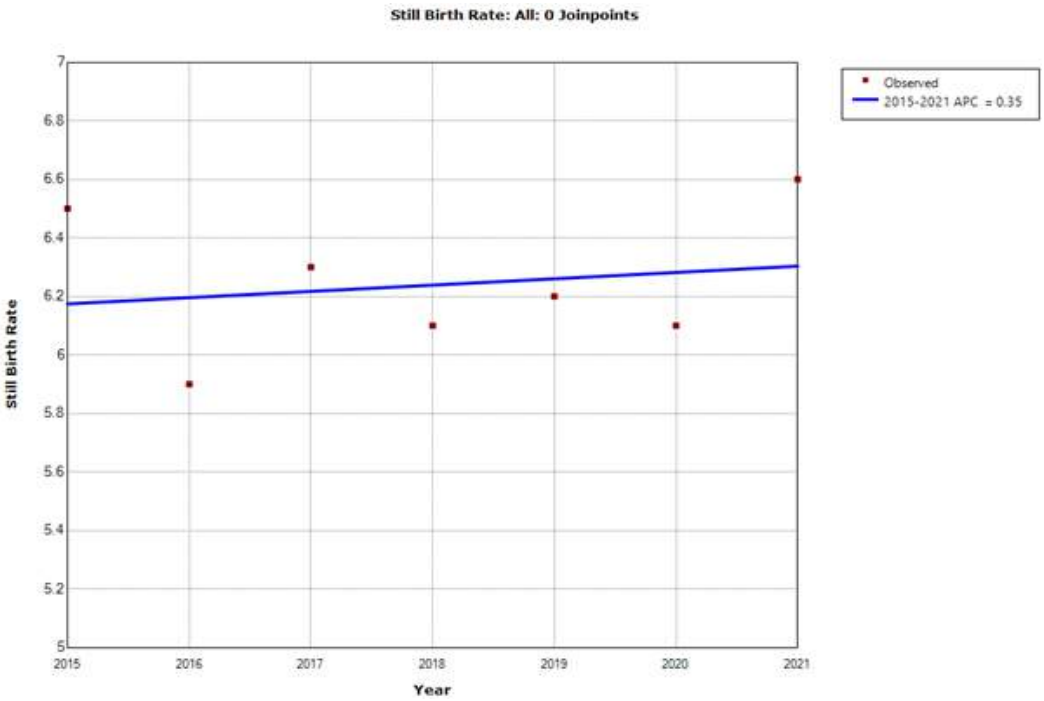


Figure 40 : Trend Analysis for Stillbirth Rate

Although the trend analysis shows a slight increasing trend in stillbirths from 2015-2021, it is statistically not significant. However, to achieve its target, Sri Lanka will need to accelerate its efforts to implement and monitor the existing prevention and care measures. Mother Baby Centers (MBC) to provide care for sick babies and mothers are available in 46 hospitals, and Lactation Management Centers (LMC) to support mothers with breastfeeding problems are available in 80 hospitals. It is expected that all the hospitals providing specialist care for the newborn should have a MBC and a LMC.

DHS 2016 revealed that exclusive breastfeeding under six months of age was 82%, initiation of breastfeeding within one hour of birth was 90.3% and children ever breastfed out of all children under five years was 99.4% in Sri Lanka. For promoting BF conservation, promotion and support, Sri Lanka is regarded as a global role model. This is reflected in the country becoming the first ever nation to have received a 'green status' by the World Breastfeeding Trends initiative (WBTi) in 2019.

Challenges in improving intra partum care are multifactorial, including strengthening policy taking into consideration the rights of people and the lack of institutional clinical governance, through use of standards, audits, hospital reviews and most importantly national level accountability.

Recommendations

There is a need to strengthen policies and address policy gaps especially related to practice of procedures not adhering to national guidelines and lack of accountability, strengthen data management system and comprehensive M&E with feed backs on implementation gaps to the health hierarchy.

1. Standardization of intrapartum care through improved compliance with the national guidance and accountability

2. Inculcate a clinical audit culture within the hospital setup to monitor completion of partogram during labour, review stillbirths and near-misses occurring in the labour room and in intrapartum care.

3. Improving quality of care in all service delivery platforms is a major need especially considering the high LSCS rate and episiotomy rate.

4. Service provision should be matched with client expectations and demands including the accessibility and availability of services during convenient hours.

5. Strengthen the implementation of quality of care, and the companion at birth programme is vitally important.

6. The hospital information system on intranatal and newborn care should be improved. Although many of the indicators are identified in the National Strategic Plan on Maternal and Newborn Health) the data collection method has not been developed. Though the data collection for a few indicators in the eIMMR has been initiated, there is severe underreporting due to the lack of commitment from the hospitals. (The data on the proportion of pregnant women with the risk of delivering at < 34 weeks of gestation receiving one dose of antenatal corticosteroids, mothers receiving pain relief during labour, institutions following induction of labour guidelines, women who have a companion of choice during labour and delivery, and pregnant women whose labour was monitored using the partogram and near misses were not available, and special survey reports are also not available). The targets are to be achieved 100% by 2025.

7. Hospitals based individual data tracker from the point of service provision: availability of a comprehensive database which could be used at all points including wards, units, hospitals, districts, and the national level.

Sub strategy 1.3-: To ensure quality and efficiency of the National Immunization Programme and a robust monitoring and evaluation system.

Background

National immunization is the main strategy for prevention of communicable diseases. The overarching strategic priority of the life course approach is considered in the prevention and control of vaccine-preventable communicable diseases. Active immunity is provoked by vaccination, and the active immunity thus produced by stimulation of the immune system will last for many years, often for a long time depending, on the type of vaccine. There are two basic types of vaccines, namely, live attenuated and inactivated vaccines.

The history of immunization in Sri Lanka goes back to the 19th century. The law relating to compulsory vaccination (against smallpox) is referred to in the Vaccination Ordinance of 1886. The BCG vaccination (1949) against tuberculosis, the "triple vaccine" against diphtheria, tetanus and whooping cough (1961), oral polio vaccine (1962), BCG vaccination of newborns (1968) and tetanus vaccination for pregnant mothers (1969) were introduced. In 1978, the expanded programme on immunization (EPI) was launched with political will at the highest level, and gradually WHO recommended vaccines were introduced and the most recent was vaccination against COVID-19.

National policies, strategic and action plans

The main focal point for the National Immunization Programme is the Epidemiology Unit. The National Health Policy gives the overarching policy directions, and the National Immunization Policy was endorsed by the Cabinet of Ministers of the Democratic Socialist Republic of Sri Lanka on 16th October 2014 as per Cabinet Memorandum No 14/1017/509/050. It ensures the availability and affordability of quality immunization services with safe and quality vaccines and rational and evidence-based introduction of new vaccines. It also supports the implementation of the National Immunization Programme by ensuring financial sustainability and advocacy.

The National Maternal and Child Health Policy and the National Child Health Policy strongly recommend the implementation of the National Immunization Programme to provide vaccines based on evidence. In alignment with the Global Strategy of Immunization Agenda 2030 (IA2030) and leaving no one behind, Sri Lanka has achieved the expected cost-effective deployment of vaccines, achieving high coverage and function. International Association 2030 positions immunization as a key contributor to people's fundamental right to the enjoyment of the highest attainable physical and mental health and also as a future investment in creating a healthier, safer and a more prosperous world for all. The chief epidemiologist, is supported by a group of epidemiologists and networks with Regional Epidemiologists (RE) distributed island-wide. The Epidemiology Unit is responsible for implimenting policy recommendations related to vaccines based on evidence, developing strategic interventions, providing technical expertise for implementation, data management and monitoring and evaluation of the programme.

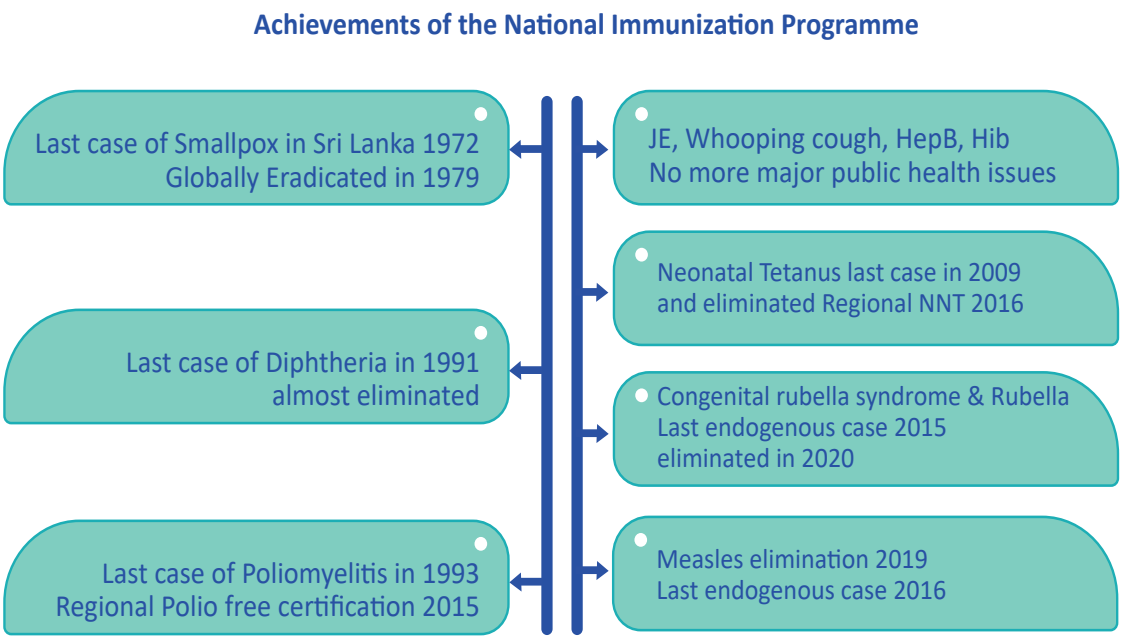
Introduction of required new vaccines and amendments to the National Immunization schedule are under the expert guidance of the Advisory Committee of Communicable Diseases (ACCD), which is considered as the National Immunization Technical Advisory Group (NITAG). Decisions are made based on the evidence-based recommendations. The final decision on such changes will be done in line with country health policies by the Ministry's higher authorities, together with the relevant programme managers. All these decisions are evidence-based and take into consideration, cost-effectiveness and averting of infections. The required regulatory approval for vaccine procurement and use in the country is based on a registration process under the regulatory legal framework of the National Medicines Drug Regulatory Authority (NMRA). The NMRA covers a share of the responsibility of maintaining the quality of the vaccines used in the national immunization programme.

Service delivery

As a long-standing national programme with a dynamic implementation system, it has become a well-recognized programme among the community with a higher level of adherence. Immunization services are integrated into the PHC delivery system since its inception, to ensure the availability of quality immunization services in a sustainable and equitable manner. The high vaccine coverage has been achieved through a very strong public health system as well as free healthcare delivery. Private sector also accounts for provision of a small percentage of vaccinations.

Among the vaccine preventable communicable diseases, World Health Organization (WHO) has declared that endogenous measles has been eliminated in 2019 and endogenous rubella and congenital rubella syndrome were eliminated in 2020 in Sri Lanka. High coverage with the measles vaccine is an indicator of a strong immunization programme. Sri Lanka achieved poliomyelitis eradication through the EPI and is maintaining a polio-free status by ongoing surveillance programmes. Acute Flaccid Paralysis surveillance is continued among under 15 year old children. An Immunization Handbook for National Expanded Programme on Immunization (NPI) has been prepared and published by the Epidemiology Unit in 2012. This publication contains all the important information on vaccines of the NPI schedule and procedures during vaccination.

Three important components of a NPI, namely, monitoring Adverse Events Following Immunization (AEFI), cold chain monitoring of vaccine wastage are practiced by the national programme. Guidelines are made available for this purpose, and medical staff are continuously trained.



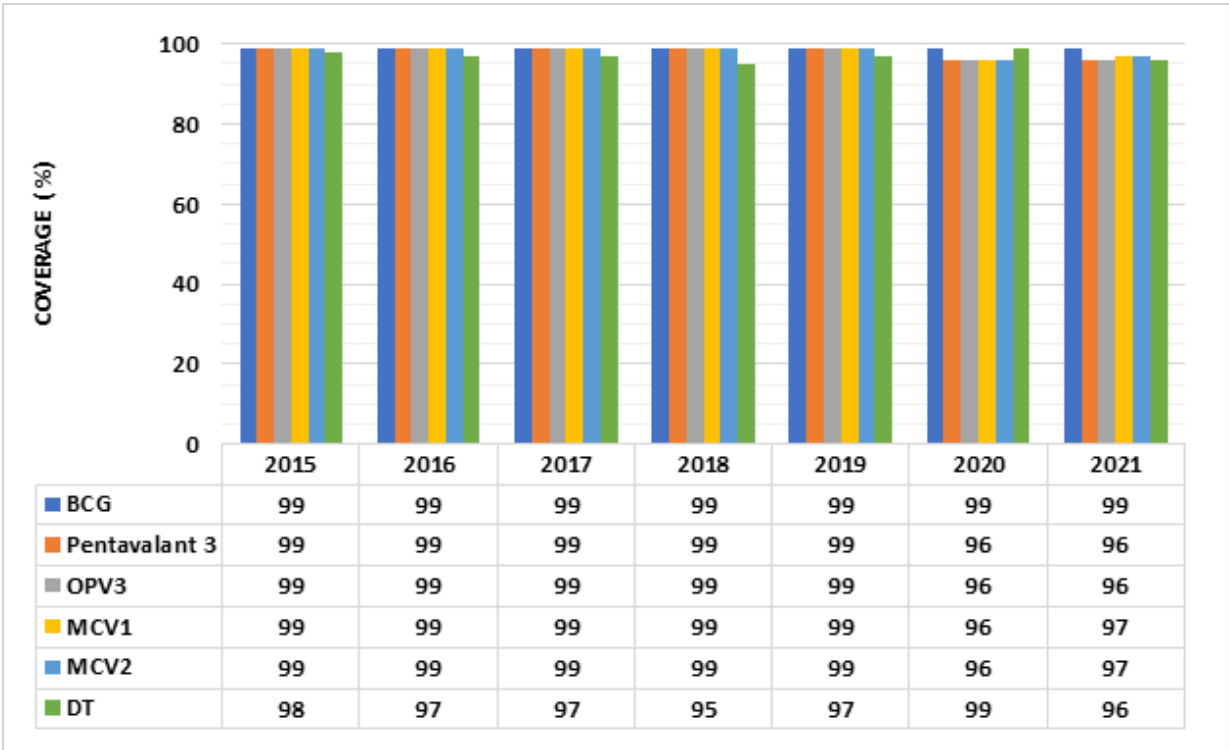
Source: NHP 2016-2025

Figure: 41 Achievements of the National Immunization Programme up to 2020

Timely information sharing of the National Immunization Programme with national stakeholders and international partner organizations make the programme a success and help to identify any gaps and challenges in the programme and make the trajectory for elimination and eradication of Vaccine Preventable Diseases (VPD). Case based VPD surveillance not only identifies high risk geographies and population categories, but also promotes operational research to identify immunity gaps. Burden assessment and research help in timely public health interventions and introduction of new vaccines in a rational manner.

Table 10 : National Immunization indicators for SDG

Indicator number	Indicator	Baseline	End 2021	Target 2030
3.8.1.3.	Percentage of infants receiving three doses of diphtheria-tetanus –pertussis containing vaccine	DPT3 97% (2016)	96%	100%
	3.b.1.	Baseline values are for 2016		
		BCG-99.2%	99%	100%
		DPT 3- 97%	96%	100%
		Polio 3- 96%	96%	100%
		MCV-2- 99%	97%	100%
		TT -96.2%	96%	100%
		HPV (0) started in 2017	HPV 2 46%	100%



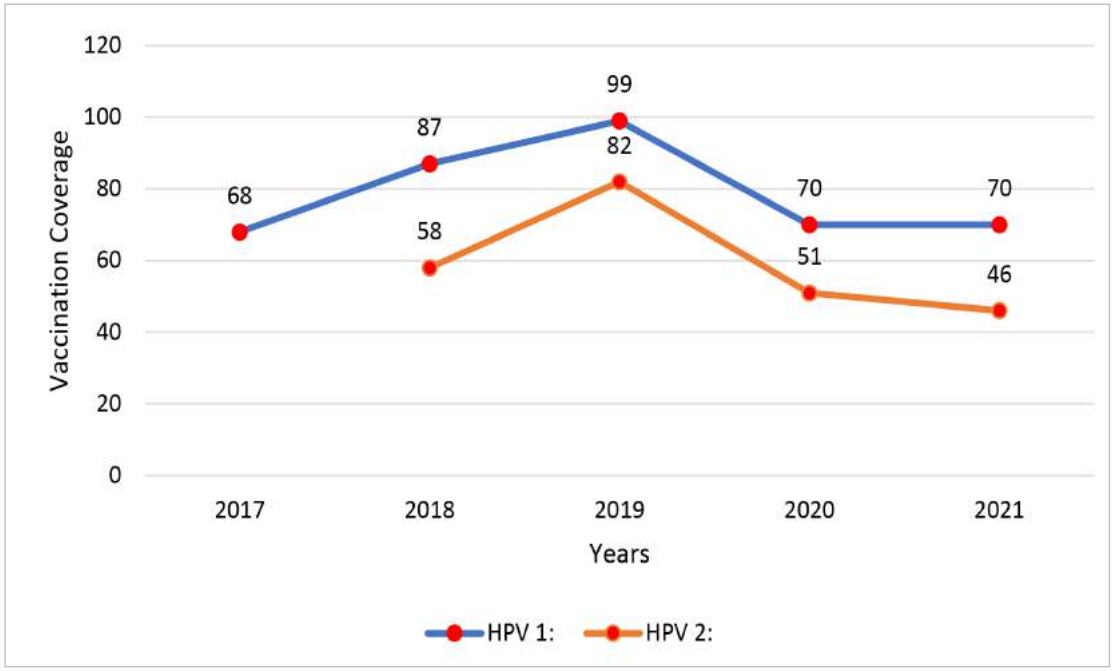
Source: Epidemiology Unit

Figure 42 : Immunization Coverage from 2015 to 2021

Sri Lanka has set the SDG target of achieving 100% children receiving three doses of Diphtheria, Tetanus and Pertussis containing vaccine.

It has already achieved 99% during 2019, and later, it dropped to 96% in both 2020 and 2021 years which may probably be due to the COVID-19 pandemic.

The HPV vaccine was introduced to the NPI in 2017 as two doses six months apart for Grade 6 and 7 school girls targeting elimination of cervical cancer.



Source: Data from Epidemiology Unit

Figure: 43 HPV1 & HPV 2 vaccine coverage from 2017-2021

The above figure shows that the HPV 1 & 2 vaccine coverage was severely affected during the COVID 19 pandemic and there is a need to identify more strategies to achieve cervical elimination targets by 2030

Recommendations

1. Further strengthen monitoring and evaluation of the National Immunization Programme by adopting evidence-based timely interventions to ensure sustainability and quality of the immunization programme.

2. Additional funding is required in three areas: cold chain (storage, vehicles, equipment and training), quality (vehicles and training), and injection safety (equipment). Liaison with UNICEF and JICA will facilitate a comprehensive donor approach in supporting these areas.

3. Adoption of modern ICT to strengthen immunization-related data management systems to further improve analysis, interpretation of data for timely decision making and dissemination of results to relevant stakeholders.

4. Introduce monitoring and evaluation mechanism of private sector immunization programmes with a legal framework.

5. To periodically assess the disease conditions and introduce new vaccines / increase coverage and to ensure high coverage (Typhoid) as well as protection from diseases where protection from vaccines is not available under NPI.

6. Improve immunization literacy among the general public to maintain high coverage.

Sub strategy 1.4-: To strengthen surveillance of food and water-borne diseases

The prevalence of food and water-borne diseases in Sri Lanka is relatively less when compared with the neighboring countries in the South-East Asian region. It could be attributed to both health and non-health activities carried out over several decades. General improvement of the economic and living standards in the country has played a major role in the reduction in food & water-borne diseases.

SDG 6 calls for ensuring universal access to safe and affordable drinking water, sanitation and hygiene, and ending open defecation. It also aims to improve water quality and water-use efficiency and to encourage sustainable abstractions and supply of freshwater. It has 6 targets and 11 indicators to track the progress.

There are four main food and water-borne diseases under surveillance in Sri Lanka. They are hepatitis A, typhoid, dysentery and food poisoning. Sri Lanka has a well-established disease surveillance system for communicable diseases which helps to identify food & water-borne disease outbreaks early and initiate control and preventive activities. Further, it provides information on the success/failure of the already existing control and prevention programmes. This is an electronically driven real-time disease surveillance system which helps the Epidemiology Unit to map out the communicable disease state in the country at any given time.

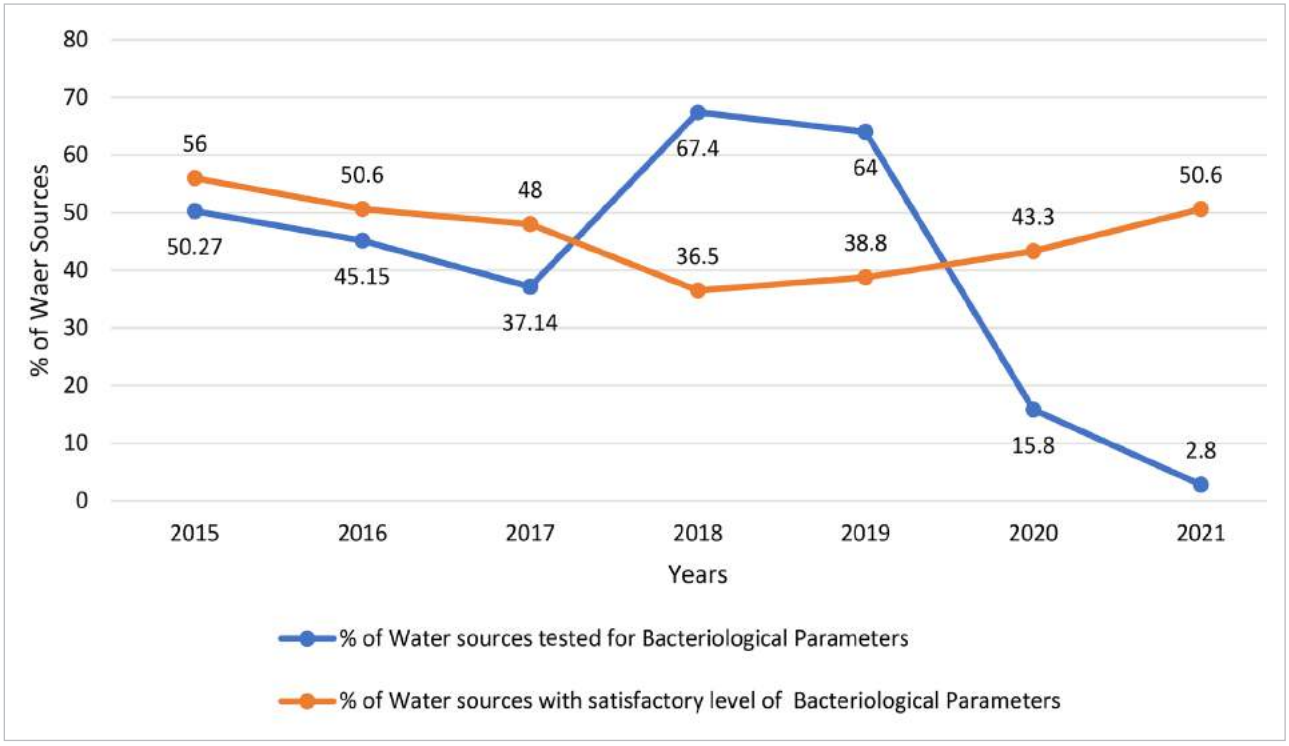
There are vaccines for hepatitis A and typhoid. Typhoid vaccine is given through the field clinic settings organized by the MOH offices throughout the country for people who handle food in the food industry. Further, there is a time-tested outbreak management protocol for every communicable disease including food and water-borne diseases. District teams are led by a specially trained dedicated medical officer named Regional Epidemiologist, with the guidance of the Epidemiology Unit. Medical Officers of Health and Public Health Inspectors (PHI) work round the clock to prevent the spread of the disease in the event of an outbreak.

Water Quality Surveillanceis carried out, where water samples from each MOH office in the country are sent for bacteriological testing to the water quality labs in the Ministry of Health, once a month. This helps to identify the drinking water sources which are contaminated by faeces and to take necessary actions. The value of drinking boiled cool water and proper disposal of human faeces have been constantly reiterated during the health education talks. Improvement of sanitary facilities is a mandatory component of the PHI's duty list. Initial and ongoing staff training at regular intervals on food and water-borne diseases prevention and outbreak control activities is one of the secrets to high success.

Continuous surveillance of food establishments for quality standards by using uniform guidelines by the PHIs helps to regulate food safety in the country. Adding to this, in all MOH divisions a monthly food raid is organized to identify whether food establishments are following the above guidelines, and if not, that food will be destroyed and legal action will be taken against the vendors. Further, the country has specific guidelines to prevent food and water-borne disease outbreaks in disaster situations.

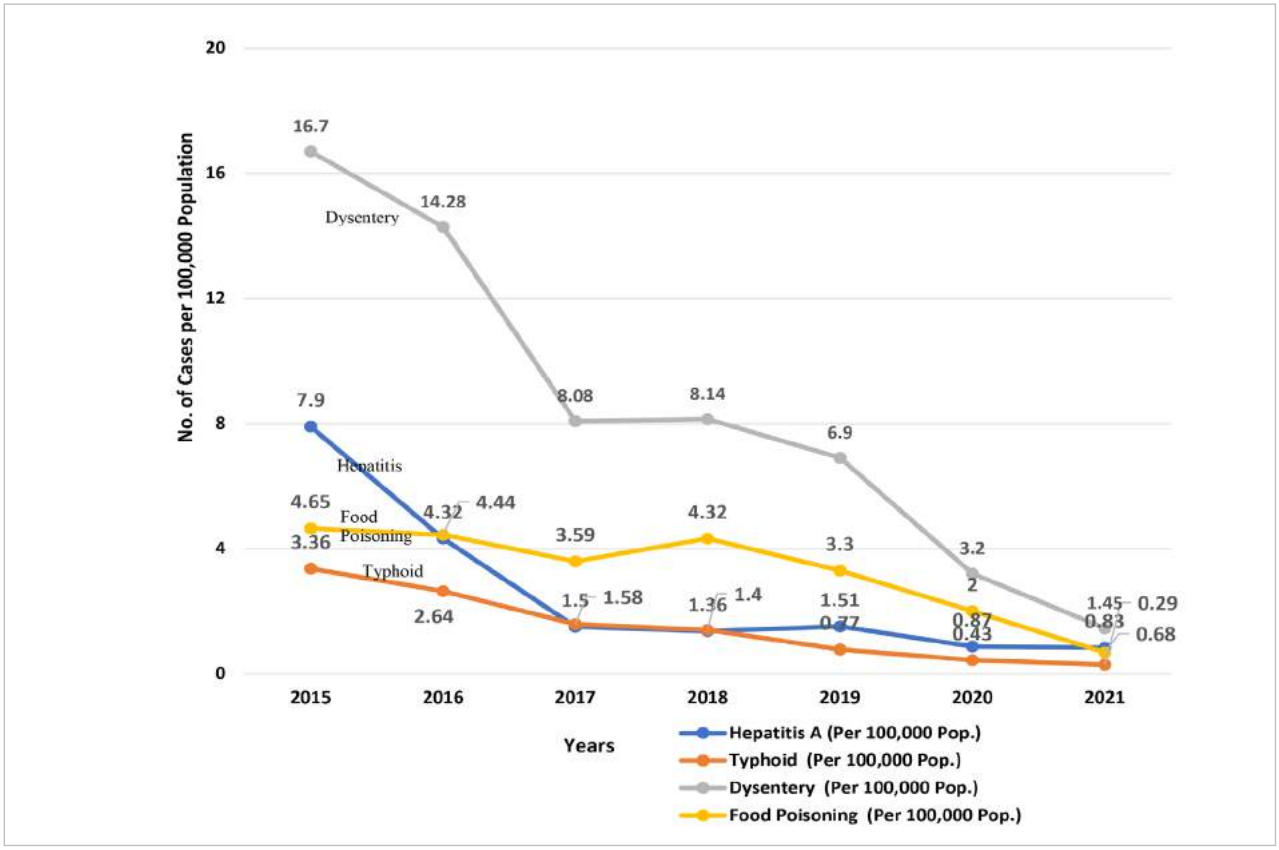
The DHS survey -2016 notes that the percentage of population using improved sanitation facilities was 91.2%, and the SDG target is to achieve 98% by 2030. The same survey indicated that population managed safe drinking water was 90.4%, where the target is to achieve 100% by 2030 .

Preserving the catchment areas of the water sources, proper purification of drinking water, especially the community water schemes and wells, strict law enforcement for food establishments and continued vaccination will be the way forward for the food and water borne disease surveillance in the country.



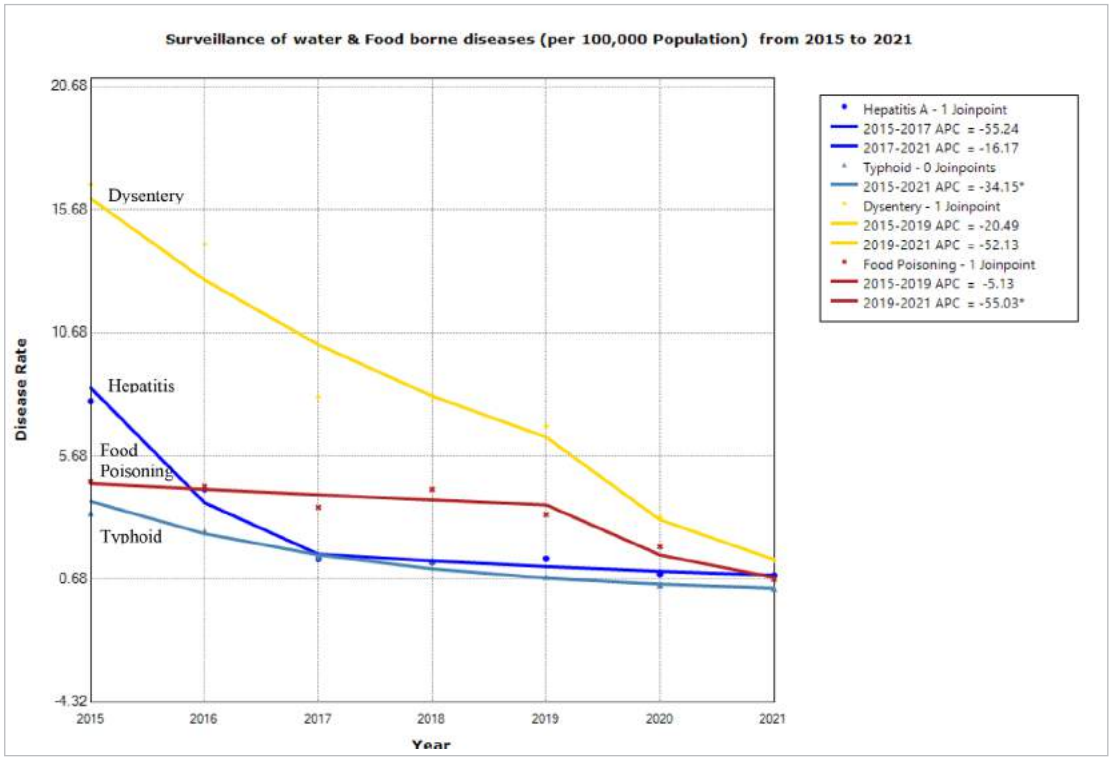
Source: Data from Epidemiology Unit

Figure 44: Water Quality Surveillance from 2015 to 2021



Source: Data from Epidemiology Unit

Figure 45 : Number of Cases per 100,000 Population of water & Food borne diseases from 2015 to 2021



Source: Data from Epidemiology Unit

Figure 46 : Trend of water borne diseases from 2015 to 2021 in Sri Lanka

The above graph shows the decreasing trend of hepatitis A and dysentery cases per 100,000 population from 2015 to 2021. The number of typhoid cases per 100,000 population from 2015 to 2021 shows a significant trend line with an annual percent change of -34.15. Food poisoning has a non-significant trend line for 2015-2018 and a significant trendline of an annual percent change of -55.03 from 2019-2021.

This is probably due to the closure of several food establishments, restricted movements and the increased household food preparation during the COVID 19 pandemic.

Food Act and Food Regulations

Food safety, nutrition and food security are inextricably linked and there are more than 200 diseases, ranging from diarrhoea to cancers caused by food habits. It has been proven that in addition to the food borne illnesses, malnutrition and non-communicable diseases are also related to food intake patterns. In Sri Lanka, adoption of the open economy, industrialization, globalization, urbanization and online trades have all contributed to the rapid evolution of the food industry in the recent decades. Therefore, it is vital to ensure food safety in each step of the food chain from farm to folk, and many strategies are required to ensure food safety. Food Act and its regulations are the main legal arms in assuring food safety in Sri Lanka.

A national food control system ensures that food available within a country is safe and fit for human consumption, conforms to food safety and quality requirements, and is honestly and accurately labelled as prescribed by the law. The Food Act controls food manufacture, process, importation, distribution, transportation, storage, sale, offer or exposure for sale in Sri Lanka. There are many food regulations which have been formulated under the Food Act including Food (Advertisement and Labeling) regulations. After obtaining independence from the British in 1948, Sri Lanka's first Food Act came into force in 1949. The British king, with the advice and agreement of the Ceylonese Senate and House of Representatives, passed the Food and Drug Act, No. 25 of 1949 (Sri Lanka). Sri Lanka became fully independent in 1972, giving it the ability to pass legislation through the Parliament. The Food Act, No. 26 of 1980, succeeded the Food and Drug Act, No. 25 of 1949. In contrast to earlier legislation, which included both food and

pharmaceuticals, the latter only addresses food. The Food Act No. 26 of 1980 (Gazette No 353) is the most important regulation on food control, notified by the Government of Sri Lanka (GOSL) and is administered by the Ministry of Health. All the regulations pertinent to food control are published under Food Act No. 26 of 1980. The Food Act has been amended twice as the Food (Amendment) Act, No. 20 of 1991 and the Food (Amendment) Act, No. 29 of 2011. The Minister of Health has been given the power to form food regulations under the section 32 of the Food Act No 26 of 1980. Accordingly, over 30 food regulations have been formulated to ensure various aspects in food safety.

Food Control Administration Unit

Director General of Health Services is the Chief Food Authority (CFA) of Sri Lanka. Authorized officers designated under the Food Act are responsible for implementing the Food Act and its regulations. Food Control Administration Unit (FCAU) which comes under the Directorate of Environmental Health, Occupational Health and Food Safety is responsible for coordinating and monitoring of regulatory services and providing technical guidance to local authorities in order to ensure safe food for consumers. The functions of the FCAU are broadly categorized into 3 areas: Food Import Control, Food Export Control, Domestic food control.

Vision of the Food Control Administration Unit

A healthier nation through provision of safe food for all.

Mission of the Food Control Administration Unit

Protect consumer's health and build consumer trust by ensuring that food consumed, distributed, marketed or produced meets the highest standards of food safety and hygiene.

Table 11 : Recommended indicators

Programme Objectives	Indicators	Means of verification
To protect consumers from preventable health risks (food related)	• Incidence of food born disease	• Notification data from Epidemiology unit.
To provide information for consumers to enable better consumer choices	• Percentage of consumers who purchased food product by using information in food label	• Special survey
To protect consumers through a fair and effective, science-based food regulations	• Number of regulations formulated per year	• Gazette notifications
To coordinate national food surveillance.	• Number of food samples tested through National Survey per year. • Number of food samples sent for analysis by authorized officers.	• National Food Survey Records • PHI monthly return
To ensure food safety at the ports of entry	• Percentage of consignments examined • Detection of health hazards in imported food	• Border control reports and records

Food labeling to mitigate health risks in Sri Lanka

According to WHO recommendations, in a healthy diet, the energy provided by the total fat content should be less than 30% of the total energy intake, with a shift in fat consumption away from saturated fats to unsaturated fats and eliminating industrially produced trans-fats. Energy provided by free sugar should be less than 10 percent (or even less than 5 percent) of the total energy intake and salt intake has be to less than 5 g/day per adult. A healthy diet should have at least 400g of fruits and vegetables a day. Food labeling is a legal requirement. Nutrient declaration refers to the disclosure of the nutrients and the energy content of the products on the food label. They help consumers to make informed food choices. Providing clear information about the nutrient profile and warning signs on high sugar, salt and fat in the product labels have been recognized as interventions to mitigate the healthcare burden resulting from non-communicable diseases.

Nutrient declarations, which usually take the form of a 'Back-of-Pack' listing of the nutrient content of foods, should be displayed on all pre-packaged foods as mandated by the Codex Alimentarius (food code). 'Front-of-pack' labelling can be used as an additional tool, which the governments can use to guide consumer food selection by prominently displaying easily understood information about the nutrient quality of food products.

The food labelling system for salt reduction has three components: the percentage of salt must be displayed on the package, foods with salt content above a maximum level must display a high-salt content warning label, and foods with salt content below a specified level are permitted to display a low-salt label. Nutrition labelling, particularly Front-of-Pack labelling, may also encourage reformulation of food products by compelling manufacturers to declare publicly the amount of fat, salt and sugar in a product, which may mean that the product compares unfavorably with that of a competitor and thus loses consumer interest.

In Sri Lanka, the National Population Salt Consumption Survey in Sri Lanka estimated the salt intake of a person including all sources of salt as 10.5g/ day (3.8g of sodium). The mean salt consumption estimated by 24-hour urinary sodium analysis survey was 8.3g/person/day. The WHO recommends to reduce the daily intake of salt to less than 5g/person/day (equivalent to 2g of sodium/person/day) to reduce blood pressure and risk of CVDs and stroke. At present, the WHO recommended level is observed among only 15% of the Sri Lankan population. In Sri Lanka, nearly 70-80% of the consumed salt comes while cooking or adding on the table as sauces and pickles, whereas 15-25% comes from the processed food. SDG target 4, which is 30% relative reduction of mean population intake of salt/sodium, is essential to achieve the overall Goal of a 25% reduction in premature mortality from NCDs by 2025. It is estimated that a 57% salt reduction during cooking or at the table and a 45% reduction from the food industry over a period of 5 years are needed to reach the targets set for salt intake in the country.

Legal context of food labelling systems in Sri Lanka

All pre-packed food requires food labelling in accordance with the Food (Labelling and Advertising) regulations 2005. In addition, GOSL has introduced additional regulations to control food labelling, such as Food (Colour Coding for Sugar levels) Regulations 2016 which regulate the colour coding for sugar content in sugar sweetened beverages (SSB). Food Regulation 2019 mandates the colour coding for sugar, salt and fats levels in pre-packaged solid and semi-solid processed foods. Accordingly, the colour codes Red, Amber or Green should be displayed on the package, based on the relevant nutrient content per 100g or per 100ml of the food product: Red colour for more than 22g, amber colour for 5g to 22g and green colour for less than 5g. Forthcoming regulations and amendments under the Food Act would make the nutrition declaration mandatary in the food label and add stringent cut-off levels for fat, salt and sugar in a gradual manner. Ministry of Health, especially the units related to NCD and nutrition are working on raising public awareness on food labelling including colour coding warnings for high fat, salt or sugar.

Accordingly, all the relevant food products should have in the labels

- A List of ingredients including additives and preservatives
- Traffic light warnings on sugar levels
  a. Carbonated beverages
  b. Ready to serve beverages other than milk-based products
  c. Fruit Nectar
  d. Fruit Juices
- Colour coding in the main panel for sugar, salt and fat in solid and semisolid food.
- For nutrition function claims, prior approval from the Chief Food authority is needed, and for content claims, conditions given in the Food Act should be satisfied.

Recommendations

1. Strengthen and rearrange the national level monitoring system on implementation of the food act and food regulations.

2. Implementation of the monitoring and evaluation framework to monitor and evaluate the impact of introducing the front of pack traffic light labelling regulations.

Sub strategy 1.5-: To reduce the morbidity and mortality due to specific communicable diseases

Background

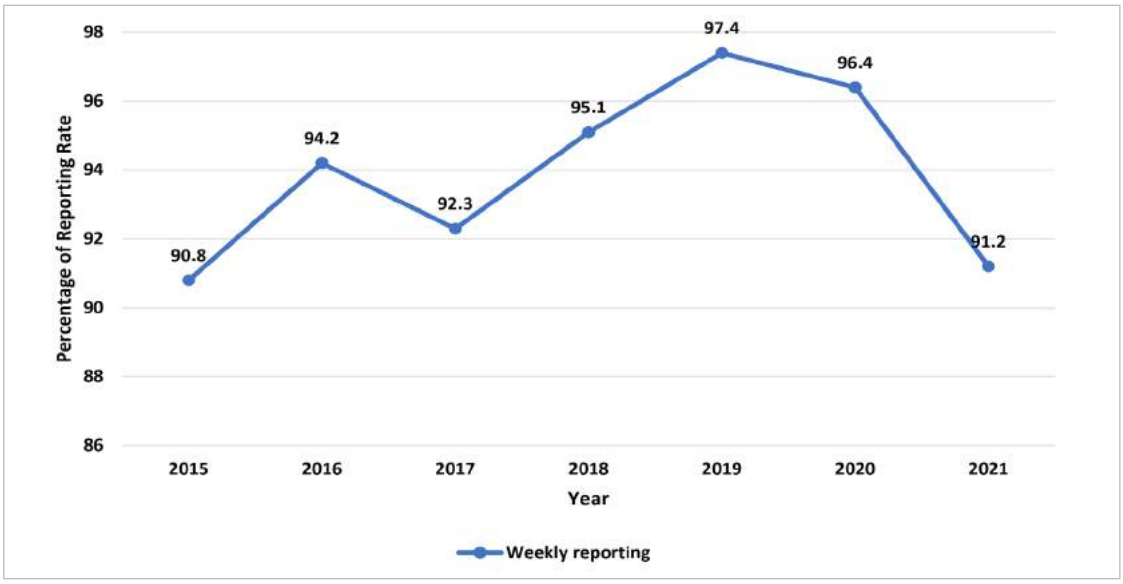
The Ministry of Health gives priority to minimize communicable diseases by reducing mortality and morbidity through implementing multiple strategies. Sri Lanka has a strong public health system which coordinates well between central, provincial, regional and divisional levels. Epidemiology unit at the central level, provincial/regional epidemiologists and Medical Officers of Health and Public Health Inspectors at the field level act together to reduce morbidity and mortality due to specific communicable diseases.

Most of the communicable diseases with public health importance have been identified as notifiable diseases. Notification of these communicable diseases is a legal requirement in Sri Lanka since 1897, and every medical practitioner or person professing to treat diseases, who attends on any person suffering from any disease in the list shall notify to the proper authority.

The Group A notifiable diseases: cholera, plague, yellow fever or any other internationally important notifiable disease should inform to the DGHS via a telephone call. Rest of the notifiable diseases belong to group B and requires informing them to the relevant MOHs via the H-544 form. Any practitioner who disregards this regulation shall be found guilty of an offence, and such a person shall be prosecuted in a Magistrate Court. All public and private hospital level or field level notifiable diseases are notified to the relevant MOHs, and aggregated data are being sent to the Epidemiology Unit weekly and entered in a central database at the Epidemiology Unit. It has an in-built monitoring system at the Divisional, District and National level, with linkage to special investigations for selected diseases. The feedback information on notifiable diseases is communicated through the Weekly Epidemiological Report and Quarterly Epidemiological Bulletin, to all the relevant stakeholders.

Therefore, all notified cases are subjected to investigation and necessary preventive measures are taken. This public health system has a strong surveillance system which is E- based with linkages to all levels. Monitoring and evaluation is frequently carried out by the regional level for field level activities, while

regional level activities are monitored by the central level. This has been a strong pillar in reducing the morbidity and mortality of specific communicable diseases in Sri Lanka, and provides the basis for control and prevention of any disease of public health concern.



Source: Data from Epidemiology Unit

Figure 47 : Percentage of Weekly Reporting Rate of Communicable Diseases from MOH Areas

Specific communicable diseases under this sub strategy are described below.

Cutaneous Leishmaniasis

Cutaneous Leishmaniasis (CL) is an emerging public health problem in many countries including Sri Lanka. CL has been established as an endemic disease within a short period and the first local case was reported from Hambantota District in 1992. The number of reported leishmaniasis cases has increased gradually after the disease became notifiable in 2008. More than three thousand cases have been reported annually during 2018 to 2020. Five districts, namely, Anuradhapura, Hambantota, Polonnaruwa, Kurunegala and Matara are contributing to approximately 90% of the total annual caseload.

Service provision

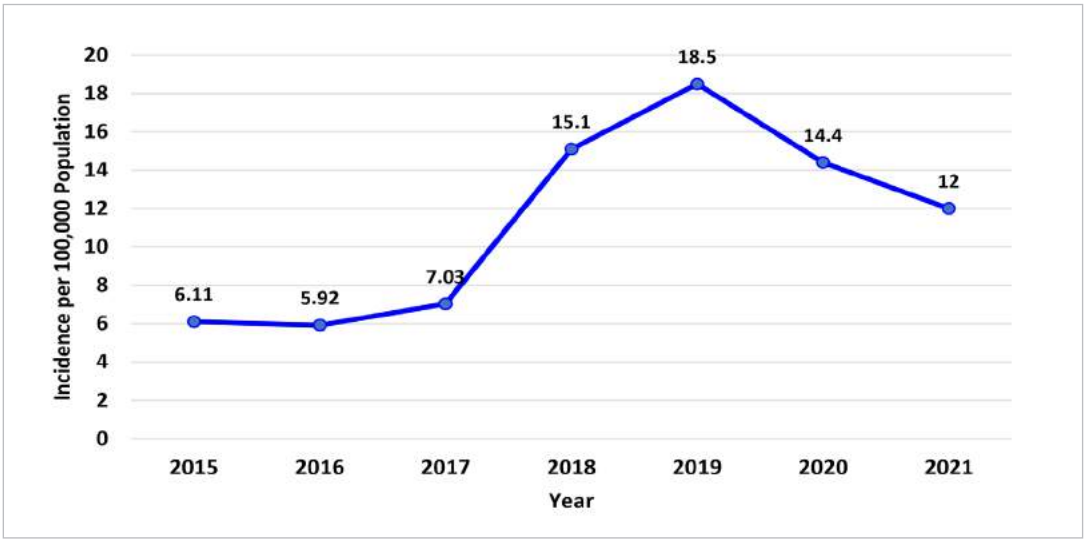
The Ministry of Health has identified the Epidemiology Unit as the national focal point for the control and prevention of leishmaniasis in Sri Lanka. Notification of leishmaniasis has been made mandatory since 2008 under group B. Leishmaniasis surveillance is conducted as an active passive surveillance system. A special case investigation was introduced, and all confirmed leishmaniasis cases should be investigated and a duly filled special surveillance form should be sent to the Epidemiology Unit by the MOH of the patient's residence. Public Health Inspectors should trace the contacts and refer suspected and epidemiologically linked cases to the nearest dermatology clinic.

Guidelines on Prevention and Control of Leishmaniasis have been developed with the contribution of key stakeholders and published in December 2019. Limited knowledge of possible reservoir hosts and vector bionomics are challenges for control and prevention of the disease.

Table 12 : SDG indicators Relevant to the Neglected Tropical Diseases and Leishmaniasis

Indicator number	Indicator	Baseline	End 2021	Target 2030
3.3.5.	Number of people requiring interventions against Neglected Tropical Diseases (NTR) Leishmaniasis – incidence of reported cases of leishmaniasis per year	*7.2	11.9*	<1 per 100,000 Population

* per 100,000 Population



Source: Data from Epidemiology Unit 2022

Figure 48 : Cutaneous Leishmaniasis Incidence per 100,000 Population from 2015-2021

Sri Lanka has set the target of reducing Cutaneous Leishmaniasis incidence to < 1 per 100,000 population in 2030 under the SDGs. However, the above trend demonstrates a rise after 2017 and indicates the programme needs strengthening.

Recommendations

1. Leishmaniasis control should be allocated to the Anti Malaria Campaign (AMC) to strengthen control activities. The available resources of the AMC can be utilized for the control activities.

2. Leishmaniasis surveillance must be further strengthened to improve case detection.

3. Health literacy related to Leishmaniasis must be improved among clinicians and the public.

4. Further research should be done to identify the possible reservoir hosts and vector bionomics.

COVID-19

The COVID-19 epidemic is, without a doubt, the worst global disaster to affect humanity since the World War II. With the majority of countries reporting their second and third waves of community spread, the giant nations like the USA, Europe, and India were under siege. The effect of COVID-19 is clear in relation to both socio-economic impact and the disease burden.

Measures taken by the government of Sri Lanka for COVID 19 prevention and control

It has been identified as a notifiable disease. On 30th January 2020, the outbreak of the virus was declared as a public health emergency of international concern by the World Health Organization, and on 11th March 2020 it was recognized as a pandemic. Sri Lanka is a well-known travel destination with a huge influx of visitors, mostly from South Asia and Europe. Sri Lanka confirmed its first case of COVID-19 on January 27, 2020, but the first large outbreak did not occur until mid-March in the same year. This was a new experience and a challenge for the government as well as the health system of Sri Lanka. A costed National Strategic Preparedness and Response Plan was developed with stakeholders to combat the COVID 19 pandemic. Implementation mechanisms with roles and responsibilities were identified. A Supply Management Chain was put in place as several health products, equipment and medical devices had to be procured and delivered to care providers. The goal of the National Strategic Plan was to break the human-to-human transmission, minimize the impact of COVID-19 and continuous risk communication to the public. The following strategies were adopted:

- Strengthen the capacity to prevent, detect and respond to COVID 19 cases
- Strengthen the health workforce
- Mitigate transmission in the community and across country borders
- Continue essential health services adapting new approaches
- Update and share scientific understanding of COVID-19 among healthcare workers and other sectors
- Ensure implementation of the vaccination programme

The presidential task force chaired by His Excellency the President of the country was the main committee that took major national level decisions in the prevention and control of the COVID 19. A COVID management center was established, and that committee was chaired by the Minister of Health, and on behalf of the Minster the meetings were co-chaired by the Army Commander and the Director General of Health Services. Another committee was established within the Ministry of Health chaired by the Secretary of Health with the participation of Ministry of Health officials who were engaged in technical management of COVID 19. These committees were represented by several stakeholders including professional associations and colleges.

Case detection, quarantine and surveillance system of COVID 19

Sri Lanka's reaction to the COVID-19 epidemic has been prompt decisive and well-coordinated since the detection of the country's first local case. The first steps were: capacity building in laboratory testing for early identification of individuals with COVID-19, imposing a mandatory 14-day quarantine for travelers returning from overseas at designated quarantine centers and public awareness campaigns on risk communication. Along with it, an active case detection phase was declared, which was characterized by testing of all suspected patients who met the case definition and were admitted to isolation centres of specific hospitals. Additionally, individuals who demonstrated an epidemiological connection to a case discovered at home or in a quarantine facility, regardless of whether they had symptoms or not, were also included. The Epidemiology Unit vigorously tracked down all their close contacts using an effective disease surveillance system, and admitted them to quarantine centers run by the state sector following laboratory confirmation of COVID-19. Healthcare workers and members of tri-forces were the front-line care providers, and personal protection equipment (PPE)and special transport and residential facilities were provided and PPE were supplied to tri-forces and community based organizations who volunteered to support the government efforts.

As of 1st February 2020, to the 6th of August 2022, Sri Lanka had recorded a total of 666,580 COVID 19 cases with a total of 16,583 deaths. Sri Lanka imposed full or partial lockdowns including curfews several times to curb the escalation of the pandemic, starting from mid-2020. These lockdowns and their consequent socio-economic status of the country and the impact on income generation sources and social conditions have disproportionately affected the population, especially those who are already marginalized or in vulnerable situations.

Diagnostic and testing for Covid 19

Testing for the COVID 19 was carried out at the central and regional level. The Rapid Antigen Test (RAT) and the Polymerase Chain Reaction Test (PCR) were the tests used and recommended by virologists. There were several guidelines, protocols and circulars issued by the Epidemiology Unit to define the cases, contacts and the procedure of conducting testing for COVID 19. Routine community screening was initiated. The increasing demand for testing including exit testing (at the beginning of the epidemic) warranted to increase PCR testing capacity. Government and donor funding were mobilized to procure PCR machines and test kits to scale up testing.

Treatment centers for COVID 19

For the management of COVID-19, number of treatment centers were developed around the country, and a separate ward/unit was allocated in most of the hospitals. A COVID cell was established within health institutions chaired by the head of the institution, to take decisions regarding the issues related to COVID 19. Several quarantine centers were established within the country, and in the latter part of the outbreak, the private sector was allowed to open quarantine centers with the regulation of the government sector. Treatment was carried out according to the treatment guidelines developed with the partnership of several experts in the relevant areas.

During the third wave of the COVID-19 pandemic, the exponential increase in patients exceeded the capacity of medical facilities, and the healthcare sector was overburdened with some of them becoming infected and experiencing burnout. The integrated home-based isolation and care of asymptomatic and moderately symptomatic COVID-19 patients in Sri Lanka was expanded in cooperation with the WHO Country Office. Procurement of quality, safe and cost-effective pharmaceuticals and medical devices, oxygen and other health technologies according to the level of care, was done. These included pulse oximetry and medical oxygen systems. Waste Management Systems and Hospital Infection Control Systems were strengthened.

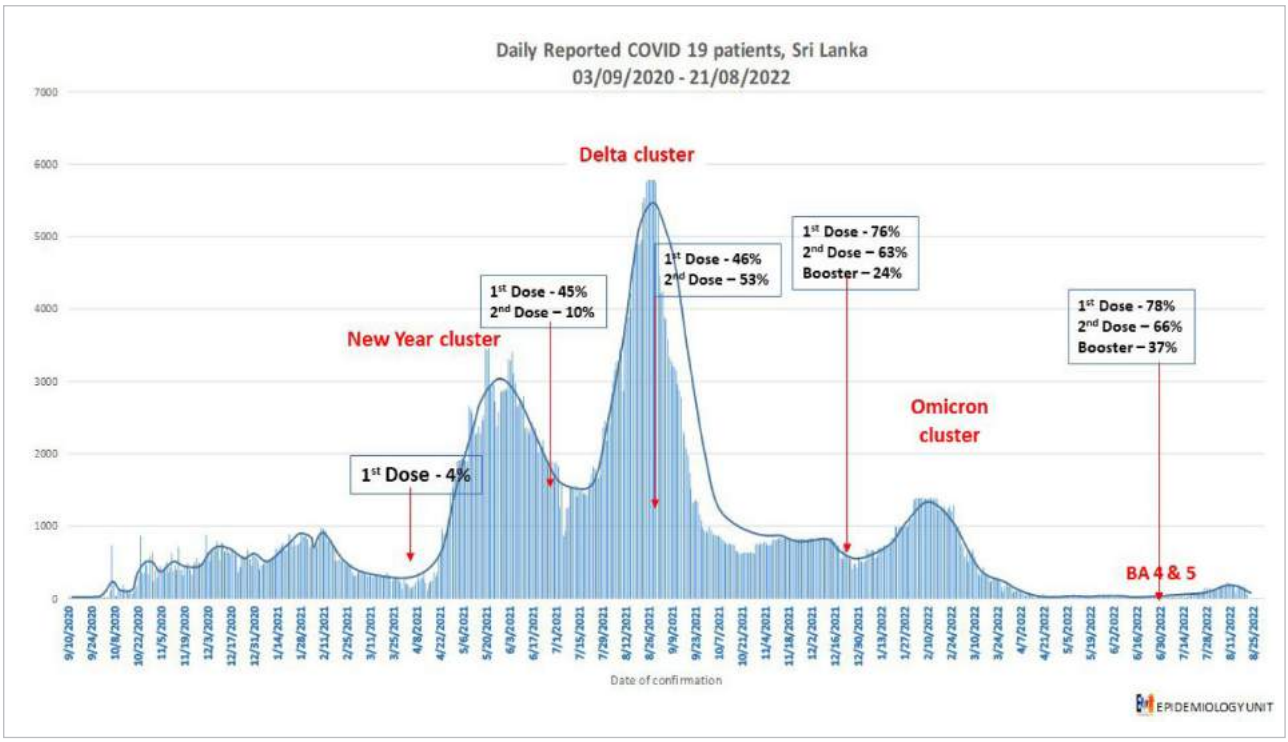
Prevention Measures

Mandatory hand washing, use of personal protective equipment by the general public and healthcare providers and risk communication were measures taken to prevent the spread of the virus.

Vaccination against COVID 19

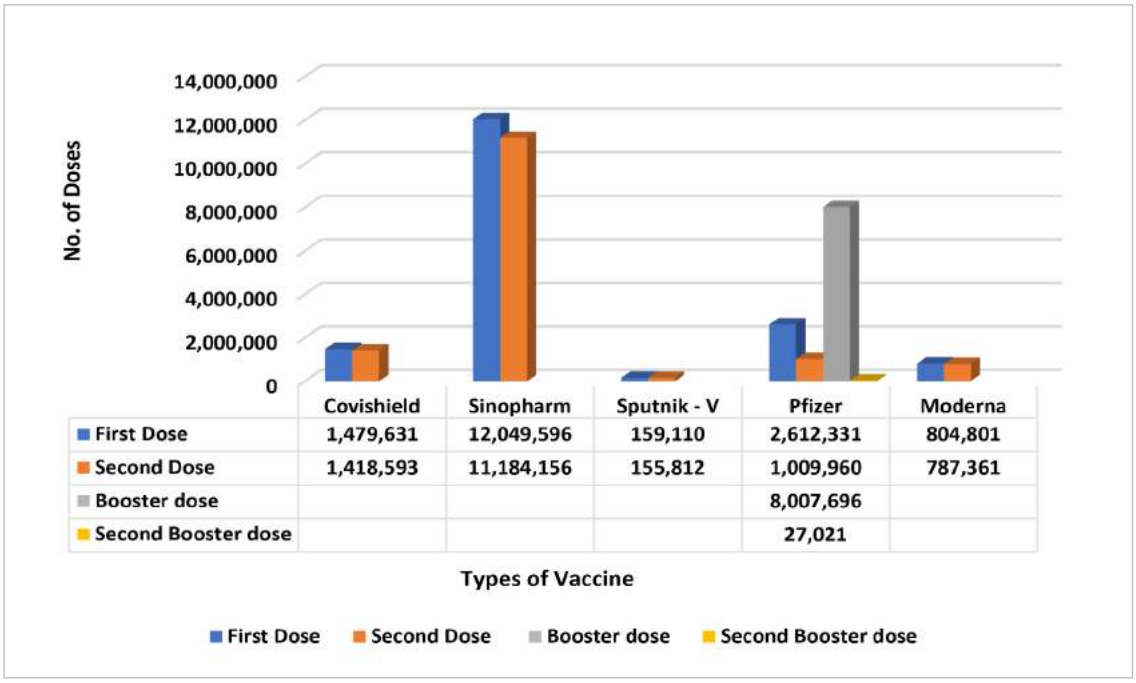
Vaccination against COVID 19 was initiated in Sri Lanka according to the guidelines published by the Epidemiology Unit based on WHO recommendations. As the first step, people engaged in frontline care such as Healthcare workers and military personnel were vaccinated. People over 60 years were vaccinated as the second step, and following that, all aged 16 years and above were vaccinated against COVID 19. With the approval of the NMRA, five types of vaccines were used within the country. All the vaccine related activities were carried out under the supervision and the guidance of the Epidemiology Unit including the responsibility of storing and distribution of the vaccines to the regional level. AstraZeneca, Moderna, Pfizer, Sinopharm and Sputnik vaccines were used and a couple of booster doses were given for extra protection according to the guidance of the Epidemiology Unit. Vaccination activities were carried out by the Medical Officer of Health (MOH) at the regional level with the help of armed forces, and vaccination was also available at selected hospitals in the country. An online system was developed

to enter the details of the vaccinated individuals. Vaccination certificates were issued for those who completed the recommended schedule of the particular vaccine.



Source: Data from Epidemiology Unit

Figure 49: Impact of COVID-19 Vaccination



	Covishield	Sinopharm	Sputnik - V	Pfizer	Moderna
First Dose	1,479,631	12,049,596	159,110	2,612,331	804,801
Second Dose	1,418,593	11,184,156	155,812	1,009,960	787,361
Booster dose				8,007,696	
Second Booster dose				27,021	

Source: Data from Epidemiology Unit

Figure 50 : Different doses and types of vaccines for COVID-19 up to 31/07/2022

During the COVID vaccination campaigns, Sri Lanka achieved a high coverage of the first booster among those who were aged 20 years and above, while achieving a high coverage of the second booster among high-risk groups (elderly, chronic medical conditions). In addition, primary vaccination (1st & 2nd dose) coverage among school children (12 – 19 years age group) is also high (97% and 83.2%, respectively).

UHC and health services during COVID-19 pandemic

COVID-19 pandemic and the control measures have severely disrupted routine preventive and curative healthcare in the country. Only essential and urgent surgeries including cancer surgeries were conducted during the epidemic, and drugs for out-patient clinic patients were distributed through the postal department. Essential clinics like antenatal clinics and cardiac clinics were conducted under special precautions. The MoH has issued several circulars to improve UHC during the pandemic. Mobile clinics were conducted to reach the marginalized and vulnerable groups. However, routine immunization coverage, screening of many diseases, OPD attendance and clinic attendance were affected due to the pandemic. Community rights and gender (CRG) related issues, mental health problems, gender-based violence and child abuse were also increased during the pandemic.

According to the Central Bank Annual Report 2020, the COVID-19 pandemic led to a risk of food insecurity among certain vulnerable groups. People with a limited or irregular income, limited emergency reserves of food and savings and poor health (such as those with malnutrition issues and chronic diseases) were the most vulnerable. It also includes those who are living in remote areas with less access to a variety of supplies and markets, certain groups of urban populations who are entirely dependent on daily markets for their food needs, people who have limited social networks and people with limited or no transportation facilities. Other vulnerable groups, such as the elderly and homeless or disabled people, were also severely affected.

High level of government commitment, national level coordination and inter and intra-sectoral collaboration of all relevant stakeholders supported the prevention and control of the COVID 19 pandemic. The success was further supported by the free healthcare delivery system with equitable access in the country, existence of well-established and time-tested public health infrastructure and curative care institutions covering the whole country. Further, availability of well-trained, experienced and dedicated workforce at each level (national, district, divisional and field level) was a plus point. High degree of public trust in immunization and health-seeking behaviour of the public in Sri Lanka also led to high vaccine coverage. Support by international donors was a pillar of strength to the government of Sri Lanka.

Recommendations

1. Further strengthen and continue the COVID surveillance activities at the community level and institutional level to detect outbreaks on time.

2. Plan to ensure optimal institutional care for the high-risk categories and people with COVID complications.

3. Develop a plan to conduct periodic gene sequencing to identify the emergence of new COVID variants.

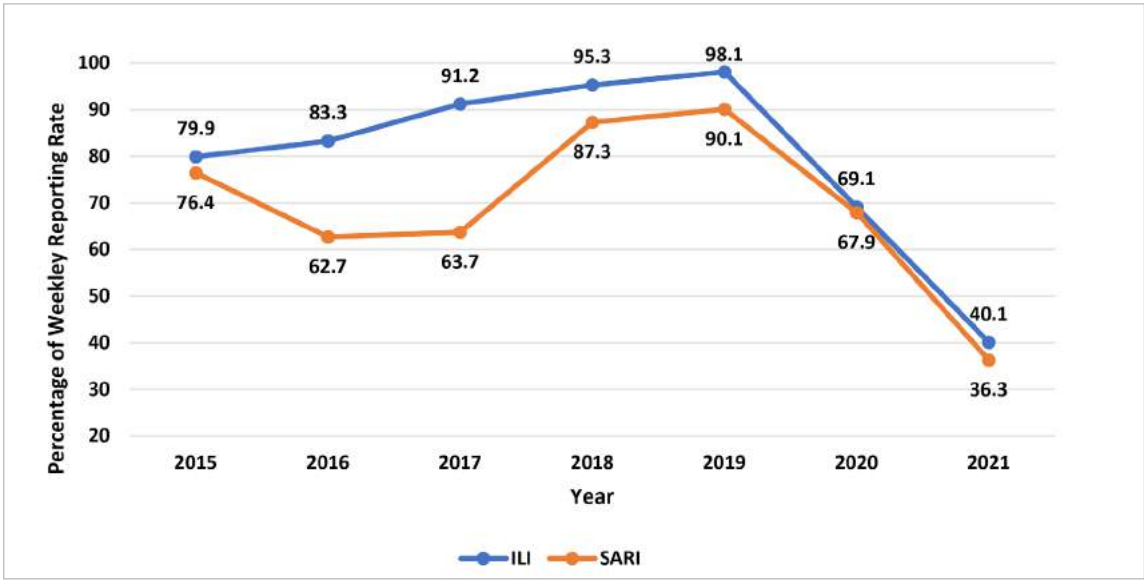
4. Continuous public education on basic preventive measures.

5. More attention to be given for diagnosis of special complications of COVID such as Long COVID and Multisystem Inflammatory Syndrome in Children.

Influenza

Flu is a contagious respiratory illness, caused by influenza viruses that infect the nose, throat, and sometimes the lungs. It can cause mild to severe illness and has been identified as a notifiable disease under group B. The influenza surveillance programme began in Sri Lanka in 2005. This includes surveillance of influenza patients at out-patient departments (OPD) (Influenza Like Illness/ILI surveillance) in 19 sentinel hospitals, namely, National Hospital Colombo, Colombo South Teaching Hospital, National Institute for Infectious

Diseases, Lady Ridgeway Hospital (LRH), Colombo North Teaching Hospital (CNTH), TH Peradeniya, DGH Nuwara Eliya, TH Karapitiya, PGH Badulla, PGH Kurunegala, DGH Chilaw, DGH Ampara, TH Jaffna, DGH Vavuniya, TH Anuradhapura, DGH Polonnaruwa, TH Rathnapura and DGH Matara, TH Batticaloa, and inward (Severe Acute Respiratory Tract Infections/SARI surveillance) in 4 sentinel hospitals, namely, LRH, CNTH, TH Peradeniya and DGH Matara. Human influenza surveillance is coordinated by the Epidemiology Unit. Surveillance data is managed through a web-based system called "FluSys." Sentinel hospitals are required to upload the surveillance data on a weekly basis to the web-based system. It is important to sustain the influenza surveillance system as it is the only surveillance available to identify the annual trend of influenza and a proxy measure of acute respiratory disease incidence.



Source: Data from Epidemiology Unit

Figure 51 : Percentage of Weekly Reporting Rate of ILI (Influenza Like Illness) and SARI (Severe Acute Respiratory Infection) from Sentinel Sites

The National Influenza Laboratory at the MRI is responsible for specimen collection, processing and investigation for early detection of strains and reporting of results. Influenza virus is being tested at the virology labs in TH Kandy, TH Karapitiya and TH Anuradhapura, as well.

The influenza surveillance covers all the provinces of Sri Lanka, and it is an early warning system to identify any influenza outbreaks and trends of the disease. Sustainability of the data reporting has been a challenge, especially during the COVID-19 pandemic period, and needs continuous monitoring of data reporting and feedback.

Considering the risk of animal-origin influenza viruses, influenza surveillance is a collaborative effort with the Department of Animal Production and Health (DAPH), The DAPH with the Veterinary Research Institute (VRI), does the virological surveillance of the migratory birds and commercial and backyard poultry farms. This epidemiological and virological data and activities are supervised by the National Technical Committee for Avian/pandemic Influenza Preparedness on a monthly basis. The Epidemiology Unit has developed and circulated influenza management and prevention guidelines and taken necessary steps to keep a buffer stock of oseltamivir (antiviral drug) to be used in an outbreak situation.

Recommendations

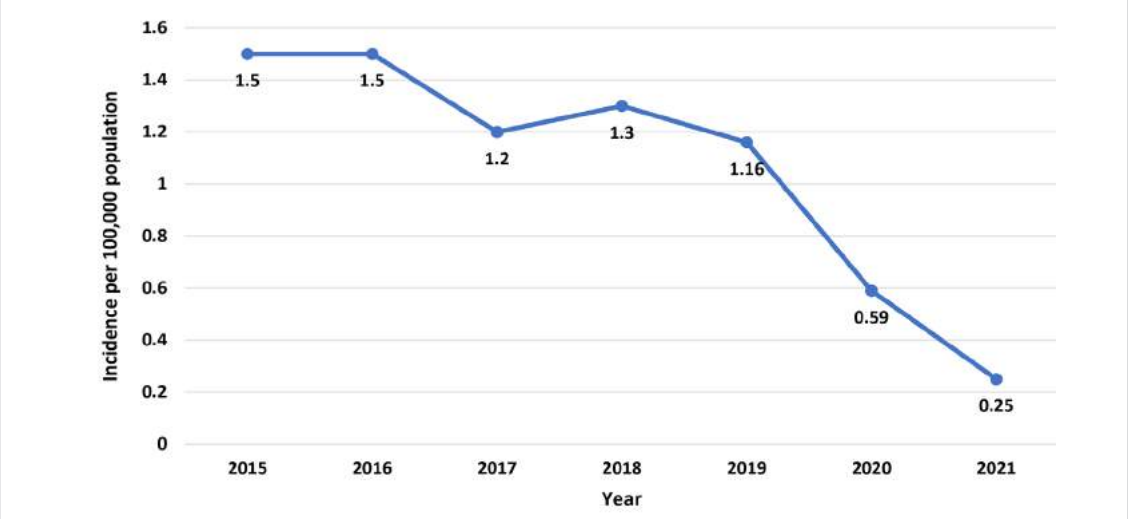
1. Need to further strengthen the surveillance activities of ILI/SARI.

2. Strengthen the implementation of ILI/SARI specimen collection and management guidelines in the curative sector.

Mumps

Mumps is caused by a paramyxovirus affecting humans, and infects primarily the salivary glands. It is almost a childhood mild disease, but it can affect adults, as well. The virus can also enter cerebrospinal fluid (CSF). Once the virus has entered the CSF, it can spread to the other parts of the body, such as the brain, pancreas, testicles (in boys and men) and ovaries (in girls and women).

Mumps is identified as a notifiable disease under group B, and all cases of mumps should be notified to the area MOH. Even though it is a notifiable disease, due to it being a mild disease, only patients with complications seek in-ward treatment. The majority seek OPD treatment in the government sector or from a general physician in the private sector, and some do not get formal medical treatment. Safe and efficacious vaccines against mumps based on live, attenuated viral strains have been available since the 1960s. Considering the cost-effectiveness and the effectiveness of the vaccine, Sri Lanka has also included the mumps virus into the EPI schedule. This vaccine was introduced in the form of MMR – measles, mumps, and rubella in the year 2011, and since it is a live attenuated freeze-dried vaccine, it should be reconstituted before use. It is produced as monovalent, bivalent, and trivalent. In Sri Lanka, the trivalent MMR (Measles, Mumps, Rubella) vaccine is used.



Source: Data from Epidemiology Unit

Figure 52 : Incidence of Mumps per 100,000 population from 2015-2021

Recommendations

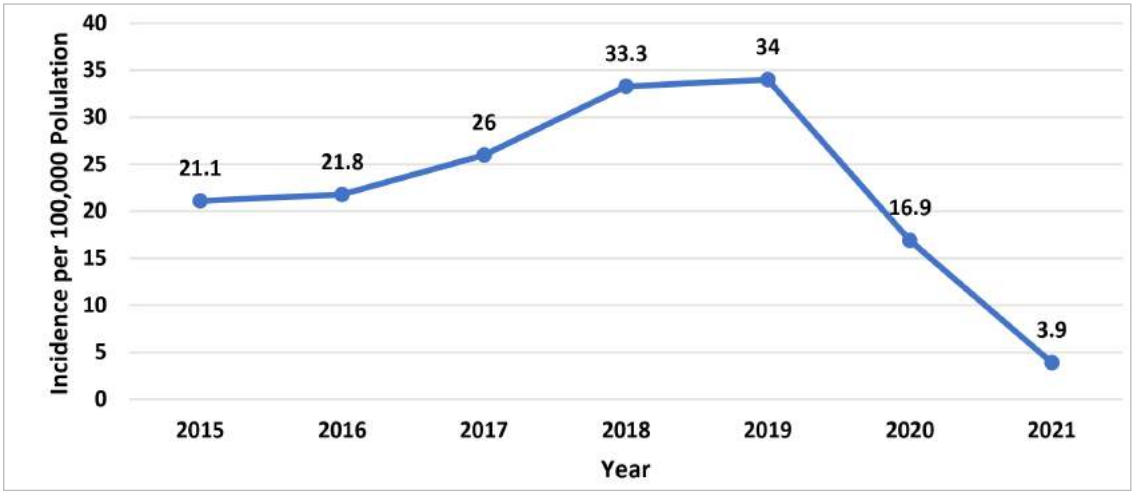
1. Further strengthen the surveillance activities and improve the notification rate from the private health sector.

2. Need to ensure and sustain the high MMR vaccine coverage.

Chickenpox

Chickenpox (Varicella) is an acute, highly contagious disease caused by Varicella Zoster Virus (VZV), and it has been identified as a notifiable disease under group B. VZV is transmitted by droplets, aerosol, or direct contact. It enters the body through the nasopharyngeal mucosa and causes generally a mild disease in childhood, but it tends to become more severe among adults. Congenital varicella syndrome has been reported following varicella infection during pregnancy. After infection with VZV, it can remain latent in neural ganglia, and mainly in the elderly and immune compromised it could cause herpes zoster as a subsequent reactivation.

All cases of chickenpox should be notified to the relevant Medical Officer of Health. Following receiving the notification, the area Public Health Inspector should visit the patient and identify the source and give relevant medical advice while taking all the precautions to prevent outbreaks. Antiviral drugs such as Acyclovir can reduce the severity of the disease. Varicella Zoster vaccine is available in the private sector as a two-dose schedule.



Source: Data from Epidemiology Unit

Figure 53 : Incidence of Chickenpox per 100,000 Population from 2015-2021

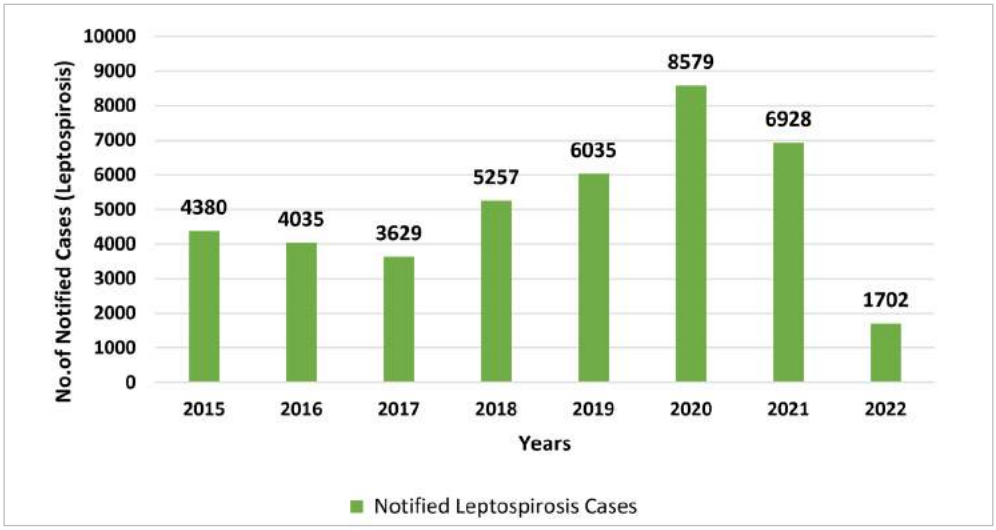
Recommendation

1. Need to further strengthen the surveillance activities.

Leptospirosis

Leptospirosis is a zoonotic disease of great public health importance. In Sri Lanka, it is identified as a notifiable disease under group B. Recent surveillance data received at the Epidemiology Unit indicate that paddy farming is the major source of exposure. Therefore, increased reporting is observed during the rainy seasons which coincide with the 'Yala' and 'Maha' paddy cultivation seasons. Hence, each year, with the objective of controlling and preventing Leptospirosis, activities are conducted at the Medical Officer of Health (MOH), District and Central level to increase community awareness, strengthen intersectoral coordination and provide chemoprophylaxis (doxycycline) to the identified high-risk individuals.

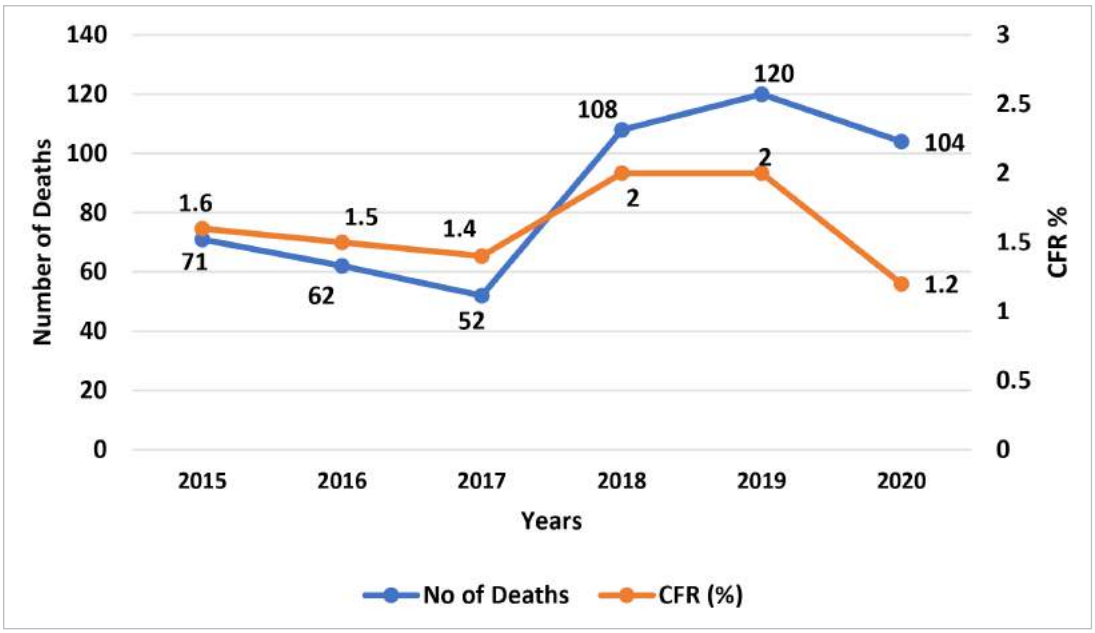
A total of 8579 cases of leptospirosis were notified to the Epidemiology Unit in 2020. Throughout the past years, the case incidence rate has been fluctuating with an upward trend in 2020.



Source: Data from Epidemiology Unit

Figure 54 : Number of notified Leptospirosis cases 2015-2022

This increase is mainly due to the increase in agricultural activities during the COVID-19 pandemic. Reporting of leptospirosis cases has shown an annual seasonal pattern, with peaks during rainy seasons of two monsoons in the country.



Source: Data from Epidemiology Unit

Figure 55 : Number of Leptospirosis deaths and case fatality rates (CFR) from 2015 to 2020

Routine epidemiological data is collected through the routine surveillance system to prevent and control outbreaks via the notification pathway. The preventive health staff conduct prevention and control activities at the field level, and monitoring and evaluation is done at the district and national level through supervision and frequent reviews. Doxycycline as prophylaxis is given for high-risk occupational categories by the MOH. PCR laboratory testing facilities to diagnose leptospirosis are available at the MRI, and in the recent past some universities have commenced testing. The clinical guideline for diagnosis was issued by the Epidemiology Unit in 2016. It was observed that the deaths may increase due to late presentation to the hospitals, issues in diagnosis and delay of initiation of early treatment.

Recommendations

1. Need to strengthen the surveillance activities and identification process of leptospirosis pockets during an outbreak.

2. Preventive measures need to further strengthen targeting high-risk districts in relevance to seasonal patterns.

3. Strengthen diagnostic facilities.

4. Improve awareness among medical officers and public.

Hepatitis B

Hepatitis B is a notifiable disease in Sri Lanka coming under group B. It can spread horizontally via blood and through sexual transmission, specially from unvaccinated men who have sex with men and commercial sex workers. This virus can also be transmitted vertically from mother to child at birth. According to serological surveys conducted in Sri Lanka, prevalence in the community before introduction of vaccines was 0.1-2.5%. The presence of the infection is confirmed mainly by laboratory testing of antigen and antibody profiles. A recent study conducted by the Epidemiology Unit in 2022 revealed a zero prevalence

of Hepatitis B among pregnant mothers and under 5 years. Prevalence for Hepatitis B per 100,000 among children who are 5-years of age is a one of the SGD indicators.

Prevention of hepatitis B infection is mainly via immunization. Hepatitis B vaccine is incorporated into the National Immunization Programme since 2003. Non infected children are vaccinated at 2, 4 and 6 months. Meanwhile, healthcare workers and military staff are vaccinated against hepatitis B. This infection is being treated by Consultant Physicians and Gastroenterologists in the country in secondary and tertiary care institutions.

Triple elimination to eliminate the mother-to-child transmission (EMTCT) of HIV, hepatitis B and syphilis (triple elimination/triple EMTCT) forms part of this vision, with the aim of giving every child the best chance to start a healthy life, free from preventable communicable diseases. Sri Lanka is committed to implement the triple elimination strategies, and it is in the planning stage of development for hepatitis B.

Recommendations

1. Need to further strengthen surveillance activities.

2. High risk groups should be provided with vaccination.

3. Develop the road map for the Triple elimination

Hepatitis C

Hepatitis C (HCV) has been identified as a notifiable disease under group B, which has been approved by the Advisory Committee on Communicable Diseases on 11th February 2005. Sri Lanka is working towards ending blood borne viruses by 2030, including hepatitis C. The National Blood Transfusion Services, The National STD/AIDS Control Programme, National Thalassemia Centre and Epidemiology Unit are the main sources/ institutions of hepatitis C data collection in Sri Lanka. Hepatitis C is transmitted through blood and other body fluids. Vulnerable populations such as injecting drug users and prisoners are at high risk of acquiring and transmitting HCV.

Sri Lanka has a low prevalence of HCV except among injecting drug users. Although no national epidemiological data is available, according to Coalition of Global Hepatitis C Elimination, the prevalence of HCV in Sri Lanka in year 2019 is 0.72% (CI 0.58- 0.88). However, the prevalence among Persons Who Inject Drugs (PWID) is much higher than this.

The National STD/AIDS Control Programme has initiated a community-based programme to eliminate HCV among PWID. They are initially tested using the rapid test kits along with HIV, HBV and Syphilis. The programme has identified 124 PWIDs reactive for HCV antibodies detected by rapid diagnostic tests (RDT). Only 54 hepatitis C positives (43.5%) were tested through the PCR confirmatory test, and it showed 44 confirmed positive cases of Hepatitis C, indicating 81.5% Hepatitis C positivity rate among the PCR tested samples. There is no estimate of the people living with HCV infection.

When HCV infection is confirmed by the PCR-RNA test, the patients are referred to a medical specialist to check for treatment suitability, specially to exclude the presence of cirrhosis. Thereafter, they are given direct observed treatment in the community. The treatment for HCV infection is a combination of Sofosbuvir (SOF) / Velpatasvir (VEL) tablets containing 400 mg SOF, 100 mg VEL 1 tablet q.i.d.for 12 weeks. Follow up includes post treatment HCV RNA at 12 weeks for sustained virological response (SVR) and a follow up for 2 years. Post treatment HCV RNA along with Full Blood Count and Liver and Renal

Functions will be done at 12 weeks, and a sustained virological response at that time will be considered as cured. Defaulters are traced and medical adherence counseling is given.

As a strategy for prevention of HCV in the community, a needle safe box & needles are provided to PWID through the Needle Syringe Exchange Services (NSES). However, an Opioid Substitution Therapy (OST) programme is not available in Sri Lanka at the moment.

Sri Lanka is working towards ending AIDS by 2025 and ending blood borne viruses by 2030. Thus, strategic plans are being developed to achieve these targets. PWID are a key population that should be mainly targeted for these interventions. PWID have high susceptibility to blood borne viruses including HIV due to their risky behaviors such as injecting and needle sharing, which makes them vulnerable for these infections.

Evidence showed that poor effective coverage of prevention programmes to PWIDs. The National STD/AIDS Control Programme has taken an initiative to carry out an outreach programme for PWIDs and PWUDs to fulfil the gap shown through the statistics of the IBBS (Integrated Biological and Behavioral Surveillance) carried out in 2014 and 2018. Furthermore, IBBS and rapid assessment done among this community have shown significant rates of needle sharing and lack of condom usage.

Recommendations

1. Need to further strengthen the surveillance activities.

2. Community based needle syringe exchange programme should be strengthened to minimize the hepatitis B & C among intravenous drug users.

Sub strategy 1.6: To address malnutrition through specific strategies.

Sub strategy 6.12-: To expand functions and strengthen capacities of Nutrition Units through restructuring the programme as a Nutrition Bureau.

Sub strategies 1.6 & 6.12 are amalgamated.

Background

Nutrition is an important component of health. It is vital to the development and productivity of an individual as well as the community. Nutrition outcomes of the community significantly depend on food security which exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

National policies, strategic and action plans

Combating malnutrition is a lifecycle approach with the involvement of several stakeholders. The first National Nutrition Policy (NNP) was developed in Sri Lanka in 1986, and several revisions have taken place thereafter. The latest available policy is the National Nutrition Policy 2021-2030 which was developed considering the relatively stagnant nutrition indices among under 5-year children and escalating obesity, and it was approved by the Cabinet of Ministers. There are health related policies and non-health policies which address nutrition in alignment with the NNP.

The National Nutrition Council (NNC) is chaired by His Excellency the President, under the purview of the National Nutrition Secretariat (NNS) which coordinates the implementation of nutrition related policy decisions. It was restructured recently and functions as the Food and Nutrition Security Council. The Policy objective of the NNP 2021-2030 is to ensure the accomplishment of nutrition needs of all Sri

Lankans during the life course through evidence-based direct and indirect nutrition actions in view of ending all forms of malnutrition by 2030. The priority areas area of the policy food and nutrition security for all citizens, coordinated multi-sector collaboration and partnerships, legal framework strengthening for protection of the right to safe food and prevention of unethical marketing, nutrition improvement throughout the life cycle, nutrition promotion in emergency situations and extreme weather conditions, and strategic management of information and research.

Direct nutrition interventions are implemented according to the lifecycle approach under the purview of the Ministry of Health. Medical Officer of Health provides nutrition services for children under 5 years, school children, adolescents and pregnant mothers in the country, under the supervision and guidance of the Family Health Bureau. Adult nutrition services are provided by the Healthy Lifestyle Clinics (HLC), while estate sector and urban sector nutrition services are provided by the Estate and Urban Health Unit. Special nutrition services are provided in the curative sector by the clinical nutrition clinics. MoH provide national technical guidance for the country, while the Nutrition Department of the MRI performs nutrition related research.

Nutrition Screening Services

Under 5-year children are screened for growth monitoring in MoH Clinics (weight, height), school children are screened during School Medical Inspection (SMI), pregnant mothers are screened for Body Mass Index (BMI) in antenatal clinics and adolescents and youth are screened at Adolescent and Youth Friendly Health Services (YFHS) in MOH clinics. Adults are screened at Healthy Lifestyle Centers, while inward patients and outpatient gets nutrition screening at hospitals.

Available nutrition services

Growth promotion and nutrition assessment services are provided at the MOH clinics. Under 5-year children are provided with Multiple Micronutrient Supplementation (MMN) including Vitamin A mega dose, and undernourished children are provided with Thriposha at MOH clinics. Weekly Iron Folate Supplementation is provided for school children through the MOH. Iron folate, calcium and Vit C supplementation and Thriposha are given for pregnant & lactating mothers via the MOH. Further to these services, special nutrition clinics and awareness programmes are conducted by the MOH. Apart from these interventions, technical assistance for the preschool and school meal programme is provided by the relevant units in the Ministry of Health to the Health and Education unit of the Ministry of Education. In the curative sector, therapeutic & supplementary feeding, management of diet related diseases and management of critically ill patients are carried out.

In 2017, pre-term growth charts were introduced to the MCH programme, and MMN supplementation was scaled up to reduce anemia among infants and young children (IYC). A new Bill is being drafted to make the Breastfeeding Code to an ACT. Revision of Labeling and Advertising regulations in the Food Act was carried out, and nutrient profile model was designed to prevent marketing of unhealthy food for children. In 2019, scaling down of the de-worming strategy was carried out and a based on the low prevalence of Solid Transmitted Helminthic infections (based on a survey done in 2017).

Patient centered medical nutrition therapy can be identified as an important part in comprehensive management of a hospitalized patient. Medical Nutrition Units are being established in hospitals to manage nutrition care in ICU, in-ward and out-patient settings and hospital staff are being trained for this purpose. The ultimate goal is to reduce malnutrition among hospitalized, which would minimize the length of hospital stay and thereby improving the clinical outcome, reduce readmissions, improve quality of life of the needy patients and reduction of overall health cost of the country. Medical Nutrition Unit will be headed by the Consultant Clinical Nutrition Physician with medical officer in nutrition, dietitian, ward nurse and supporting staff. Medical Nutrition Units have been formed in Sri Lanka since year 2014, after the first group of MBBS qualified medical officers successfully completed the MSc in Human Nutrition

course organized by the Post Graduate Institute of Medicine. Clinical nutrition services will be expanded up to base hospitals. Currently, there are 42 Medical Nutrition Units spread out in the country. The carder for the Consultant Clinical Nutrition Physician in the country is 114, and 154 for medical officers in nutrition. At the moment there are 71 medical officers in nutrition who are in the service.

Food Based Dietary Guidelines (FBDG) for Sri Lankans was developed. Development of food Composition table in year 2021 and household dietary adequacy assessment was conducted in 2022. Development of first ever National Nutrition Quality Standards (NNQS) for residential care for older people, implementation guideline for NNQS for Sri Lanka & in the Southeast Asia Region and training relevant officers were carried out. Costing of the health sector component of the national nutrition programme of Sri Lanka was conducted in 2017 with the support of UNICEF. This study has provided clear financial targets for policy makers regarding the funds required for nutrition activities for the period of 2017 to 2021.

Food being considered as a human right within the country, the Ministry of Health is taking the leadership at all levels in providing free of charge direct nutrition services and support. The availability of a National Nutrition Policy with a Strategic Framework for implementation; nutrition being addressed in relevant health strategic plans (e.g., MCH, LBW, IYCF, Adolescents), nutrition communication strategy and legislations (e.g., Food Act, BF code) in the country are identified as strengths for provision of nutrition services. Availability of a well-established link between curative and preventive health systems to implement services and availability of technical guidance in terms of guidelines, protocols and training for implementation of direct nutrition interventions are also important strengths in the sub strategy.

Table 13 : Nutrition related SGDs

Indicator number	Indicator	Baseline	End 2021	Target 2030
2.2.1.	Children under 5 years who are stunted- Prevalence of stunting (height for age < 2 SD from the median of the WHO child growth standards among children under 5 years of age	17.3 (2016)	_	10.8 by 2025 and <10 by 2030
2.2.2.	Children under 5 years who are wasted - Prevalence of malnutrition (weight for height >+2 o < 2SD from the median of the WHO child growth standards among children under 5 years of age, by type (wasting and over- weight)	15.1 (2016)	_	< 5 by 2030

Nutrition related indicated for pregnant women are included in Strategy 1.1

Challenges

Sustainable functioning of the higher-level mechanism for multisector coordination and collaboration, financial constraints for the implementation of nutrition interventions, inadequate resources for nutrition research, lenient taxation policies for unhealthy food, frequent supply pipeline disruptions, non-availability of high-tech laboratory facilities for food & nutrition assessment, lack of community nutrition services for elderly, changing household food security due to rise in food prices and climate change, poor public private partnerships for healthy eating, adverse industrial influences including unethical marketing, lifestyle changes in the populations and providing nutrition during emergencies are the main challenges faced in achieving the targets of this sub strategy. These issues should be addressed at the national level without delay in order to overcome the problem of malnutrition in all sectors. Although evidence showed that there is large proportion of people who are deficient with Vitamin D, it has not been addressed nationally.

Restructuring the Nutrition Programme:

A National Nutrition Bureau is not yet established. The Nutrition Division and Nutrition the Coordination Unit have been amalgamated as the Nutrition Division under the DDG-PHS II.

District nutrition, hospital nutrition, nutrition of vulnerable populations including maternal and child nutrition, Fortification/ supplementation, policy and multi sector coordination, SIM unit, Nutrition research, should all come under a Bureau. Establishment of the National Nutrition Bureau which has been identified in the Health Master plan has not been implemented.

Recommendations

1. Establish a National Nutrition Bureau to maintain a higher-level, regularly functioning, multisector nutrition coordination mechanism to coordinate health and non-health nutrition related interventions.

2. Allocate adequate and a dedicated budget for nutrition in the national budget.

3. Implement supportive taxation policies with regard to healthy eating.

4. Robust food legislations and proper enforcement.

5. Establishment of a National Reference Laboratory for food and nutrition with high-tech facilities.

6. Provision of adequate and competent human resources and other resources for implementation of food and nutrition services.

7. Proper implementation of a monitoring mechanism for unethical marketing of food.

8. Implementation of the nutrition communication strategy and the Food Based Dietary Guideline communication strategy to bring about a positive behavior change in the community.

9. Identification and implementation of nutrition services in emergencies.

10. Address the emerging issues on vitamin D deficiency (VDD) following a national consultation and expert opinion based on the cost benefit analysis.

Following indicators are suggested for future improvements:

a. Household food consumption score/ household dietary diversity score
b. Percentage of malnutrition among hospitalized patients (reduced from 30% to 20%)
c. Percentage of Anaemia among under 5 children
d. Percentage of obesity /thinness / wasting among school children
e. Percentage of malnourished people living with HIV /TB / Cancer/Palliative care among those currently under care separately
f. Percentage of underweight/overweight among elderly in the community separately
g. Percentage of stunting among Under 5 children of migrant families (% reduction by 50%)
h. Percentage of stunted under 5 children in areas affected with climate change (extreme weather conditions)

Sub strategy 1.7-: To develop a comprehensive health system to reduce the burden of CKDu

In Sri Lanka, prevalence of chronic kidney disease (CKD) is estimated to be 10% among the above 20 years of age population. The known major causes for CKD are diabetes and high blood pressure. The burden of CKD is high, as prevalences of idiabetes 10.3% and the prevalence of high blood pressure is 23.7 %. There is also a group of CKD patients in Sri Lanka who are limited to certain areas of the country, where the cause is not known. This entity is called as chronic kidney disease of uncertain aetiology (CKDu). CKDu was discovered in Sri Lanka in the mid-1990's. The scope of the problem has grown with time, which has become a problem of public health importance. Affected patients are mostly paddy farmers, and the estimated age-standardized prevalence of the disease is 15%. According to the Ministry of Health, the estimated number of CKDu cases was 69,258 as of June 2014. According to the public hospital admission data in 2019, the case fatality rate of renal failure (ICD- N 17-N19) was 1.48 per 100 cases.

End stage CKD patient needs dialysis or a renal transplant for survival. CKD is causing a huge economic burden to the government, patients, and families. It is estimated that Rs. 530,000 is spent for dialysis per patient for a year. In 2019, Rs. 1.17 billion was spent for dialyzing patients with end stage kidney disease. This is 0.5 % of the heath budget for 3,300 patients on dialysis alone. In 2016, the country spent 4.4% of the health budget (capital) to improve dialysis facilities for these patients.

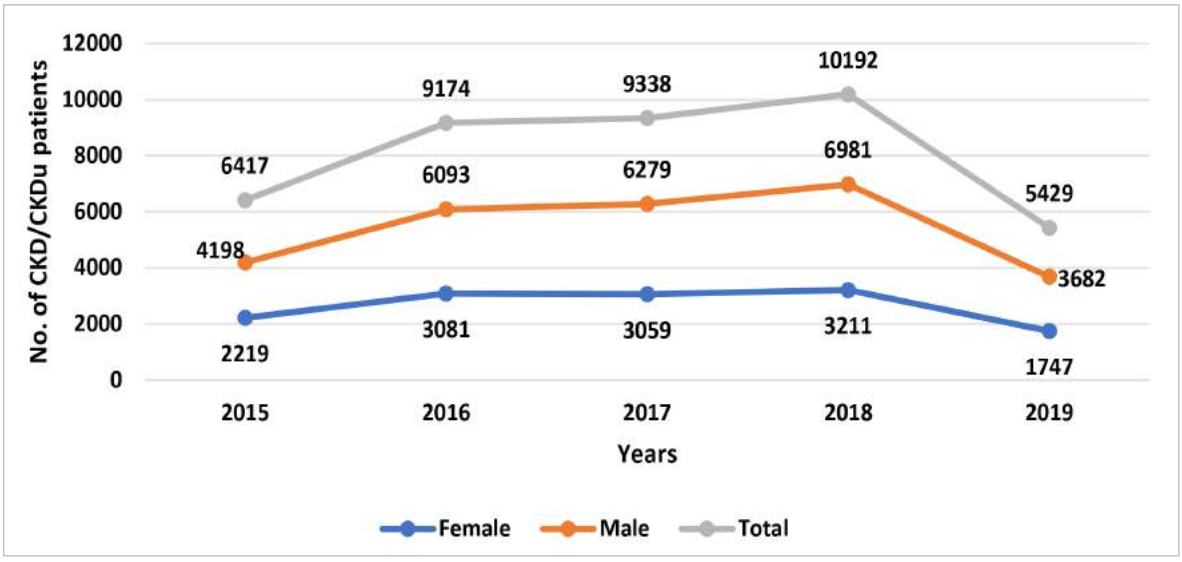
One main reason the for this burden is lack of an organized programme for prevention and control of CKD. There is no organized screening for CKD among diabetes and hypertension patients to detect early stages of CKD (stage 1 &2) before symptoms of CKD appear. Further, among those diagnosed with CKD, there is no comprehensive follow up. Around 35,000 patients in CKD stages 1-2 need to be followed up, in contrast to 4000 patients followed up at present, preventing a sizable proportion of these going into end stage disease. If diabetes and hypertension are controlled at Stages 1 &2, renal changes can be reversed. Currently, patients present in stage 3 where the first symptoms appear, and the disease cannot be reversed. An estimated 620,000 patients in some stage of CKD will not be managed, leading to a high burden of end stage disease in the population resulting in high economic and social costs. A systematic programme to prevent progression of the disease which includes early screening and follow up, should prevent potentially 2,000 deaths per year. In 2020, screening programmes for CKD/CKDu were available only in 10 districts, namely, Anuradhapura, Polonnaruwa, Kurunegala, Trincomalee, Ampara, Vavuniya, Mullativu, Badulla, Monaragala, Matale and Puttalam. A total of 84554 people were screened, and 3382 (3.9%) have been referred for confirmation and treatment. The following figure shows the male and female CKD/CKDu patients reported from the survey.

The National Institute for Nephrology, Dialysis & Transplantation (NINDT) was established in the year 2009 to develop and implement a national program for Chronic Kidney Disease, Dialysis and Renal Transplantation for Sri Lanka. National Renal Disease Prevention and Research Unit (NRDPRU) was established in 2015 under the Additional Secretary (Public Health Services). Vision of the NRDPRU is to be the center of excellence in providing technical and logistics, support for preventive services curative services, and research on kidney diseases in The South Asian Region. The objectives of the NRDPRU are to provide technical and logistic support for kidney disease preventive care, curative care, research activities and to provide assistance to improve the quality of life and social care of CKD patients. Under the NRDPRU several programmes are carried out covering wide aspects of CKD. Those include screening programme for CKD/Cod, GPS mapping programme, Social Welfare Programme, Safe drinking water programme, National Peritoneal Dialysis Programme, National Hemodialysis Programme and National Kidney Transplant Programme.

A Medical Officer (CKD) has been appointed to the RDHS areas, where the disease is prevalent. They will conduct screening for the Cod, coordinate functions of the satellite clinics for CKD patients with the participation and Consultant Nephrologist. The NRDPRU will collect and compile data regarding CKD

in the area. Currently, there are 10 Medical Officers trained in the management of CKD in the country. A streamlined programme for screening of high-risk patients for CKD, follow-up and management is proposed. The programme is targeted at people with diabetes, hypertension, those residing in areas in the risk for CKDu and people with other kidney diseases such as obstructive uropathies.

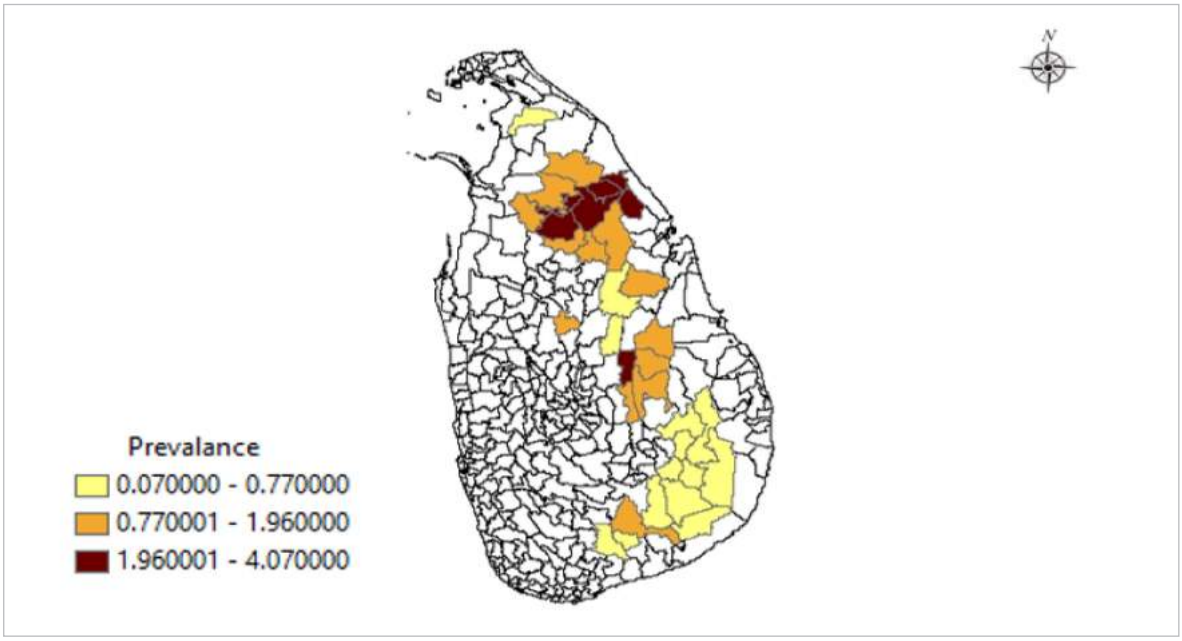
Following were the new developments carried out under this sub strategy during 2015 to 2021. Establishment of NRDPRU at MoH, establishment of Polonnaruwa Renal Hospital, introduction of automated peritoneal home dialysis, initiation of palliative care hospital for CKD and cancer patients in Mihintale, initiation of Sri Lanka Renal Registry, introducing the mobile CKD screening laboratories to CKDu affected districts, construction of drinking water RO plants and introducing point of care services to produce onsite results in CKD/CKDu screening according to WHO guidelines.



Source : Data from Epidemiology unit

Figure 56: Number of male and female CKD/CKDu patients reported by sentinel sites, 2015-2019

GPS survey and mapping of the CKD/CKDu patients and the distribution of their water sources, are being carried out.



Source : CKD Unit

Figure 57: Prevalence of CKD/CKDu in districts by GPS mapping

GPS mapping and survey of CKD/CKDu patients/water sources was conducted in Minipe (Kandy), Embilipitiya (Rathnapura) and Cheddikulm (Vavuniya) in 2020.

Services available for CKD/CKDu

The Epidemiology Unit initiated to maintain the National Renal Registry (NRR) in Sri Lanka in October 2013 from sentinel surveillance sites covering known CKDu areas. The primary objective was to assess the disease burden, socio-demographic factors and co-morbidities associated with CKDu. The primary data is entered by the sentinel site hospitals. The register facilitates continuation of follow-up in curative care settings and prevention activities in the field through the Medical Officers of Health. In addition to providing statistics on renal diseases, the NRR serves as an electronic bedhead ticket and electronic clinic record, too. Now it is maintained by the NRDPRU, and data from 2020 onwards has to be uploaded.It was observed that the total number of CKD/CKDu patients has dropped from 2018 onwards. Although causal factors are unknown, various interventions such as introduction of Reverse Osmosis (RO) plants may have contributed to lower the disease burden. However, a cohort study is ongoing in Anuradhapura District to identify the risk factors for CKDu, and it will be completed by 2022.

Supplying drinking water units in CKDu affected areas

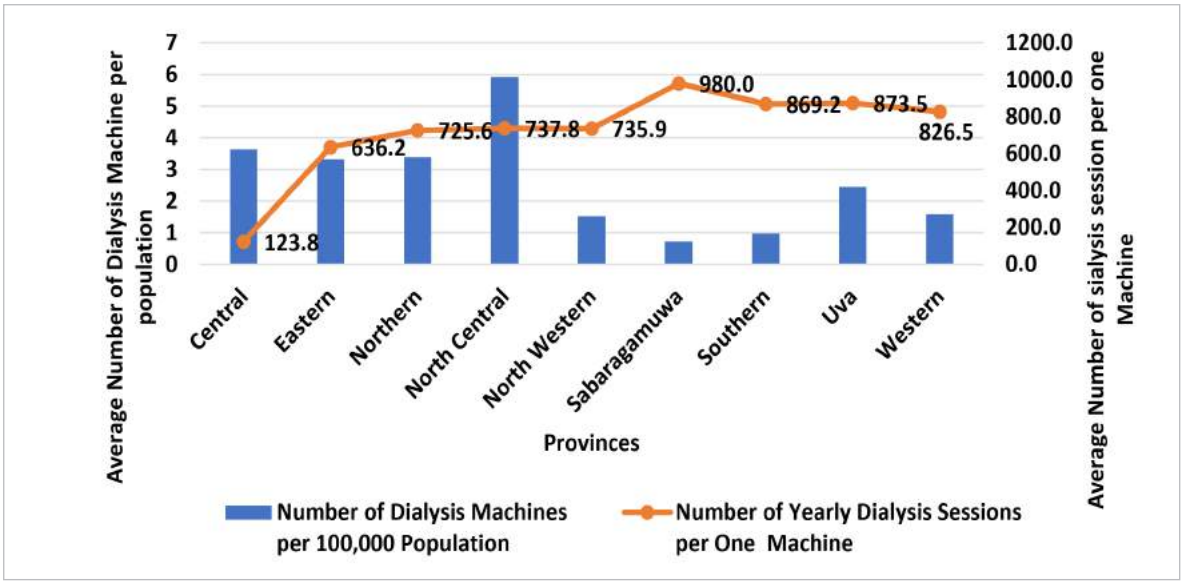
At the moment there are 754 Reverse Osmosis (RO) plants functioning in Sri Lanka. The NRDPRU of the Ministry of Health has commissioned 92 drinking water RO plants in 2020, with the assistance of the Sri Lanka Navy and financial assistance from the National Kidney Fund. The purified water from these drinking water RO plants were provided free of charge to the public. The maintenance cost and the electricity bills for functioning of the drinking water RO plants are bourne by the NRDPRU.

Nephrology Units: There are a number of Nephrology units that provide services for CKD patients by the Consultant Nephrologists. The Nephrology units in the public sector has increased from 22 to 32 for Base and above hospitals from 2015 to 2021.National Peritoneal Dialysis Programme: In year 2020, NRDPRU initiated the National Peritoneal Dialysis Programme data collection, and there was a total of 479 Continuous Ambulatory and 15 Ambulatory Peritoneal Dialysis patients in the same year. An extensive four-day training was provided to the Renal Unit staff of Hospitals on National Peritoneal Dialysis programme by NRDPRU covering Kandy, Colombo, Gampaha and Rathnapura in year 2020.

The following table shows the number of dialysis machines functioning in each province during 2020 and the number of dialysis sessions carried out during the same period.

Table 14 : Average number of dialysis machines per 100,000 population and average number of yearly dialysis sessions per one machine in 2020

Province	Number of Dialysis Machines	Number of Dialysis Machines per 100,000 Population	Number of Dialysis Sessions per year (In hundreds)	Number of Yearly Dialysis Sessions per One Machine
Central	101	3.63	125	123.76
Eastern	58	3.32	369	636.21
Northern	39	3.39	283	725.64
North Central	82	5.92	605	737.80
North western	39	1.52	287	735.90
Sabaragamuwa	15	0.72	147	980.00
Southern	26	0.97	226	869.23
Uva	34	2.45	297	873.53
Western	98	1.59	810	826.53



Source: CKD Unit

Figure 58 : Number of dialysis machine per 100,000 population & average number of utilization per machine in each province in 2020

According to the per machine utilization rate, there are discrepancies between availability of resources and the usage. The machines in some provinces are heavily underutilized, but in certain provinces, there's a lack of facilities in relevance to the patient needs.The NINDT was established in the year 2009 to develop and implement the National Programme for Chronic Kidney Disease, Dialysis and Renal Transplantation for Sri Lanka. It provides all diagnostic and therapeutic facilities for CKD and CKDu, and is identified as the referral centre for high end and complex therapies and procedures. The NINDT provides services such as screening and clinical Management of CKD & comorbidities, Haemodialysis, Continuous Ambulatory Peritoneal Dialysis (CAPD), kidney transplantation, donor card programme, research, training, awareness creation, psychosocial support and aiding in policy making.

The National Hospital of Nephrology in Polonnaruwa was established in 2021, with support from the Chinese Academy of Sciences, with a capacity of 200 beds, it also consists of 100 transfusion beds, five state-of-the-art operating theaters, and two Intensive Care Units. However, utilization of these resources is restricted due to the unavailability of adequate health staff at the moment.

The cross-sectional population representative study conducted in Anuradhapura revealed that the aetiology of CKDu in Sri Lanka remains unclear, and there is a need for longitudinal studies to describe the natural history and to identify the risk factors for the decline in kidney function.

Table 15 : Research carried out by the NRDPRU during the period of 2016 to 2021.

Research title	Findings
The incidence, prevalence, and trends of CKD and CKDu in the North Central Province of Sri Lanka:	an analysis of 30,566 patients found that the incidence of CKD/CKDu in North Central Province has increased in 2016 with a slight decrease in 2017.
Quality of life and burden of symptoms in CKD patients undergoing dialysis in Sri Lanka	a population-based study using an electronic renal Registry-Key Informant Reports 2019: found that more than two thirds of patients report at least one moderately severe physical symptom, and over half reported feelings of worry and sadness.

Research title	Findings
The water chemistry and microbiome of household wells in Medawachchiya, Sri Lanka, an area with high prevalence of CKDu – Nature 2020	confirmed previous reports of increased levels of Fluoride in areas of high CKDu prevalence, with 30% of household wells in the Medawachchiya region exceeding WHO recommendations.
Progression of diabetic nephropathy and associated factors in a cohort of Sri Lankan patients: a retrospective study – Journal of the Ceylon College of Physicians 2021	this study revealed a rapid decline of the kidney functions.
The direct cost of dialysis in Sri Lanka – KI Reports 2022	revealed that in Sri Lanka HD is the most expensive dialysis method for government institutions while APD is the cheapest.
The trend in the incidence of CKD in the CKDu affected in North Central Province of Sri Lanka – KI Reports 2022:	showed in Anuradhapura and Polonnaruwa in general there was a rise in the incidence of CKD/CKDu from 2012 to 2016 with the highest incidence being reported in 2016. However, from 2017 onwards there was a general decline.

Availability of a dedicated unit at the national level, a separate financial vote, an approved cadre, a main branch in CKDu in highly endemic areas, presence of regional coordinators in CKDu in highly endemic areas and functioning two National Renal Institutions in Sri Lanka were considered as strengths, while the lack of human resources and allocations are the main challenges faced in this sub strategic area.

The Data to Policy programme conducted by vital strategies for the MoH has developed a policy brief that indicated (2021) that a systematic programme for screening of high-risk patients for CKD, follow-up and management be implemented. The protocols need to be developed, staff need to be trained and the registry needs to be established. The programme needs to be carried out in a phased out manner. It will start with a pilot study for feasibility and will be scaled up nationally after evaluation. Implementing this policy will require an additional budget of 4.3 billion per year to the existing budget of Rs. 2.4 billion spent at present for existing services for CKD patients. Thereby, this policy is estimated to save 1878 CKD related deaths per year. An additional 49,284 patients in CKD stages 1-2 will be followed up, who at present do not even know that they are at an early stage of CKD.

Recommendations

1. More research should be conducted to identify epidemiological data including risk factors.

2. Develop a National Strategic Plan for CKDu and identify roles and responsibilities of different stakeholders.

3. Support other sectors to provide drinking water (including RO water) in CKDu affected areas to reduce the incidence of CKD/CKDu.

4. Hand over the maintenance of RO drinking water plants which is currently done by the MoH to the Ministry of Public Administration.

5. Fulfill the medical officer vacancies in all CKDu affected renal areas.

6. A data management system should be in place and maintain and update the Renal Registry regularly.

7. Ensure that hemodialysis and peritoneal dialysis units are functioning with adequate infrastructure and human resources, and maintenance of equipment.

8. Underutilized Dialysis Machines should be allocated to highly demanding areas after doing a careful surveying of utilization and resource mapping.

9. Conduct screening programmes for CKD/CKDu in CKDu affected areas for early detection of CKD/CKDu patients and introduce point of care services.

10. Establish National Peritoneal Dialysis Units in pre-identified Teaching Hospitals.

11. Installation of eight donated State of the Art CKD/CKDu Mobile Screening Vehicles.

Sub strategy 1.8-: To maintain zero transmission of Malaria and Filariasis

Maintain zero transmission of Malaria

Sri Lanka was certified as a malaria free country on 6th September 2016 by the World Health Organization, and the last indigenous case was reported in 2012. Since 2008, Sri Lanka has maintained a zero-mortality due to malaria. Organized malaria control activities commenced in 1911 with the establishment of the Anti-Malaria Campaign (AMC) in Kurunegala. Subsequently, several more units of the AMC were established in other high prevalent regions of the country. A major achievement was the dramatic reduction of malaria incidence island wide after the introduction of dichlorodiphenyltrichloroethane (DDT) in 1946. In 1958, the Government of the newly independent Ceylon launched a malaria elimination programme, in keeping with the WHO recommendations at that time.

The programme continued on elimination principles for several years and subsequently re-oriented as a control programme which included many elements of the earlier elimination programme. Operationally, the AMC functioned as a vertical programme with a centralized structure until 1989. In 1989, the programme was transformed into a decentralized campaign implemented by nine provincial health authorities, under the technical guidance of the National Anti-Malaria Campaign Directorate. The AMC Directorate is under the purview of the Line Ministry of Health, whereas the Provincial Programmes are managed by the Provincial Health Authorities under the Provincial Councils. Regional Malaria Officers are the focal persons responsible for prevention of malaria re-introduction in the provinces and districts. They report administratively to the Provincial and Regional Directors of Health Services, but receive technical guidance from the Directorate of the AMC. The AMC has a good Information Management System encompassing digital health and a GIS system.

Since 2014, approximately 50 imported cases have been reported in the country annually. The majority of the cases have been adult males. Currently, the goal of the AMC is to maintain a malaria free status, with the objective of preventing the reintroduction and re-establishment of malaria in Sri Lanka and maintaining zero mortality.

These objectives will be achieved through making universal access to malaria diagnosis and treatment, surveillance, malaria prevention, quality assurance, monitoring & evaluation, information, education & communication, advocacy, developing partnership with other stakeholders and capacity building. In line with achieving the SDG goal of maintaining zero indigenous malaria incidence by 2030, Sri Lanka is aiming to sustain prevention of re-establishment of malaria. The risk of re-establishment remains high due to increased international travel, delayed diagnosis, abundance of the main malaria vector in all parts of the country and emergence of new vectors of malaria in the Northern and Eastern Provinces. This is further complicated by the lack of malaria control in endemic countries, which forms a part of the international travel network for Sri Lankans engaged in occupations such as United Nations peacekeeping missions and those seeking foreign employment.

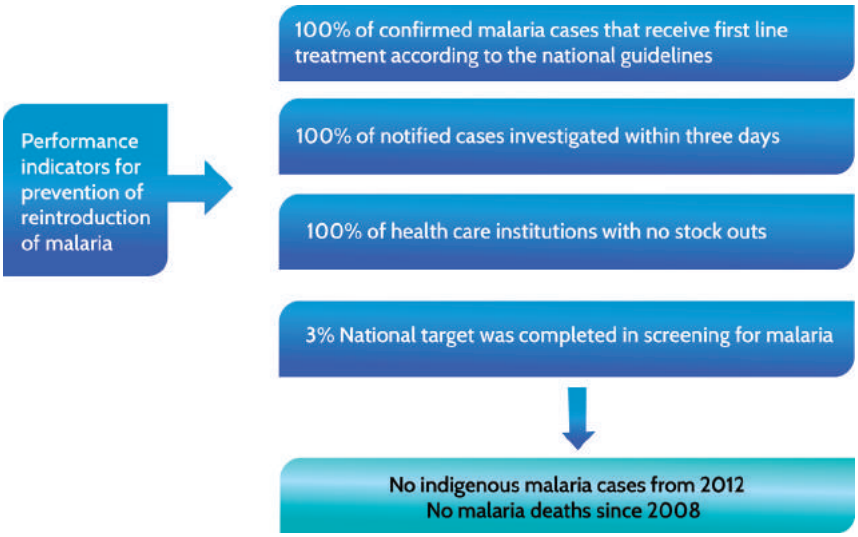
The Universal access to malaria diagnosis and treatment is available in the broad network of healthcare institutions of MoH (hospitals and Regional Malaria Offices), as well as in the private sector. In addition, Sri Lanka Police and the Tri Forces are provided with facilities for screening, diagnosis and treatment of malaria free of charge. The Anti-Malaria Campaign was supported by the Global Fund (GFATM) until the end of 2021 for malaria prevention and control activities. The AMC has a separate drug procurement system, and chloroquine is locally procured reducing the cost of procurement by 90%, and the other medicines are supplied by the WHO. Also, technical guidance is received by the WHO. A GIS based drug surveillance system was introduced with the redistribution of medicines since 2020. Currently, AMC has changed interventions by increasing parasitological surveillance, public and clinician awareness for early detection of malaria cases and reducing the number of routine entomology surveillance sites.

Follow up of the diagnosed patients is carried out directly by the officials from the AMC headquarters and Regional Malaria Officers (RMOs), by monitoring of all confirmed patients for therapeutic efficacy over a certain period of time (according to the national guidelines on malaria chemotherapy). The AMC provides chemoprophylaxis free of charge to all travelers to malaria-endemic countries. Risk group screening and follow-up is carried out for vulnerable populations such as returning refugees, foreign labour personnel, Sri Lankan armed forces returning from overseas peacekeeping missions, foreign refugees, persons traveling on business to malaria-endemic areas, Indian fishermen, gem traders visiting African countries and pilgrims to India and Myanmar. In addition, parasitological surveillance is conducted by microscopy and/ or rapid diagnosis tests (RDT). This includes both passive case detection (to prevent transmission and also prevent patients from developing complications) and active case detection (to prevent any possible local transmission). All donor blood is screened by the National Blood Transfusion Service for malaria, before transfusion.

Entomological surveillance and response conducted by the AMC to determine the epidemiology of malaria receptivity in vulnerable settings and facilitation of vector control measures based on susceptibility to insecticides and their bio efficacy, supports vector control measures. Integrated Vector Management is applied according to the national vector control guidelines. This mainly includes larval source management (chemical larvicide, introduction of larvivorous fish and environmental modifications) and adult control measures (indoor residual spraying (IRS) and the use of long-lasting insecticidal nets).

Current malaria status in Sri Lanka

There is no local transmission of malaria in Sri Lanka since 2013 and no malaria deaths were reported since 2008.



Source : Anti Malaria Campaign

Figure 59: Malaria cases by origin of infection from 2012 to 2021

Further description of the above Figure:

- Introduced case - One case contracted locally in a previously malaria endemic district with vector mosquitoes, from an Indian worker in 2018.
- Induced case in 2021 – A 17-year-old person with thalassemia contracted malaria following blood transfusion. Blood donor had visited an African country.

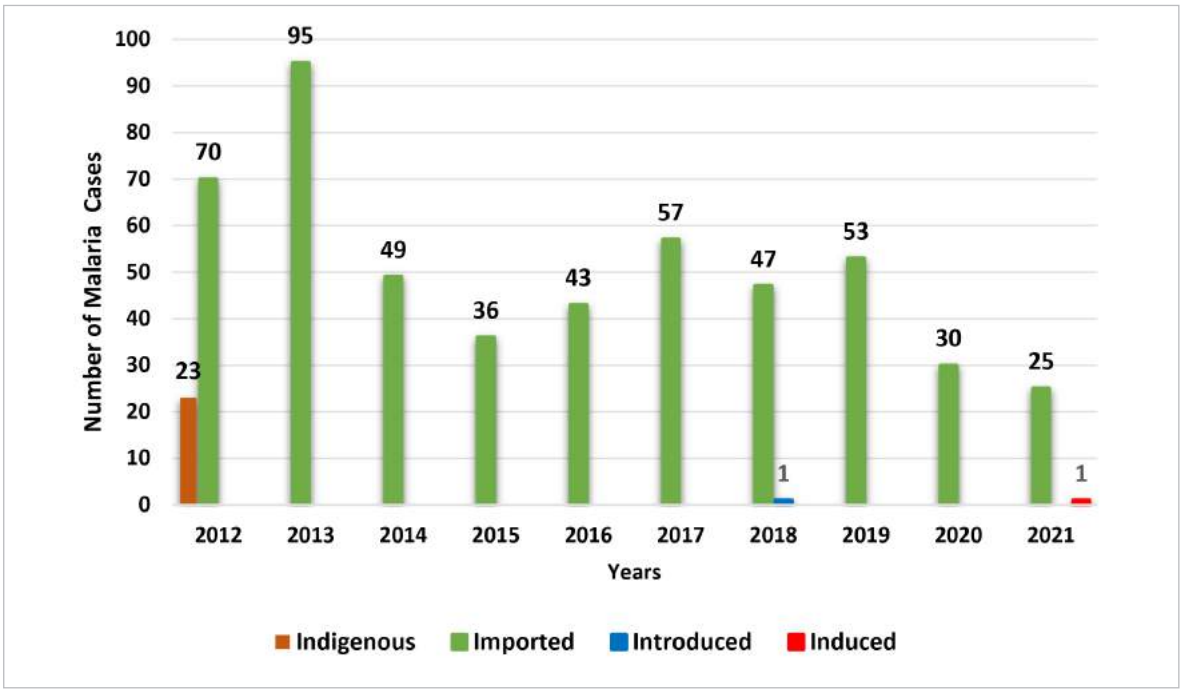


Figure 60 : Main targets achieved on prevention of reintroduction of Malaria

Close monitoring and evaluation mechanisms lead to cost-effective control measures and minimize the wastage of drugs, diagnostics and other chemicals. Introduction of the PROMIS (Prevention of Reestablishment of Malaria in Sri Lanka) initiative Social Marketing campaign for awareness and thus making the maximum usage of social media platforms, has resulted in minimizing the cost for public awareness. The establishment and functioning of a highly expertized Technical Support Group (TSG), the Case Review Committee (CRC), monthly case-based reviews with the CRC and conducting regular monthly detailed RMO reviews improve the current monitoring of malaria prevention and control activities for timely action.

The main challenges are the increased vulnerability to malaria due to influx of infected individuals coming from malaria-endemic countries and illegal travelers to European countries through African region returning to Sri Lanka with malaria without revealing the travel history. The reduction of funding for the anti-malaria programme following elimination is a major challenge for the potential re-establishment of malaria in the country. Vigilant surveillance is an important component of the Prevention of the Re-establishment (PoR) phase. Surveillance and preventive measures encompass a considerable cost for chemoprophylaxis and parasitological surveillance, which includes the cost of tests and human resources. Also, the entomological surveillance and control activities including logistic requirements and purchasing of chemicals adds to the cost. Malaria has become a forgotten disease among the healthcare providers, leading to delays in diagnosing malaria patients. Spreading of the potentially invasive new urban vector *Anopheles stephensi* in the Northern and Eastern provinces is also another identified challenge.

The Technical Support Group (TSG) represents experts from the state sector, Professional Colleges, Universities and other eminent professions. Partnerships are maintained with the Quarantine Unit, Epidemiology unit, other vector borne disease control units of the Ministry of Health. Further to this, Provincial Health Authorities closely monitor the malaria situation and investigate malaria cases.

The Current situation is maintained through good partnerships with UNHCR, IOM, other ministries (e.g., Ministry of Defense - risk group surveillance, Ministry of Agriculture – vector surveillance and control), media (printed and electronic), non-governmental organizations such as Rotary Club, travel agents, textile industry (MAS Holdings), Gem traders associations and Foreign Employment Bureau, to enhance risk group surveillance and financial support.

Recommendations

1. Strengthen public awareness, specially among travelers who come from malaria endemic countries, to seek treatment for fever, and encourage to declare the travel history when taking treatment for fever.
2. All inbound migrants coming from malaria endemic countries who will be issued with resident visa for stay over 6 months should be mandatorily screened for malaria.
3. Awareness of medical practitioners, especially General Practitioners, on malaria diagnosis, and inquire about overseas travel history from suspected fever cases.
4. Establish a malaria academy in Sri Lanka for international capacity building and experience sharing.
5. Continue activities to prevent the reestablishment of malaria and sustain the malaria free status in Sri Lanka.

To achieve zero transmission of Filariasis

Programme overview

On 21st July 2016, Sri Lanka was awarded the validation of elimination for Lymphatic Filariasis as a public health problem by the World Health Organization. Upon elimination, the country was burdened with sustaining its elimination state of below 1% of microfilaria rate, and to gradually achieve a microfilaria rate of 0% in endemic areas, and to prevent suffering and disabilities due to complications of filariasis in the country.

Filariasis is endemic in eight districts in three provinces in Sri Lanka. The focal point and the technical guidance for implementation of filarial activities are provided through the Anti Filariasis Campaign, with the aim of eliminating Lymphatic Filariasis by interrupting the transmission and to alleviate suffering and disabilities of affected individuals. The Anti-Filaria Campaign includes the services of Regional Medical officers/ Filariasis control in the regional level, while the public health specialists and medical officers from the Headquarters facilitate providing technical guidance for the regional implementation units. Three main strategies have been implemented: parasitological surveillance, entomological surveillance and morbidity management.

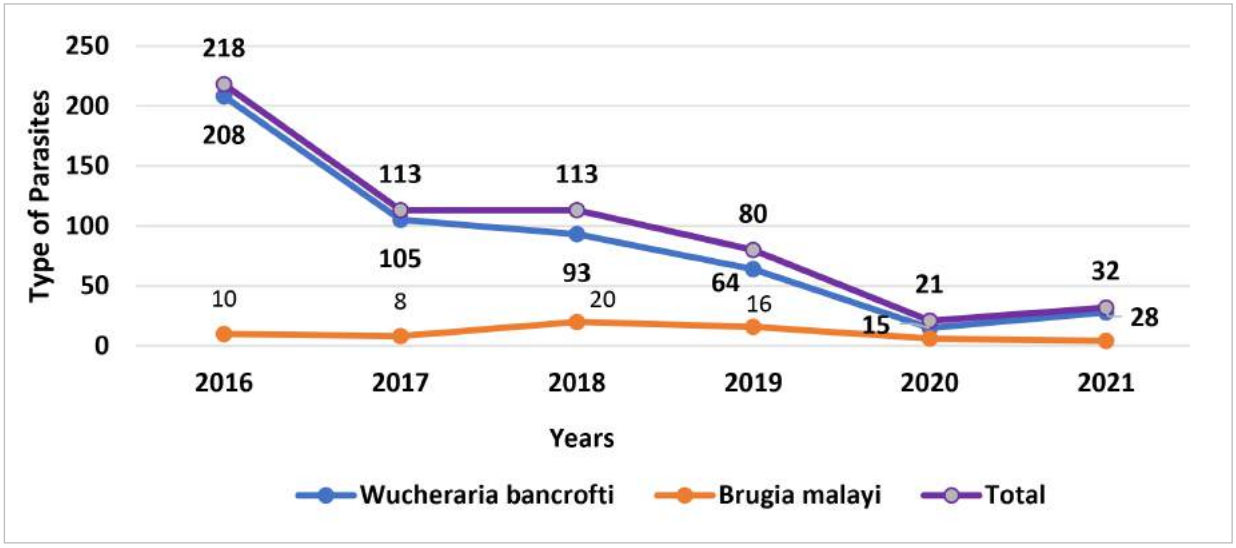
Filariasis control activities are implemented through Regional Filariasis Control Units (RFCUs) established in endemic districts, under the administrative authority of the Regional Director of Health Services. RFCUs have a medical officer, public health inspectors, public health laboratory technicians (PHLTs), health entomological officers (HEO's), public health field officers (PHFOs) with supportive staff for implementation of filariasis control and prevention activities.

Parasitological surveillance targets screening of people living in endemic areas and identifying asymptomatic microfilaremia carriers. This is done through night blood film surveys carried out by PHI's and PHFOs. In addition to that, all inbound migrants who seek visa for more than six months should

undergo a filaria screening test. Identified positive patients are treated according to treatment guidelines and followed up to observe the parasitic clearance in one month's time.

Entomological surveillance aims on identifying areas with ongoing transmission through mosquito positivity for parasite larval stages that can be transmitted. This surveillance facilitates identifying areas for human screening, too. Further aims are, identifying areas of vector breeding for biological larval control methods and doing necessary environmental manipulations. Morbidity management focuses on patients with chronic complications of filariasis, mainly lymphoedema. These patients are registered and managed at special morbidity management clinics established in endemic districts and are provided with basic care package of management of lymphoedema involving skin care, exercise and movement, elevation, compression and psychological support.

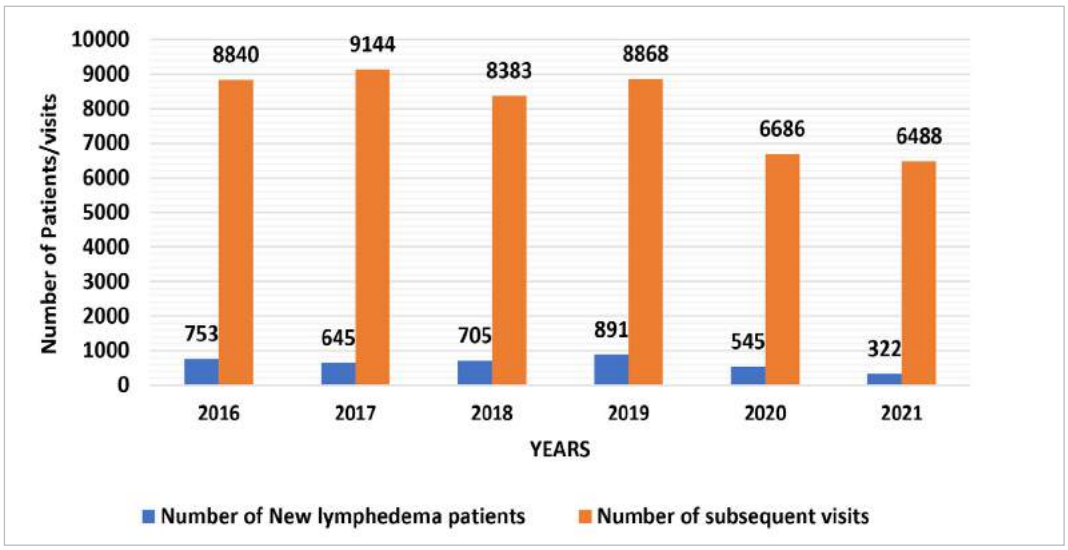
Health education, operational research, quality assurance, monitoring and evaluation of implementation activities are also carried out by central and regional units.



Source : Data from Anti Filariasis Campaign

Figure 61 : Number of Microfilaraemic cases reported by the type of parasites from 2016 to 2021

The above Sri Lankan statistics are in par with other countries where *Wucheraria bancrofti* cases accounted for approximately 90% of cases reported.

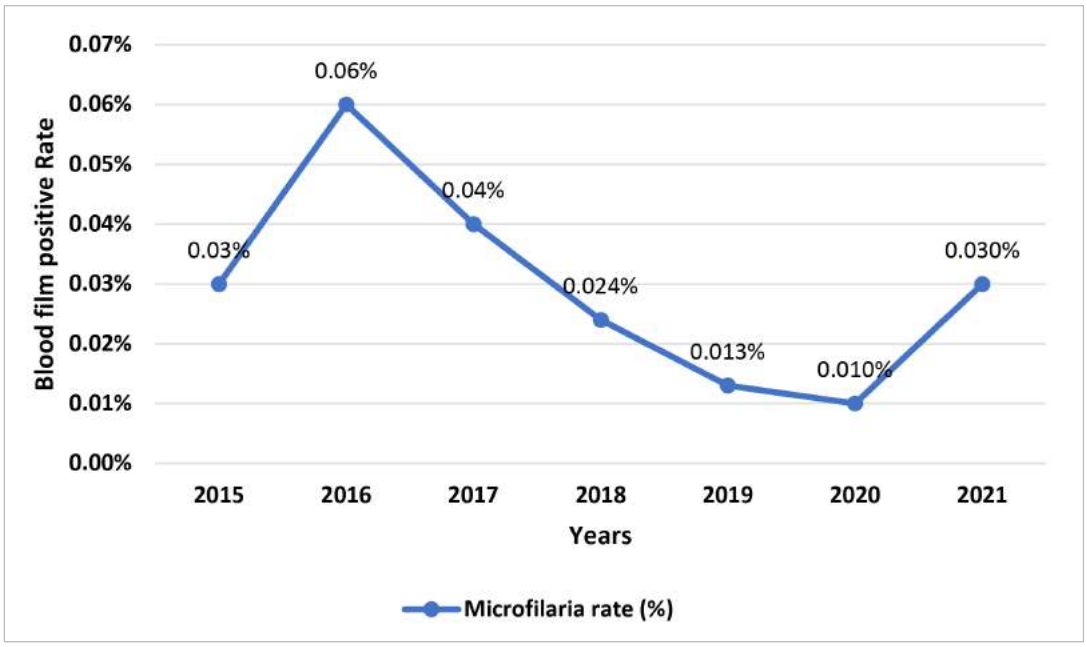


Source : Data from Anti Filariasis Campaign

Figure 62 : Number of new patients and subsequent visits for Lymphedema from 2016 to 2021

The related SDG goal 3.3 is “end the epidemics of AIDS, Tuberculosis, Malaria and Neglected Topical Diseases and combat hepatitis, water borne diseases and other communicable diseases”. The SDG

indicator for filariasis is the number of new lymphedema cases due to filariasis receiving treatment per year. It is a challenging situation for assessing the lymphedema cases due to filariasis because there is no specific diagnostic tool to confirm unless microfilaremia or adult worms are found. Also, ultrasound scanning of the lymphatic system needs high level logistic arrangement.



*Microfilaria Rate – Total number of Microfilaraemic positive cases out of total population screened.

Source : Anti Filariasis Campaign

Figure 63 : Microfilaria Rate* from 2015-2021

The microfilaria rate is maintained below 1% throughout the past several years, and it proves that filaria is no more a serious public health problem in Sri Lanka. Yet, total elimination and interruption of transmission are yet to be achieved.

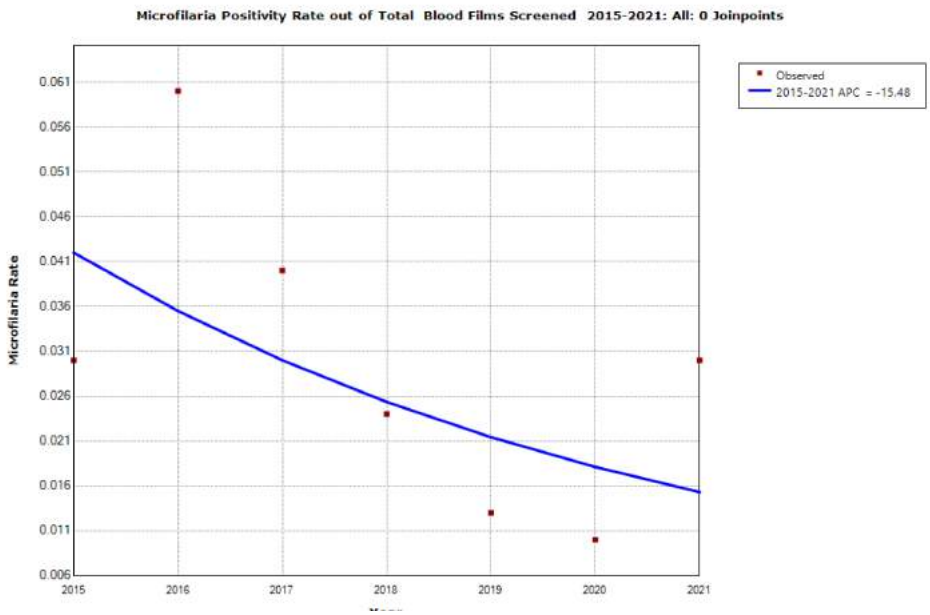
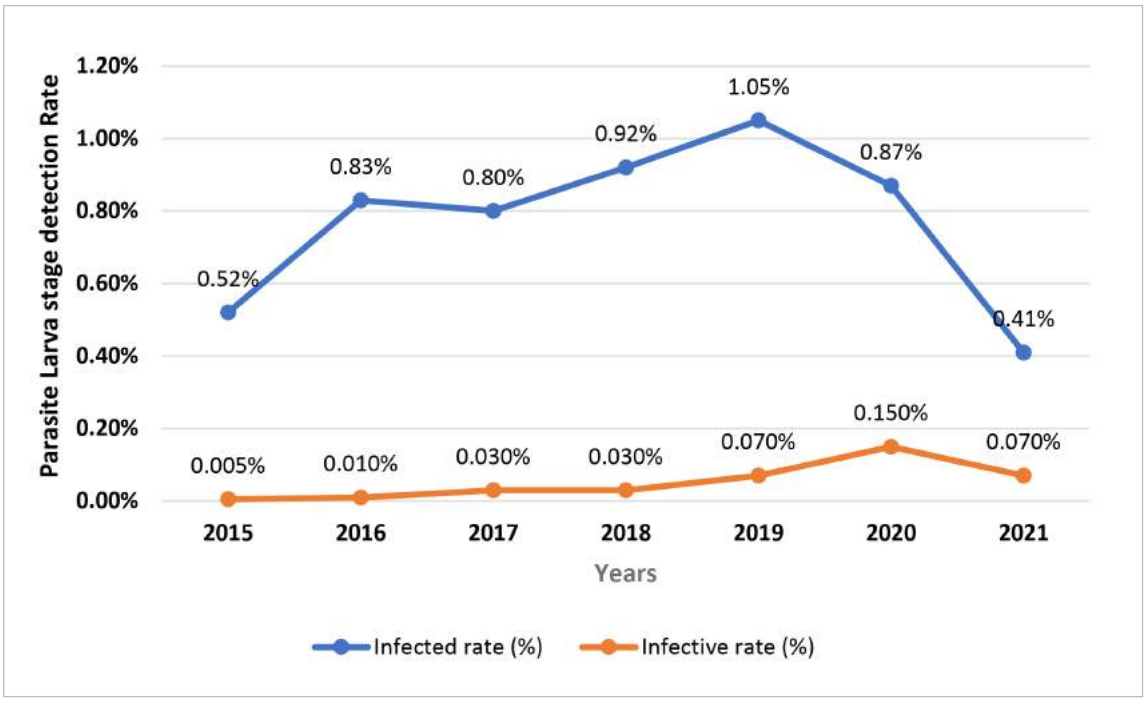


Figure 64 : Trend Analysis of Microfilaria Rate from 2015-2021

The above trend analysis using the regression model shows that the microfilaria rate shows a decreasing trend from year 2015 to 2021. This decreasing trend was not statistically significant ($P<0.05$).
Under the entomological surveillance, following results were obtained.



Source : Data from Anti Filariasis Campaign

Figure 65: Filaria infected and infective rates of *Culex Quinquefasciatus* from 2015 to 2021

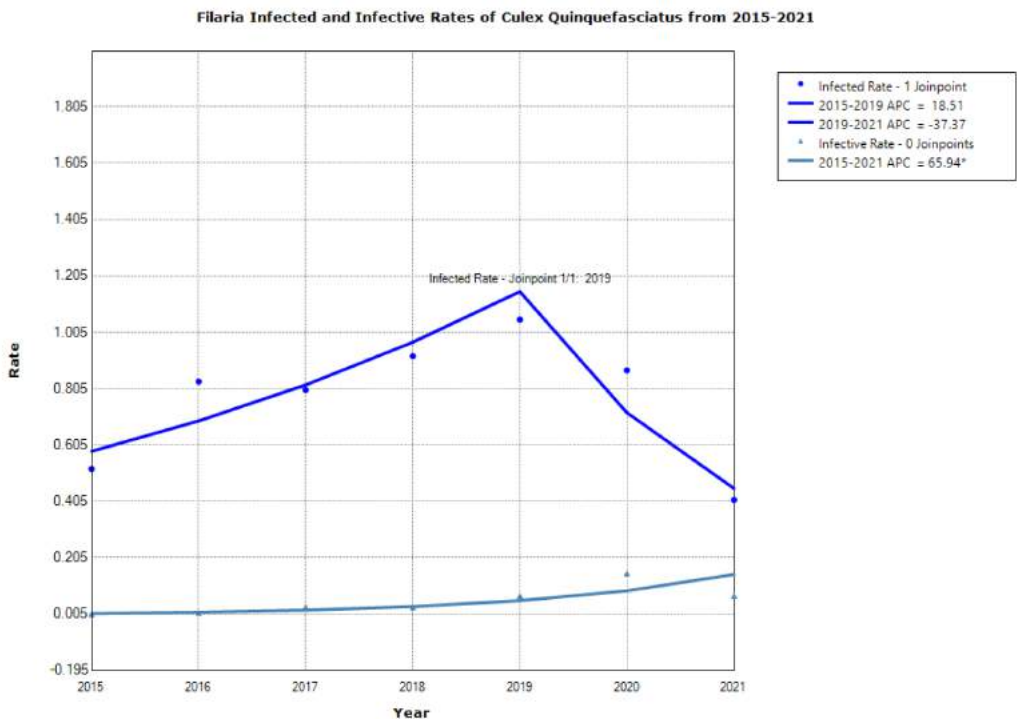
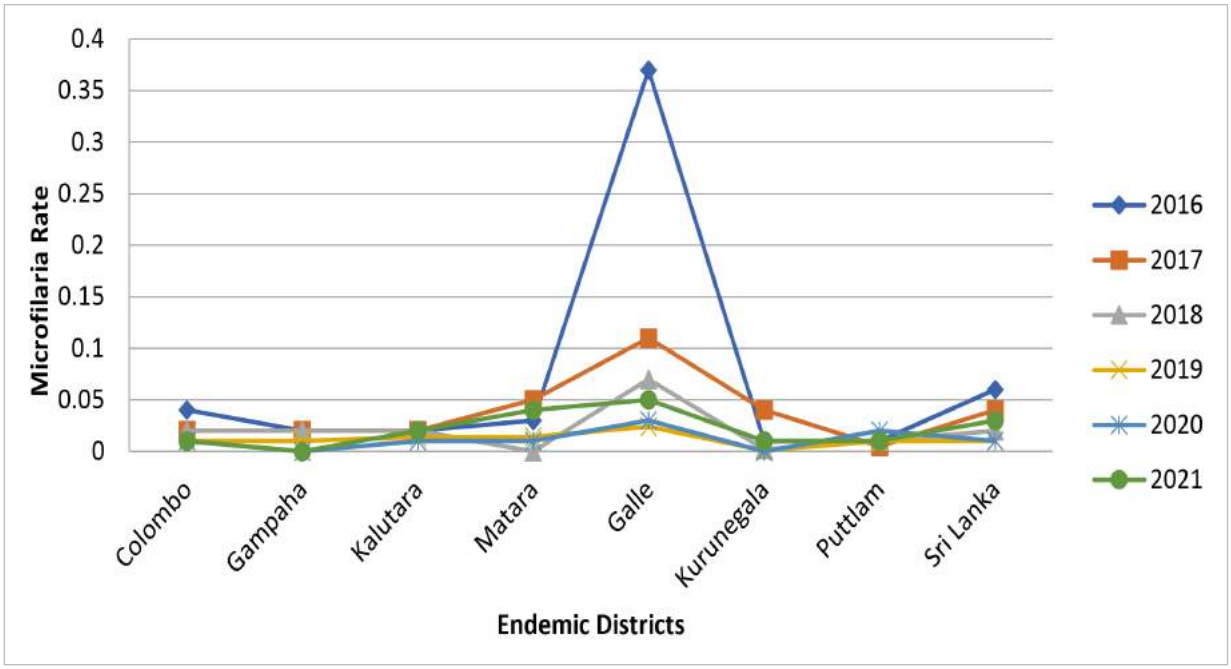


Figure 66: Trend analysis of Iinfected and infective rates of Culex Quinquefasciatus from 2015-2021

From year the 2015 to 2019 period, the infected rate (L1-L3) shows an increasing trend, and the trend is declining from 2019 to 2021. However, these trends are not statistically significant ($p>0.05$). From the year 2015 to 2019 period the infective rate (L3) was statistically increased with an Annual Percentage Change of 65.9 from 2019 to 2021. This indicated that many mosquitos were infective, with the increasing risk of transmission and infecting more people. However, the major limitation of the trend analysis was that the analysis was performed on conventional samples on successive years.



Source : Data from Anti Filariasis Campaign

Figure 67 : Microfilaria Rate by endemic districts from 2016-2021

The above graph indicates that more patients are in the Galle district during all these years. Many developments have taken place during the last few years: development of the National Treatment Guideline, development of Standard Operating Procedures, establishment of a new Regional Filariasis Unit in Hambantota, development of a web based surveillance system, initiation of inbound screening of immigrants by International Health Unit (IHU) through International Organization for Migrants (IOM), initiation of spatial mapping of surveillance activities (parasitological and entomological), risk stratification of endemicity in eight endemic areas, training of healthcare workers in endemic and non-endemic districts, and initiation of an international external review of the filariasis programme. There are identified challenges for implementation of filariasis control and prevention activities. They are community refusal/ non-cooperation for night blood filming programme and difficulty in obtaining permission to enter premises to draw finger prick blood during the night. In addition, the spread of negative social media rumors and negative attitudes of health staff has led to non-reaching of expected targets and neglected lymphoedema management in the clinical set up. These challenges were further increased during the COVID 19 pandemic.

The non-existence of a referral and back-referral system in the curative sector is identified as another challenge, with less awareness among the curative staff about the referral pathway. Irrational treatment for lymphoedema patients in the private sector also contributes to this. Inadequacy of human resources for entomological teams (Health Entomological Officers and Health Care Assistants) and use of existing staff for the entomological screening activities of other vector borne diseases, are the main challenges faced by the entomological surveillance team. Also, less priority is given for filariasis control activities at the regional level. Lack of guidelines/ care pathways for rehabilitation of patients with lymphedema/ elephantiasis and a community-based care programme for lymphoedema patients are also observed. The removal of water breeding sites of mosquitos is also important to control, and it needs intersectoral coordination with Irrigation Department and Urban Development Authorities/ Provincial Councils for the maintenance of drainage systems.

Recommendations

1. Develop a policy for filariasis control, and guidelines should be developed for lymphedema management and rehabilitation.

2. Vector borne disease control activities (Dengue, Malaria, Filariasis and Leishmaniasis) should be amalgamated at the district level to use the maximum services, by resource sharing and appropriate skill mix for the services with maximum output.

3. The current diagnosis should shift from night blood films to a new method such as antigen testing.

4. More collaboration is recommended with the limb care Programme to manage morbidities.

Sub strategy 1.9-: To enhance asymptomatic/early case detection in Leprosy

Leprosy is a Neglected Tropical Disease (NTD) caused by *Mycobacterium Leprae,* and it affects the skin, peripheral nervous system, respiratory system and eyes. Sri Lanka has achieved its elimination targets defined by the World Health Organization as registered prevalence of leprosy cases <1 per 10,000 population, in 1995. Nevertheless, the disease is still a public health concern in the country, and Sri Lanka is continuing leprosy prevention & control activities. The Anti Leprosy Campaign (ALC) is the focal point in the Ministry of Health, and it is responsible for prevention and control of leprosy in Sri Lanka.

The leprosy control in the country has achieved some important milestones throughout its journey. History goes back to the 1708 Dutch administration in the country, and the first leprosy hospital was established in Hendala, and the second leprosy hospital in the Manthivu island in the Batticaloa District. The Hendala hospital is still functioning and had 36 in-ward patients affected by leprosy at the end of the year 2019. During the British rule, compulsory segregation of leprosy patients was carried out as enacted in Lepers Ordinance No. 4 of 1901. This ordinance gave powers to detain and isolate patients diagnosed with leprosy. Dapsone monotherapy was introduced in 1940, and the Anti Leprosy Campaign was established in 1954 as a vertical programme to carry out both curative and preventive activities in leprosy. Multi Drug Therapy (MDT) was introduced island wide in 1983, and in 1989, a successful social marketing campaign was introduced targeting leprosy. Since the year 2000, leprosy activities were incorporated to the general health services. Following the re-integration of leprosy services into the general health services in 2001/02, leprosy patients are now managed at skin clinics conducted in Base and above hospitals.

The ALC is the focal point in both curative and preventive leprosy activities. The Anti-Leprosy Campaign is responsible in the formulation of policies and guidelines and monitoring and evaluation of the activities of leprosy in the country. It also provides technical support for the district teams to carry out the curative and preventive activities. The Central Leprosy Clinic at the National Hospital, Sri Lanka and the Hendala leprosy hospital function under the Directorate of the ALC.

The district leprosy activities are carried out under the guidance of the Regional Director of Health Services, and the technical supervision is provided by the Regional Epidemiologist. The Public Health Inspector Leprosy Control (PHILC) in the district coordinates the activities with the dermatology clinics and the Medical Officer of Health (MOH) of the districts.

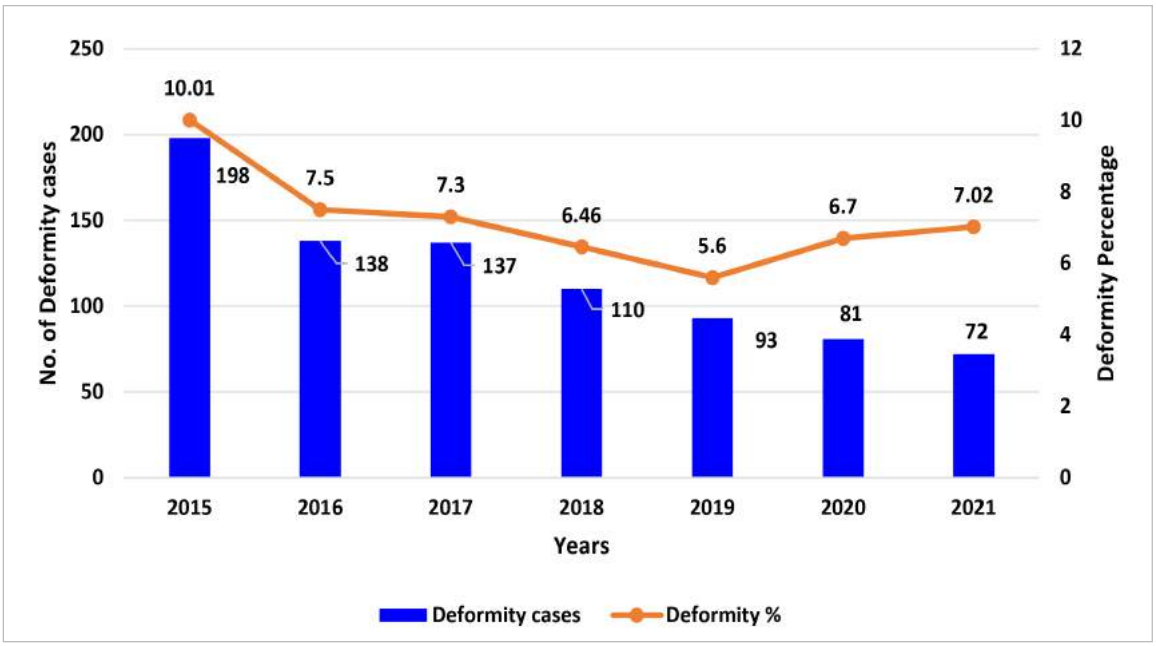
Active case finding is the main preventive activity carried out at the field level. Contact tracing of the diagnosed leprosy patients is carried out by the range public health inspectors, and ring surveys /house to house surveys are conducted in the high endemic areas for the early identification of the patients. Initiation of the MDT for the diagnosed patients and follow up are done at the Dermatology clinics under the care of the Consultant Dermatologists. The Dermatology clinics also provide skin smear testing facilities, physiotherapy services, counseling services and wound care for the patients. Patients with deformities are provided with disability aids like special shoes and splints by the dermatology clinics.

As per the WHO Global Leprosy Strategy 2021 -2030 towards Zero Leprosy, The Anti Leprosy campaign has developed a national strategic plan for 2021-2025, aiming to interrupt the transmission to achieve "zero leprosy, zero disability and zero discrimination". The goal of this strategy is to further reduce the leprosy burden in the country. The strategy is targeted to achieve four main targets, in-line with the WHO Global Strategy, are as under:

- Reduction of the number of new cases detection annually from 1,660 in 2019 to 1,494 by 2023 and 1,328 by 2025 at the national level.
- Reduction of the rate of new cases detection with grade 2 disability per million population from 4.29 in 2019 to 3.22 by 2023 and 2.14 by 2025 at the national level.
- Reduction of the rate of new child cases detection per million children from 34.64 in 2019 to 25.98 in 2023 and 17.32 by 2025 at the national level.
- Improvement of treatment success rate more than 90% by 2025.

The above targets are set to achieve by strengthening the implementation of integrated leprosy services across the disease spectrum. It includes scaling-up of leprosy prevention, integrated active case detection, improve management of leprosy and its complications and prevention of new disability. It also ensures stigma reduction and works towards respecting human rights of persons affected by leprosy. Although elimination was achieved as a public health problem in 1995, other challenges still remain, such as delay in detecting new patients, persisting stigma and discrimination against people affected by leprosy, misdiagnosis and problems related to managing of disability during and after treatment. Defaulting treatment by the patients is one of the challenges, and many multisectoral partnership are needed in this regard. Overcoming these challenges has been identified in the present strategic plan.

Annually, around 2000 new cases are being registered for Multi Drug Treatment (MDT), and it has been static (the new case detection rate is around 7 to 9 cases per 100,000 population) for the last few decades. The proportion of child cases is also found to be static for the past few years, and it was around 10% of the total number of cases.

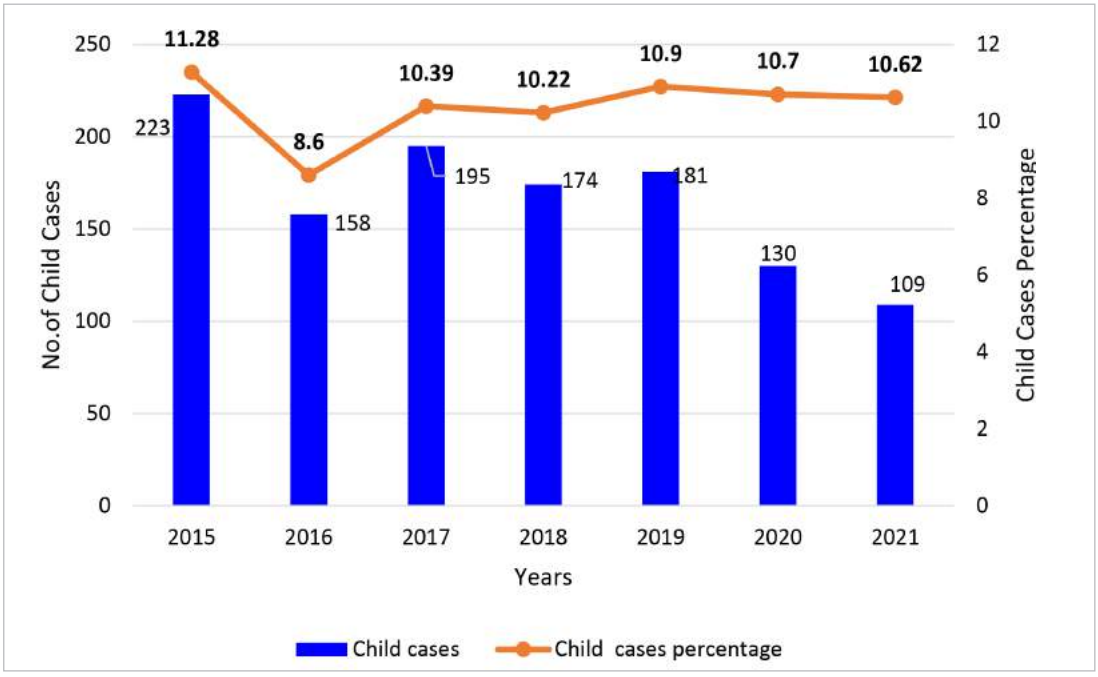


Source : Data from Anti Leprosy Campaign

Figure 68: Number and percentage of child leprosy cases from 2015 to 2021

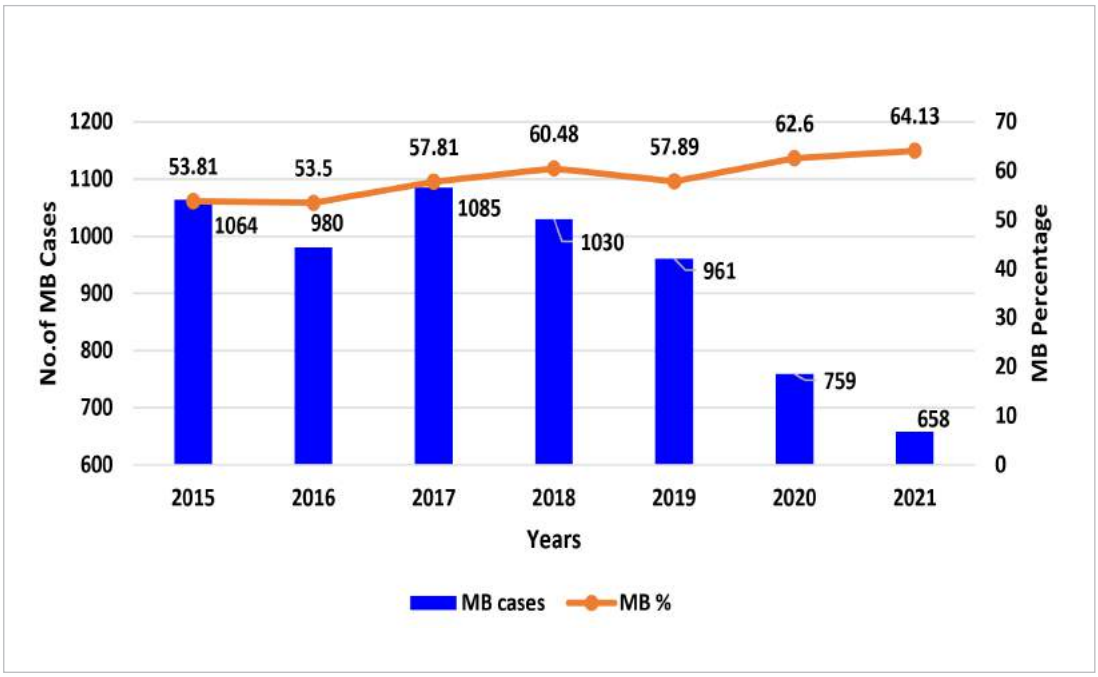
The proportion of cases with grade 2 disabilities at the time of the detection was around 5%.

Even though the number with grade 2 deformity is reduced, the deformity percentage seems to be increasing for the last three years.



Source : Anti Leprosy Campaign

Figure 69: Number and percentage of grade 2 deformity due to Leprosy from 2015 to 2021



Source : Anti Leprosy Campaign

Figure 70 : Number and percentage of Multi Bacillary (MB) leprosy cases from 2015 to 2021

The proportion of Multi Bacillary (MB) cases was around 60% for the past few years. MB leprosy is the infective type; hence it is important to detect them early to prevent the spread of the disease.

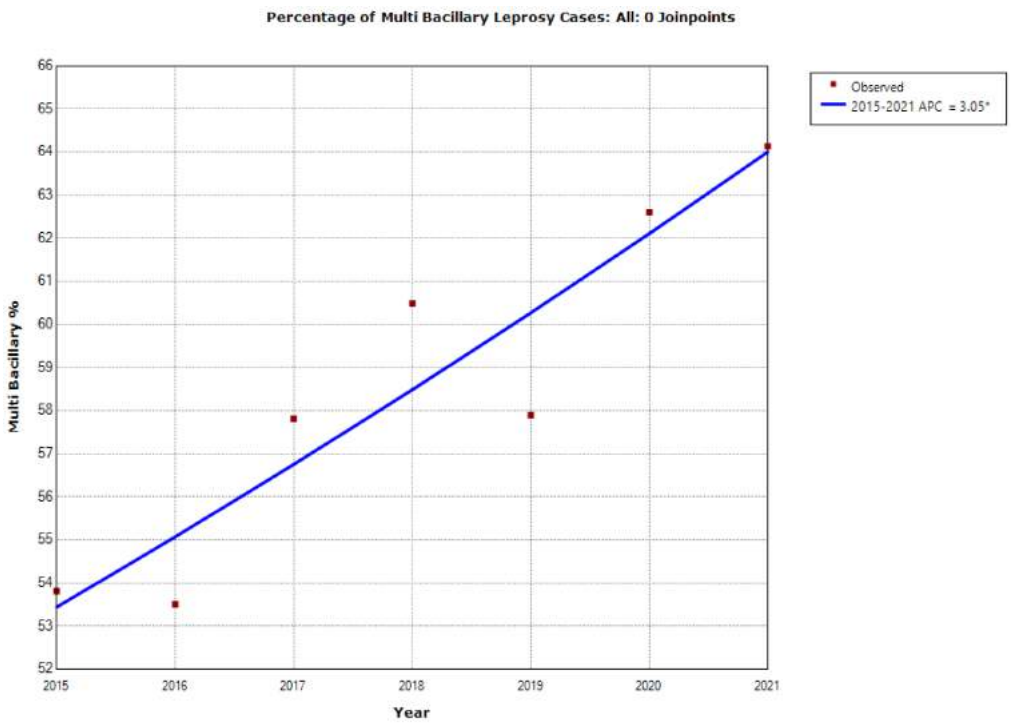
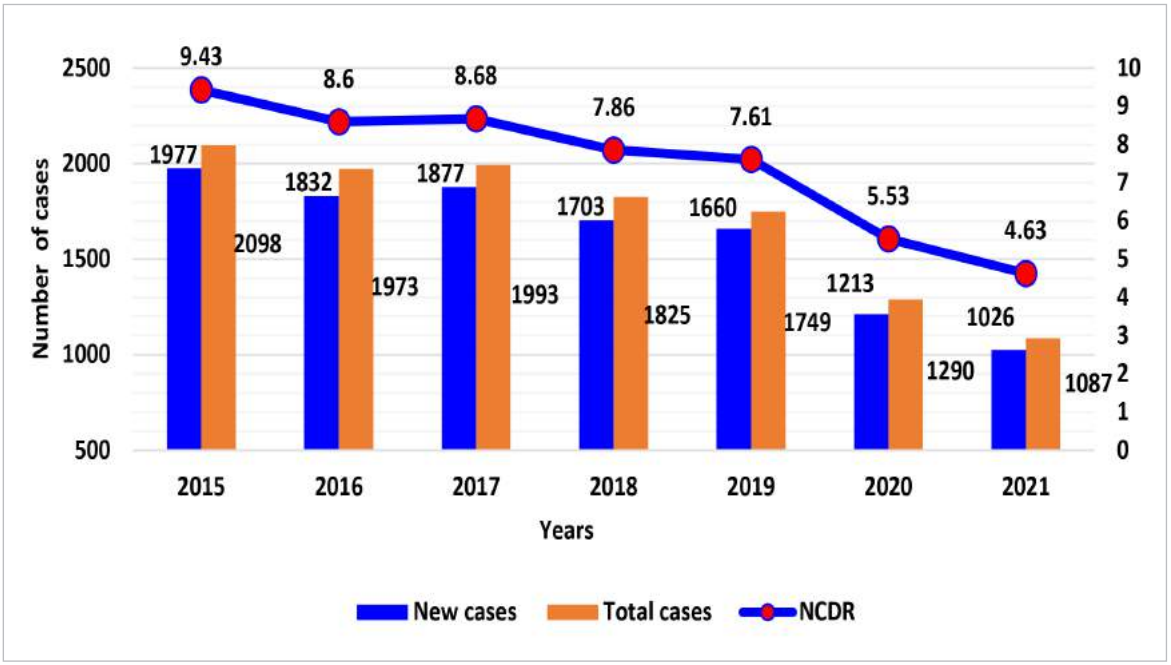


Figure 71 : Trend analysis for the percentage of Multi Bacillary Leprosy Cases

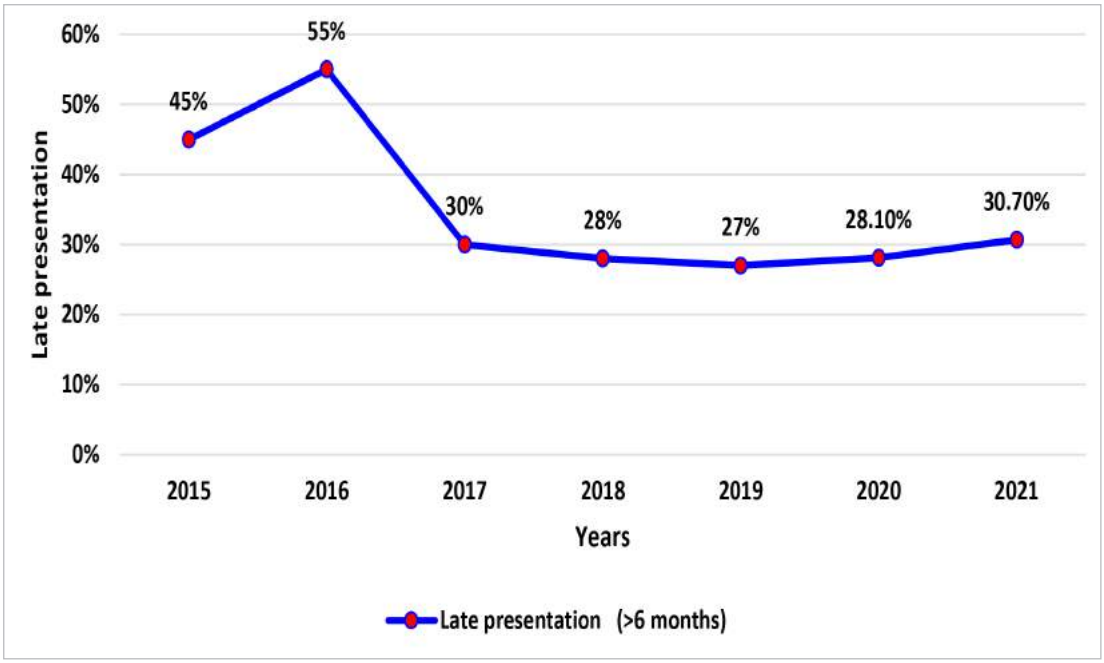
According to the above figure, there is a significant increase in the trend of MB cases from 2015-2021.



Source : Anti Leprosy Campaign

Figure 72 : Total number of cases (new cases and defaulters) of Leprosy and new case detection Rate (NCDR) per 100,000 from 2015 to 2021

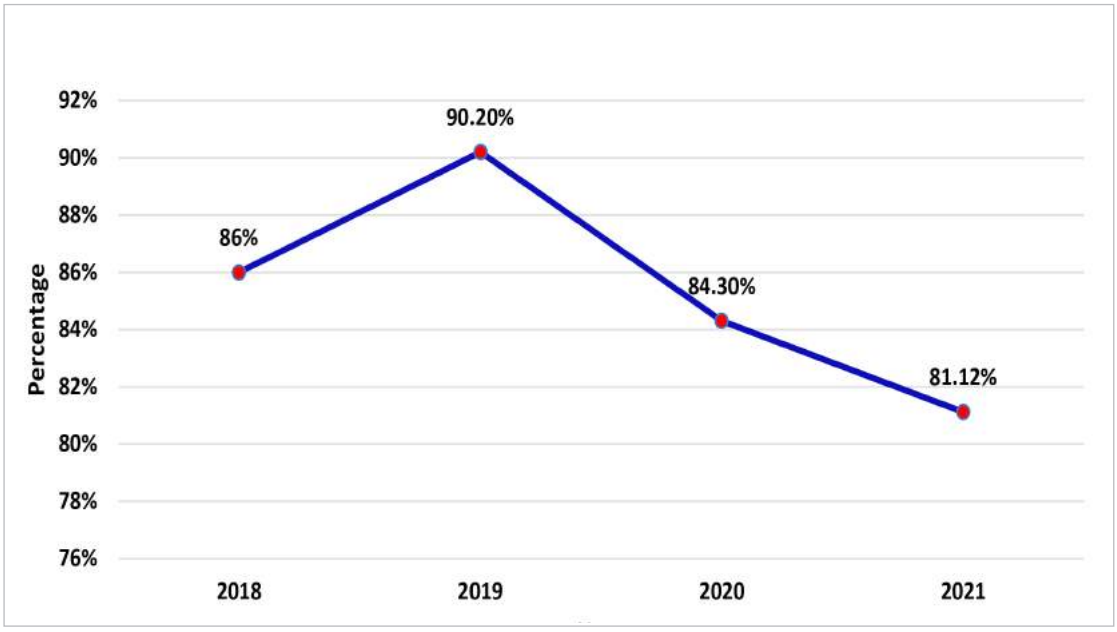
The new case detection of leprosy and the new case detection rate per 100,000 population have been severely affected during 2020 and 2021, which is likely to be due to the COVID 19 pandemic and the reduction during 2020 and 2021 may not be a true reduction.



Source : Anti Leprosy Campaign

Figure 73 : Percentage of late presenters for the treatment (>6 months) of leprosy cases from 2015 to 2021

There is a marked reduction of late presenters reported from 2016 to 2017, but, since then the percentage of late presenters static up to 2021.



Source : Anti Leprosy Campaign

Figure 74 : Percentage of treatment completion of leprosy patients from 2018 to 2021

The Percentage of treatment completion of Leprosy is reduced from 90% to 81% from year 2019 to 2021. According to the strategic plan, it should be maintained at more than 90% by 2025.

Under the SDG 3, by 2030, the number receiving treatment for leprosy is targeted to be reduced to 1000 by 2030, from the baseline value of 1973 in 2016, and the Anti-leprosy Campaign is in the journey towards zero leprosy by the year 2030.

Recommendations

1. Strengthen population-based awareness strategies on leprosy to identify early detection of cases and mitigate stigma related to the disease.
2. Strengthen the strategies to increase the active case detection rate and develop an annual estimate for new leprosy cases according to a scientific model.
3. Establish a structured follow-up mechanism to mitigate defaulters.
4. Establish a structured rehabilitative service for people living with disabilities. Include occupational rehabilitation also, as the disabled persons should also be strengthened financially.

Sub strategy 1.10 To eliminate human Rabies by 2020

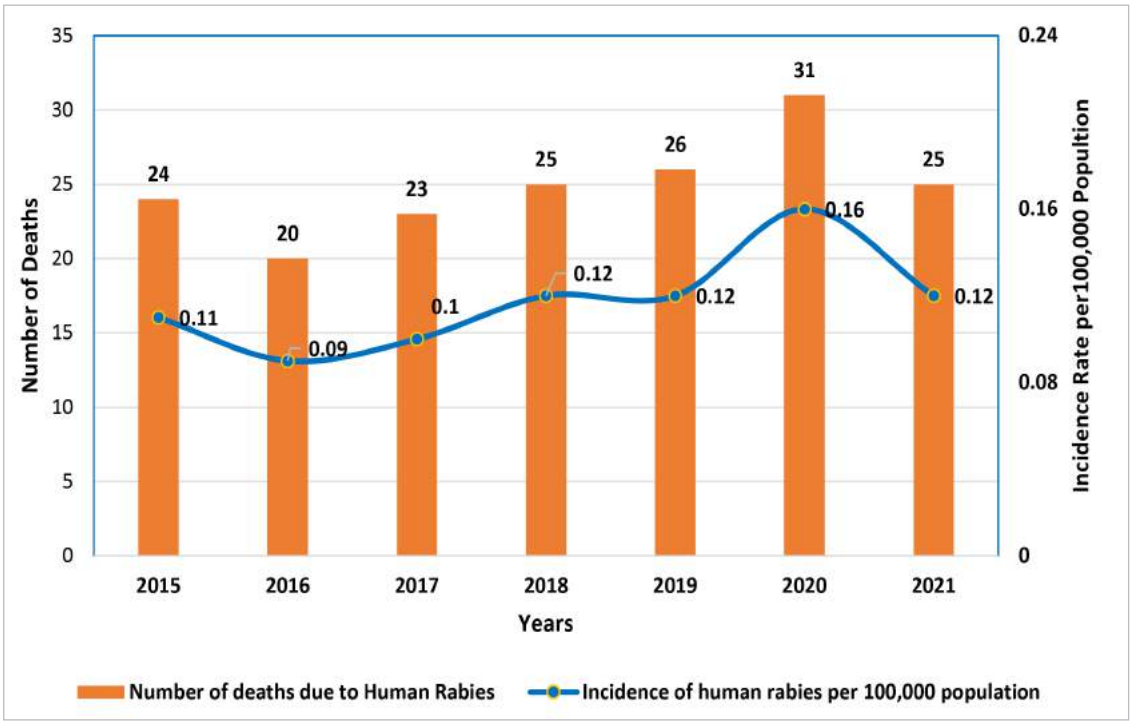
Rabies is a viral, zoonotic disease, which is spread from animals to people, resulting in acute encephalitis. The WHO identified it as one of the 20 neglected tropical diseases, with almost 100% mortality. Rabies was listed as a contagious disease in dogs & cats in the Animal Diseases Act No. 59 of 1992, and the Gazette Extraordinary of the Democratic Socialist Republic of Sri Lanka dated 17 June 2014 declared Rabies as one of 13 diseases under the category of diseases of multiple species in the Animal Diseases Act.
Elimination of dog mediated rabies provides a tremendous social and economic benefit by preventing human deaths due to rabies in Sri Lanka, and reducing the cost of post exposure treatment. However, apart from usual human rabies cases due to rabid dog bite exposures, recent incidents show an emergence of human rabies cases which are due to exposure to other wild animals such as foxes and jackals. Rabies infections had also been reported in cats, mongooses and bandicoots, among other mammals.

It was a notifiable disease in 1971, and the highest ever rabies death toll of 377 (2.9 per 100,000 population) in the country was reported in 1973. Since then, many strategic interventions were implemented.

Currently, the Rabies Control Programme of the Ministry of Health is responsible for implementing the proven rabies prevention interventions, and successfully carries out mass dog vaccination and sterilization campaigns, together with the post exposure prophylaxis/ treatment programme. Guidelines were developed for Anti Rabies post exposure therapy (PET) in 2019. Additionally, dog population control and survey, animal rabies surveillance and human rabies surveillance are performed along with community awareness and health staff training activities. Sri Lanka is practicing a “no-kill policy” of the dog population from 2005 to protect animal welfare. The use of the alternative animal birth control injection and surgical sterilization are practiced to control the dog population.

In Sri Lanka, during the past few years, the impact of rabies has been significantly reduced to around 25 deaths per year, which are mainly due to dog mediated infections. The hospital admission rate due to rabies was reduced to 0.1 per 100,000 population in 2019. WHO global strategic plan to end human deaths from dog-mediated rabies has set the target to achieve zero dog mediated human rabies deaths in 2030 and Sri Lanka has set the same value for the SDG target.

The annual disease burden of Human Rabies in Sri Lanka is shown in the below figure.



Source : Veterinary Public health Unit, MoH

**These deaths include both dog mediated and other animals mediated cases*

Figure 75 : Human Rabies Incidence Rate per 100,000 population and the Number of Deaths* due to Human Rabies from 2015-2021

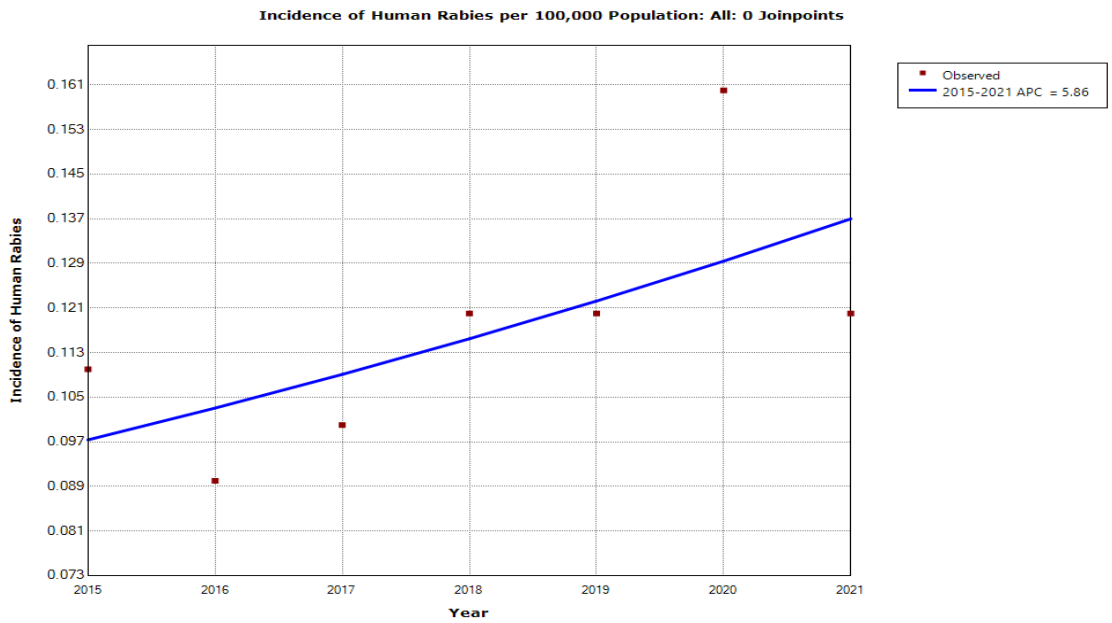


Figure 76 : Trend analysis of humen rabies per 100,000 population from 2015-2021

The above graph shows the trend of incidence of human rabies in Sri Lanka from year 2015 to 2020. Although it shows an increase, it is statistically not significant during this period.

The web-based rabies surveillance system was started in 2016. In 2018, the responsibility of rabies control was handed over to the Department of Animal Production and Health. Several gaps were identified in the control programme, and later, the responsibility was taken back to the Ministry of Health in 2019 by a cabinet paper.

Sri Lanka is the first nation to develop a National Strategic Plan (2021) with a costed activity plan for the elimination of dog-mediated rabies by 2025. Moreover, Sri Lanka is one of the first countries in Asia to have initiated the cost- and dose-saving intradermal administration of post exposure prophylaxis (PEP). Sri Lanka also plays a significant role in the region in terms of knowledge transfer, capacity building and the pursuit of the global goal of eliminating rabies deaths by the year 2030. However, compared to 2015, there has been a notable reduction of the total number of animal vaccinations conducted (1,490,541 to 1,237,257) and dog sterilizations performed (133,427 to 38,349) in 2020, which resulted in an increase in the reported animal rabies cases (559 in 2015 to 1062 in 2020), and human rabies deaths. Despite its drawbacks, the rabies control programme has many strengths, such as the existence of a government-supported dog rabies control programme and an island-wide network to implement activities engaging the provincial and district health authorities and local municipalities. Around 150,000 stray dogs and 1.35 million domestic dogs island-wide are vaccinated annually, and the programme have significant community support.

In Sri Lanka, rabies control activities face many obstacles. Rapid turnover and dog population dynamics are obstacles for maintaining a high herd immunity, and shortage of dog vaccinators is also a challenge. Though a mass island-wide mop-up campaign to improve dog vaccination coverage is important, mobilizing logistics and resources for such a campaign is challenging. Surveillance is an important pillar to inform understanding of trends and to guide actions in rabies elimination, including identification of risk areas and providing assurance of absence of disease as elimination targets are reached. However, there is a lack of an island-wide rabies surveillance network and stray dog control setting, which has a significant impact on the control activities. As a result, to achieve nationwide rabies elimination, more effective rabies control and prevention activities must be implemented with effective cooperation among the major stakeholders, as well as implement strategies with adequate scientific evidence to end this fatal, yet preventable disease.

Recommendations

1. Identify and strengthen the central - regional coordination and multisectoral partnership.

2. Develop an effective mechanism to work collaboratively with the Department of Animal Production and Health (DAPH).

3. Immediate attention to fulfill the logistic requirements(vehicles) and vaccinators to improve the cadres.

4. Strengthen the on-going activities via more research to achieve the SDG goals.

5. Introduction of a responsible pet dog ownership programme to reduce the number of stray dogs.

Sub strategy 1.11: To develop a multisectoral approach to minimize the transmission of STI including HIV

Background

The National STD/AIDS Control Programme (NSACP) is responsible for coordinating the national response to HIV and sexually transmitted infections (STI) in Sri Lanka, in collaboration with many national and international stakeholders. The nerve center is located in Colombo in close proximity to the National Hospital of Sri Lanka and networks with 41 STD clinics distributed island-wide. Administratively, the NSACP comes under the Line Ministry of Health, and the district clinics (except Galle and Kandy) are under the provincial councils. The NSACP consists of administrative services clinical care and laboratory services.

The National Health Policy guides the direction of prevention and control of STI/HIV in Sri Lanka. The National HIV/AID Policy (2011) was developed as Sri Lanka recognized that HIV/AIDS is not only a public health concern but also a social and development challenge. It has given a sharper focus of strengthening and scaling up prevention interventions aimed at behavior development and change, to maintain a low prevalence of HIV infection and also to provide care and support for those infected and affected. The Policy on Healthcare Delivery for Universal Health Coverage which was developed by the Ministry of Health in 2018 supplements the policy directions of the National HIV/AIDS policy, as universal health coverage is embedded in the development agenda 2030 to achieve the Sustainable Development Goals 2030.

The NSACP adheres to the principle of 'leaving no one behind', making efforts to ensure equity in service distribution and to end the AIDS epidemic by 2025 as pledged by the Government of Sri Lanka, five years before the target year of 2030. The NSACP is strongly linked with NGOS, CBOs, including key populations for its decision making and planning process. The National AIDS Committee was mandated to monitor and evaluate the national response. However, the effectiveness of this committee is questionable, and it should be reappointed with terms of reference. The NSACP is committed to achieving Good health and well-being (Goal 3), which is a part of the 17 Sustainable Development Goals (SDG), agreed upon by the United Nations Member States including Sri Lanka; to achieve the target 3.3 which is "Ensure healthy lives and promote wellbeing for all at all ages" to end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases. The goal of the NSACP is to reduce the number of new infections by 90% from the value of 2010, and towards this, Sri Lanka aims for HIV diagnosis, treatment and viral suppression rates to be 95%-95%- 95% by 2025, as per the target set by UNAIDS (the Joint United Nations Programme on HIV/AIDS) as a trajectory to reach SDGs. By 2020, Sri Lanka showed a 57% reduction of new HIV infections compared to the 2010 baseline.

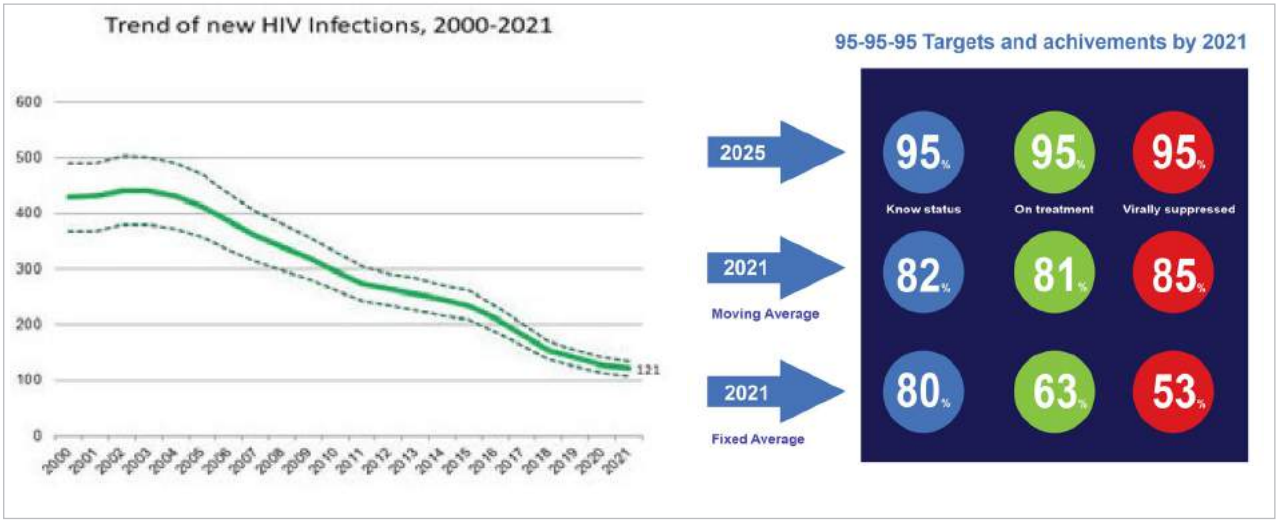


Figure 77: Trends in new HIV infections and 95 95 95 target achievements by 2021, Sri Lanka

Under the overarching National Health Policy and the National HIV/AIDS policy, the National Policy on HIV/AIDS and World of Work 2010, Prison HIV/AIDS Prevention treatment and Control Policy Sri Lanka 2017 and the following strategic and action plans have been developed to direct prevention and control of STI and HIV: National HIV/STI Strategic Plan-Sri Lanka, 2018-2022, Strategy for elimination of mother-to-child transmission of HIV and syphilis in Sri Lanka-2017, National HIV Communication Strategy-2017, National HIV M&E Plan 2017 – 2022, Road Map to Ending AIDS in Sri Lanka and National Condom Strategy.

The NSACP has a long history, which dates back to the nineteen twenties when the public health services were structured to deliver in an organized manner, and it was reinforced when the clinical services were established in 1952 based on the British model. The NSACP used its strong foundation to launch HIV

prevention activities with the detection of the first HIV case in 1986. A series of short, mid and long term plans were launched by the NSACP with technical and financial support of the WHO and subsequently by the World Bank, UNFPA, and GFATM, and as of today with all these efforts, Sri Lanka has been able to maintain a "low level HIV epidemic", which means "HIV prevalence remains less than 1% in the general population and below 5% in any key population".

Country profile

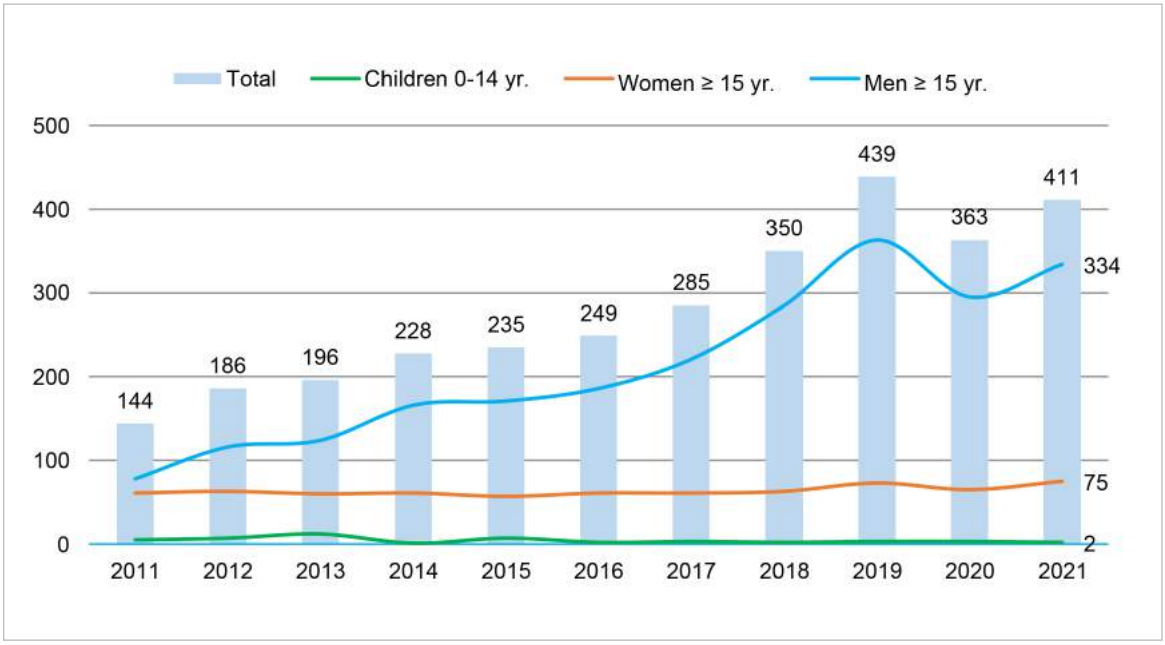
The HIV prevalence among adults above 15 years of age is 0.1%. An estimated 4600 people were living with HIV in Sri Lanka. The most recent estimates of HIV prevalence among key populations indicate a prevalence of 1.5% among men who have sex with men, 1.4% among transgender persons and 0.1% among female sex workers. By the end of 2021, nearly 82% (n= 2974) of the estimated number of people living with HIV were diagnosed and 83% were commenced on anti-retroviral therapy (ART), in keeping with the policy adopted in 2016 on the recommendation of the WHO "test and treat". Among those on ART, nearly 85% have achieved viral suppression at the end of 2021.

Table 16 : Sustainable Development targets relevant to HIV

	Indicator	2015	2016	2017	2018	2019	2020	2021
3.3.1	HIV incidence rate	0.01	0.01	0.01	0.01	0.01	0.01	0.01
3.8.1.6	Antiretroviral therapy (ART) coverage*	24%	36%	44%	51%	51.72%	66.72%	68%

Source : NSACP data

* Denominator is the estimated number of HIV positives

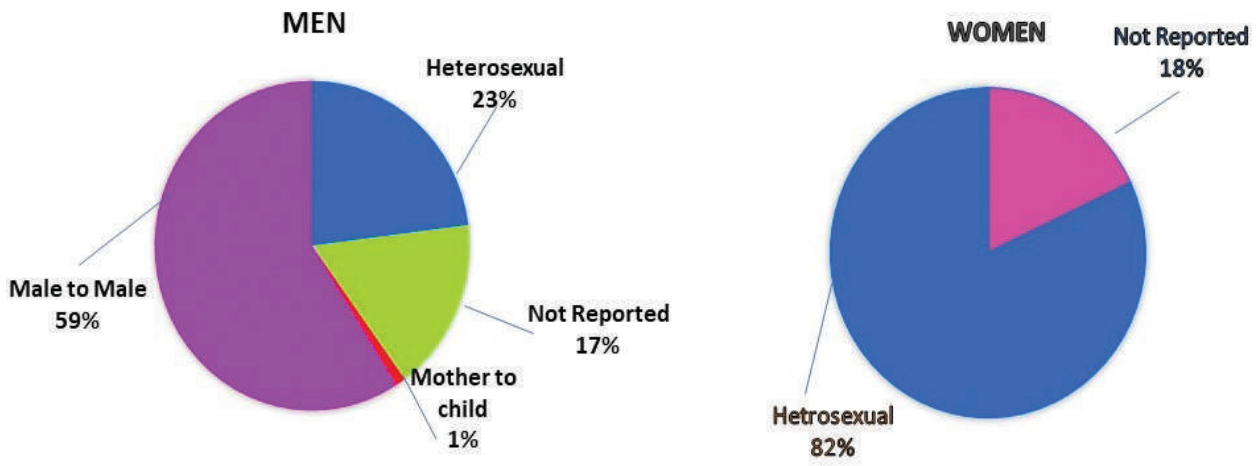


Source : NSACP data

* Denominator is the estimated number of HIV positives

Figure 78 : Number of reported HIV infections by age and sex, 2011-2021

The main mode of transmission which was dominated by hetero-sexual mode, seems to be shifting towards transmission by men who have sex with men, and the majority of men (59%) who tested positive give a history of gay or bisexual exposure. Only 23% gave only a heterosexual exposure. There were two children reported following mother to child transmission, aged four and five years. It is noteworthy that none of the reported People Living with HIV (PLHIV), gave a history of injecting drug use.



Source- Data from NSACP

Figure 79: HIV positive number and % according to probable mode of transmission among PLHIV reported during 2021, according to sex.

The policy of the Government of Sri Lanka is to reach out to the key populations (commercial sex workers, men who have sex with men, people who inject drugs) and vulnerable groups based on epidemiological evidence and regional best practices by providing an essential sexual services package (which includes awareness on STI/HIV, promoting HIV testing, condom promotion and provision and referral to STD/ HIV services). The NSACP is also reaching out to the general public including women and youth, hence, other health sectoral policies and strategic plans have anchored STI/HIV prevention and control in their respective policies, and some of them are: the National Policy on Maternal and Child Health (2012) which guides the Family Health Programme which reachs a wide cross section of the population across the country, the National Strategy for the Well Woman Programme, National Strategic Plan for Adolescents and Youth Health of the Family Health Bureau, and the National Strategic Plan for Prevention and Control of Cancer and the National NCD Policy.

The policy of the Government of Sri Lanka is to prevent and control STI/HIV through a multi-sectoral approach, as HIV/AIDS is considered a development issue and will threaten the hard earned social and health indices of the Country. Thus the NSACP works in collaboration with non-health sector ministries, non-government organizations, community based and community led organizations, academia, professional colleges, people living with HIV/AIDS (PLHIV) organizations and international development partners.

The five strategic directions of the currently operational National HIV/STI Strategic Plan (2018-2022) are: prevention of HIV/STI; diagnosis, treatment and care; strategic information management systems; health systems strengthening and supportive environment. The annual action plan of the NSACP, is based on these areas.

Service delivery

The key strategy of the NSACP is prevention of sexual transmission of HIV through promotion of safe and responsible behaviors. Given the nature of the disease, people are reluctant to access services, although the NSACP has taken steps over the last few decades to reduce stigma and discrimination in healthcare settings and in the community at large. The strategy adopted is to reach out to KP groups using different methods, such as peer out- reach, enhanced case finding, virtual platforms and use of social media apps. The prevention interventions were initiated under the umbrella of a large NGO, with smaller NGO networks, CBO, CSO and PLHIV groups supporting the large NGO to deliver the essential sexual health service package, whilst NSACP providing technical guidance. The capacity of the NGO networks, CBO and

CSO has been developed to use the peer educator model to reach out to KPs, and in the last two years the NSACP has taken over the duty performed by the large NGO. Peer-led targeted interventions were implemented in 13 districts in 2020. Only two HIV positive cases in the MSM category were identified through this model in 2020. The necessity to continue this intervention is questionable.

The NSACP is using a different method called the case-finder model (CFM), in two districts; Colombo and Gampaha, which recorded higher rates of HIV compared to other districts under the larger NGO, whics will transition to the NSACP once an evaluation is done. The KP interventions are supported by Globe Fund. The CFM is also a resource-intensive approach technically and financially and there are concerns of the cost-effectiveness of continuing this model. The case finding is done through the Grindr App, FB, WhatsApp, Telegram groups. This CFM has been conducted since 2018.

High Intense Model is a combination of both case finding and peer out-reach models. The outreach workers identify new clients, register them and provide services to the client. This is implemented in Colombo and Gampaha districts. Outreach workers cover a larger area and provide services to a large number of KPs. Based on the client's request, Self-test, Community based Rapid test or Clinic based Rapid testing is offered. If a field HIV test is reactive, the client is linked to a STD clinic for confirmation/ treatment. If it is negative, they provide prevention services continuously. The clients are linked to community drop in centers or to PrEP services in the community or at STD clinics, and are provided with condoms and lubricants. Performance-based indicators have been developed for the assessment of MSM, FSW and PWID.

Prevention of mother to child transmission of HIV

It is another strategy in the National AIDS Policy, and the NSACP together with the Family Health Bureau, Regional Director of Health Services offices, MOH and the team and obstetricians in hospital settings, commenced the Prevention of mother to child transmission in 2002, under the guidance of the WHO. National guidelines and treatment protocols were developed and updated over the years. In 2019, WHO declared Sri Lanka as a country which has eliminated mother to child transmission. The validation implies that the country also needs to maintain ongoing, routine, effective programme interventions and quality surveillance systems to monitor EMTCT of HIV and syphilis through a multidisciplinary team. This is an important milestone in the health services of the country, as it is proof of the high quality synergistic preventive and curative maternal and child health services in the country. It has also demonstrated the country's commitment to public health, which builds on the strong foundation of the primary preventive healthcare services led by the MoH, that was laid several decades ago.

Preventing transmission of HIV through blood and blood products

The policy of preventing transmission of HIV through blood and blood products was strengthened throughout the history by the government, expressing its commitment to screen all donated blood and blood products transfused in the government sector. The NSACP collaborated with the National Blood Transfusion Service (NBTS) and adopted several strategies to ensure that transfusion transmitted HIV is stopped in Sri Lanka. Several activities such as guidelines, referral protocols and capacity building were among the interventions that resulted in a success story that there were no transfusion transmitted HIV infections since year 2000. The NBTS is capacitated to such a level that in the year 2021, a total of 385,054 blood pints were screened, and it was able to detect 46 HIV positive blood units. Donors are provided with one-to-one counselling by trained service providers, and the donor is able to assess their own risk and opt out of donating, and they are also explained the sequel that will be followed in the event of a positive result as the test is only a screening procedure. The confirmation is carried out at the National Reference Laboratory (NRL), of the NSACP under the guidance of an experienced microbiologist. The NRL has commenced HIV drug resistance testing in 2021/2022 with GF support.

Surveillance, monitoring and evaluation

In order to track the level of HIV infection in different sub populations and to provide strategic information for policy and programme development, the National STD/AIDS Control Programme (NSACP) has been conducting annual HIV sentinel unlinked sero-surveillance (SS) since 1993. It is regularly conducted every 3 years, and the last was done in 2018. The pandemic disrupted the routine activity and it will recommence soon. Since year 2014, integrated –biological - behavioral –surveillance (IBBS) has been carried out with the support of the Global Fund. Population size estimations (PSE) of key populations which is an integral arm of the IBBS, is conducted concomitantly.

Table 17: Key population size estimate of Sri Lanka, 2018

2018	FSW	MSM	TG	PWID	BB
Total number	30,000	40,000	2,200	900	4,500

The results of the IBBS is used when updating the NSAP. The NSCP established a Strategic Information Management (SIM) unit in 2008 and is responsible for digitalization of the NSACP related data. The SIM has developed an e-patient information management system to collect data from the point of delivery of HIV services on continuum of care, and e-prevention management system on the prevention interventions conducted in the respective STD/HIV clinics. The data related to KP interventions of NGOs are collected by principal recipient 2- the Family Planning Association Sri Lanka, and the data is transmitted to the SIM unit. The SIM unit uses the AIDS Epidemic Model (AEM) to determine estimates and trends, and the graph below shows that the prediction of an emerging HIV epidemic among men who have sex with men is seen to be becoming a reality today.

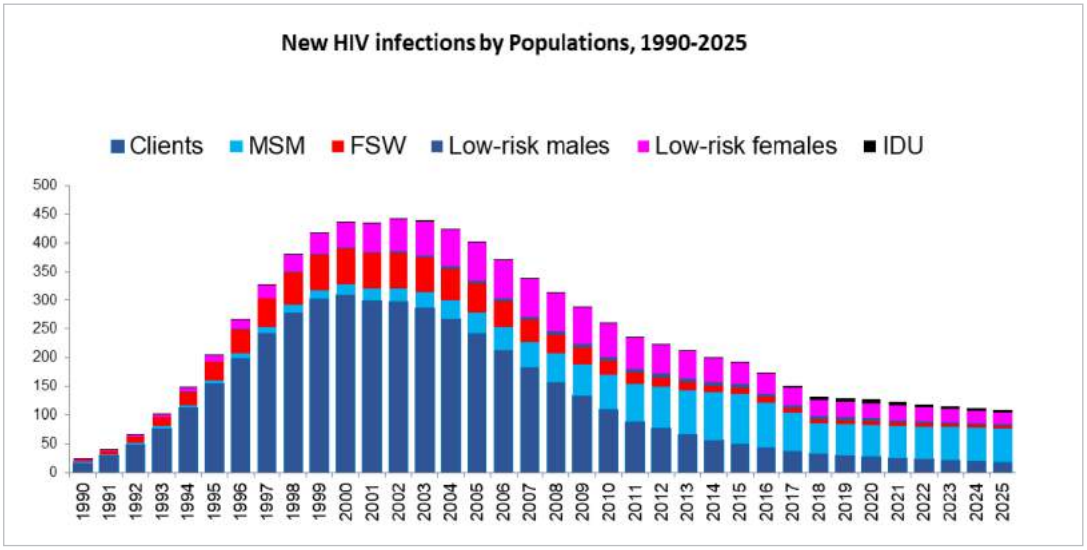


Figure 80 : New HIV infections by populations, 1990-2025

The above figure shows a significant decrease in the number of infections among female sex workers (FSW) and their clients, while infections are increasing among the men who have sex with men (MSM). However, FSW data should be carefully evaluated with coverage of FSW, other STIs, condom use and the existing legal environment in the country for sex workers and the MSM. Section 365 and 365(a) of the Sri Lankan Penal Code mention that 'gross indecency' between two persons is a criminal offence and punishable with imprisonment. However, the law has not defined what gross indecency is. This is taken to be sexual behavior by the law authorities. It leads to a barrier for access and availability of sexual and reproductive health services (SRH) for men who have sex with men. There is no specific legal offence in commercial sex work in private places. However, law is guided by many facets of sex work related legal documents, namely; the Vagrancy Ordinance, the Brothels Ordinance and house of detention, which

make sex workers reluctant to access SRH services, and to even carry condoms to be used when in need. Condoms are categorized as essential medical items in the essential drug lists of the Ministry of Health. The Police Department issued an internal circular to not take condoms as a justification for sex work in 2016. This was issued after a long duration of advocacy.

HIV testing

Although prevention of HIV is the backbone of the programme, it should be supported with HV testing. The National AIDS Policy encourages voluntary counseling and testing, and disallows mandatory testing. Anyone is free to access STD services for a HIV test, and the client is counseled by a trained medical officer and the test is offered. Provider initiated testing and counseling is a routine for STD clinic attendees, and is done with consent. Provider initiated counseling and testing is carried out in hospital settings when signs and symptoms or medical conditions are suggestive of HIV/AIDS. There is no coercion at any stage in health settings.

Routine testing is done using 4th generation ELISA technique, and in the clinic settings, KPs are offered rapid diagnostic testing (RDT). HIV testing is also offered in the community settings via CBO and CSO, and out-reach workers are trained to conduct RDTs. The NSACP has developed protocols to follow all HIV positives in community or hospital settings. The screening positive samples are conformed with the three-test algorithm in some centers in order to reduce the turn-around time to convey results, and some are referred to the NRL Colombo. Confirmed positives are counselled and registered in a STD/HIV clinic for continuum of care including ART, CD4 count, baseline hematology & biochemistry tests and viral load testing. HIV self- testing saliva test was introduced in 2019, and has reached some people and a few have been detected as infected. In community based and community led services, rapid diagnostic tests are used, where the result can be communicated to the client in 20-30 minutes on site.

The online outreach testing which was introduced to the NSACP in 2019, was continued during 2021. Two outreach workers employed at the NSACP provided the online outreach service throughout the year. The clients were directed to a self-risk assessment through the “Know4sure.lk” web application and linked to care depending on the risk identified. During 2020, a total of 238 clients booked for clinic appointments. Of these, 153 clients attended the clinic for HIV testing, of which four clients were confirmed as HIV positive, giving rise to a positivity rate of 2.6%. All four of them were successfully linked to HIV care.

Although HIV testing is mandatory among TB patients, still it has not reached 100%. Only a few TB clinics are having self-sufficient HIV testing. Continuous supply of test kits has been a big challenge from the last part of 2021. HIV RDT kits are provided to Base and above hospitals, to be used when HIV/AIDS is suspected in the differential diagnosis.

The private sector carries out HIV testing for pre-departure external migrants at the request of the destination country for visa purposes, and the screening test positive samples are referred to the NSACP for confirmation of HIV infection, but data on the numbers tested in these settings is not supplied to the NSACP routinely. However, the data reporting from the private HIV screening centers on pre-departure data to the NSACP is not satisfactory.

Treatment and care for STD/HIV are offered in all STD/HIV clinics, as out -patient care. Clients are able to access any STD/HIV clinic of their choice and the services are provided free of charge. Comprehensive STI screening is done, offering a package of tests including cytology screening for women above 35 years. The protocol developed by the Family Health Bureau is followed for screening for cervical cancer. Treatment for common STIs such as gonorrhea, syphilis, herpes, genital warts and non-specific urethritis is offered based on management guidelines and protocols. Clients are followed up with continuous counselling and condom and lubricant promotion and provision. Re-testing is done based on the level of the risk. Those needing in-ward care for HIV/AIDS are treated in general wards of the respective specialty and

at the Infectious Diseases Hospital (IDH), according to Treatment and Care Guidelines adapted from WHO guidelines. Anti-retroviral therapy was provided free of charge in 2004 with the support of the World Bank and subsequently from 2012-2016 from GF, and in 2016 it was taken over by the GoSL but since the downturn of the country economy, the NSACP has negotiated with the GF to support the programme. Procurements are done by the NSACP via the wamboo platform and at times from local purchasing, and the supply management chain for diagnostics and healthcare products including medicines is sub optimal, and steps are being taken to strengthen it to ensure an undisrupted supply without stock-outs. Lack of manpower especially procurement officers, and poor coordination between the Customs Department, National Medicines Regulatory Authority an the Medical Supplies Division are barriers for an uninterrupted supply. As at end December 2022, there were 2804 patients on ART. During the covid-19 pandemic treatment and care continued through remote methods, and arrangements were made to deliver medicines to a point recommended by the patient.

Safety in healthcare settings is a policy adopted by the government of Sri Lanka. The NSACP, together with the Sri Lanka College of Microbiologists updates Infection Control Guidelines, and capacity building for healthcare providers is conducted. Post –exposure prophylaxis (PEP) is offered after risk assessment and counseling for accidental injuries in healthcare settings. Guidelines are regularly updated. Starter packs of PEP medicines are available in the hospitals.

Human Rights

The National AIDS Policy of Sri Lanka focuses on prevention, treatment, care and support for all citizens in a non-discriminating environment where the protection of fundamental rights are upheld to the highest standards as enshrined in the Constitution of the Democratic Socialist Republic of Sri Lanka. All the prevention and curative care interventions are carried out using a rights based approach. Training programmes for healthcare workers and awareness programmes for HIV prevention have incorporated stigma and discrimination to enable PLHIV to access healthcare comfortably. The NSACP has introduced a method to address grievances.

The commitment of employers and employees in the world of work to HIV/AIDS was enhanced as the ILO coordinated developing the National Policy on HIV/AIDS in the World of Work, which was guided by the ILO code of conduct and Recommendation 200. Interventions are progressing according to the Road Map, as capacity of world of work partners was strengthened at training sessions.

Human resources

NSACP provides training for all medical officers who come to the STD clinics on transfer orders and other staff categories like PHI and supporting staff. It mainly forcus on the handling of patients without stigma and discrimination At the end of 2021, the availability of Venereologists was 0.22 per 100,000 population. Lack of Human resources in the Global Fund project for the financial section, procurement section and the human resources section is a big challenge due to the current recruitment policy of the government regulations. Due to these challenges, the other available officers had to take a high burden of responsibilities. In the transitioned districts, KP staff salaries are irregular. It was difficult to achieve stable co the financing for KP programme.

2022 – 2024 Global Fund Grant

The new HIV prevention project (2022-2024) is funded by the GOSL and the Global Fund. The National STD/AIDS Control Programme (NSACP) is the only principal recipient of the new grant. The NSACP directly contracts to implement organisations in 13 districts which were transitioned in the previous grant from PR2 (FPA) to PR1 (NSACP). However, out of these 13 districts, five districts are transitioned to GOSL for co-financing. Rest of the districts are funded by the Global Fund. Interventions of these 13 districts are implemented by the NSACP. The implementation happens through district level STD clinics for MSM, FSW, TG, BB and PWID components. The FPA Sri Lanka is the sub recipient working in two

main districts, Colombo and Gampaha, with sub recipients for MSM, FSW, TG and PWID components. The NSACP implements the Peer Educator Model in all 13 districts. The FPA continues to implement the High Intense model in the 2 districts. All district-based implementing organizations under one PR provide the service package. The KP members link for facility-based testing, community based testing and self-testing. Hotspot-based mobile testing will be done in Colombo and Gampaha to reach key populations who have never tested for HIV. Outreach workers/ Peer Educators reach clients even during night time to provide the self-test to clients who are not able to, or are reluctant to visit facility-based testing clinics.

Drug users: Needle and Syringe Exchange Services for Hepatitis C infected PWIDs

Needle and Syringe Exchange Services (NSES), primarily involve providing new needles/syringes to PWID and collecting old, used needles/syringes. Needle and Syringe Exchange services are implemented to help reduce the transmission of HIV and hepatitis B and C infections among injecting drug users. NSES are also a method and service to attract clients to the PWID -Drop-in Center (DIC) and to provide other services like counselling and testing, condom promotion and provision. This community clinic is situated in the Colombo Municipal area and is directly run by the NSACP.Currently, two models of NSES are implemented for hepatitis C infected PWIDS by the National STD /AIDS Control programme. Usually, ideal NSES is a combination of two models.

The Fixed site (DIC) model for PWID

This refers to the provision of NSES services from stand-alone premises. The community-based center was established in Slave Island Colombo based on a survey finding, as a fixed center for needle syringe exchange services. The center is easily accessible to the clients, and also provides counselling services and hepatitis C treatment facilities.

Outreach model for PWID

The NSACP does two outreach clinics for PWID in Colombo, with the help of the Outreach Workers and Peer Educators. These clinics provide HIV/syphilis / hepatitis C screening and link them for the needle syringe programme at Slave Island. There are 30 people diagnosed with hepatitis C infection who are provided with Needle and Syringe Exchange Services. They are given 4 needles per week. According to the estimations, 16 needles will be given to one client per month. The community based center and the outreach staff provide knowledge on principles and practices of harm reduction, knowledge on drug use equipment and safe sex practices. The clients are educated on safe collection and disposal of used needles and syringes. The clients are assessed on proper practices and health concerns, and are referred for services whenever necessary.

Pre-exposure prophylaxis

Introduction of Pre-exposure Prophylaxis (PrEP) was started as a pilot project at the central STD clinic Colombo, for men who have sex with men and transgender women. Financial support was given by the Global Fund. In March 2020, a series of comprehensive training programmes were held to establish PrEP related services. Medical officers, nursing officers, public health inspectors, laboratory staff at NSACP and some members of community-based organisations participated in these training programmes. Approximately 150 individuals were trained according to WHO guidelines. A guideline was developed for the PrEP administration.

As a Programme for community demand generation, NSACP online platform https://know4sure.lk/ for booking systems for PrEP. This booking system facilitates clients to make booking for the PrEP clinic. A mobile hotline has been in operation to obtain information and make bookings to the PrEP clinic. Between September 2020 to December 2021, a total of 133 people (12 Transgender Women (TGW) and 3 Transgender Men (TGM), were initiated on PrEP.

External migrant workers

The migrant pre-departure training programmes on sexual health including HIV have been internalized into the Sri Lanka Foreign Employment Bureau (SLFEB) for first-time migrant workers. It includes awareness on STD/HIV and life skill-based training. The migrant worker and the spouse/partner are invited for the programme. This was initiated in 2006. The training curriculum on HIV for migrant workers was reviewed and updated in 2016. The one-day training is implemented for domestic-bound migrant workers an whereas there is a two-hour training for male migrant workers including Korean workers. However, whereas there is a has been interrupted due to the COVID-19 pandemic and this component was not included in the online training. The returning migrant is not followed up, although they should avail the services provided at Well Woman Clinics conducted by the respective MOHs. There is no reintegration programme although this has been discussed for many years. There is a big gap of the follow-up and screening programme for returnee migrants, and even though the programme is planned, implementation has not happened. There is no intervention for internal migrant workers at present, except for ad-hoc programmes, The migrant workers training has been disturbed during the COVID pandemic. Currently, the NSACP is discussing to combine with the screening of other screening tests at the Healthy Lifestyle clinics for returnee migrants.

Prison Sector

The NSACP liaises with the prison sector and implements advocacy, training of trainers and peer leader training for prisoners from 2007. In addition to that voluntary HIV testing has been carried out from 2012 in 30 prisons. The last prison sector training curriculum for trainers and peer leaders was done in 2016. The sustainability of the prison HIV peer leaders training should be continued without the support from the Global Fund. Prison HIV Prevention, Treatment and Care Policy-2017 has further complemented the HIV activites in the prison sector.

Armed Forces and Police Sector

All three Armed forces have internalized the HIV/STI programme for awareness on HIV prevention, HIV testing services and promotion of safe sexual behaviours including those identified in the basic curriculum, and the curriculum should be updated from time to time. The NSACP conducts training-of-trainers programmes for instructors in training centers, public health personnel and peer leaders of the Tri-forces. HIV testing is conducted during recruitment and at designated milestones in their career. Condoms are supplied to the tri-forces by the NSACP, and condom vending machines are installed in the camps. Tri-forces personnel who return after serving in the UN Peace-keeping forces are identified as a group vulnerable to HIV due to their prolonged stay out of the country. Prior to departure, HIV testing is carried out as per UN recommendations. Upon arrival, HIV testing is carried out twice – initially at the airport immediately on arrival, and after three months. Testing coverage is 100% for the on-arrival testing and about 60% for the three-month testing. Tracking down the personnel after being posted to different stations is the main reason for low coverage at three months.

The Police is provided within puts on sexual health including HIV in the in-service training programmes by the NSACP. According to the survey conducted among island-wide police officers in 2021, the coverage of HIV awareness among police officers in only 41%, and knowledge on laws related to HIV was inadequate among police officers and a significant proportion of officers, had negative attitudes towards same sex behaviours.

Other Sectors

Tourist sector workers' programmes have been initiated in 2016, in collaboration with the Sri Lanka Tourism Development Authority. Sri Lanka Institute of Tourism and Hotel Management (SLITHM) is the educational institute which conducts training courses related to the hotel industry, in nine schools of tourism in different parts of the country. Training of trainers programmes were conducted using a training

guide. National child protection officers and probation officers of the National Child Protection Authority were trained on sexual health including HIV/AIDS. Internalization of programmes is a big challenge. Training of trainers programmes for Youth Corps instructors are done by the NSACP. However, Training of trainers' programmes for tourist sector, youth sector and Armed forces have not been conducted after 2019.

Low-cost Strategies should be identified for the general public in a continuous manner for HIV testing and stigma reduction. Advocacy should be continued to include age-appropriate sexual education in the school curriculum. Currently, youth courses conducted by vocational training instituts, technical colleges and private universities have not included HIV education for young people, and it has to be identified as a need by institutions working with youth.

Challenges

Targeting interventions for key populations has been a continuous challenge for the NSACP. The peer educator model did not produce good results. The other two models are costly, and transitioning to the government with restricted human resources and finances is another challenge. The escalating costs of diagnostics and healthcare products, including condoms, lubricants and anti-retroviral therapy, with the current poor economic situation in the country, is a difficult task. Retention of people living with HIV after commencing on ART has become a challenge as people have been relocated to different localities after the pandemic after losing their jobs and difficulties in paying house rent, etc. The increasing cost of living is worsening the situation. The engagement of non-health sectors in the national response to prevention and control of HIV, including the Ministry of Media, is a challenge. Stigma and discrimination has to be addressed continuously, and to do so, there is not enough human resources and finances.

Another gap is reaching out to out of school youth such as universities and vocational training schools. Integrating comprehensive sexuality education in the school curriculum should be taken up at the highest political level using evidence on the need. The NSACP, FHB, HPB and professional colleges, together with NGO, CBO and CSO should build up a strong alliance towards this end. STD clinic and laboratory services need trained staff, and the depleting resources of manpower and money should be attended to by the Ministry of Health.

Recommendations

Strategic

1. The MoH should begin discussions with the Ministry of Finance, Treasury and other relevant ministries on the strategies to continue HIV prevention and control interventions when GF support declines from 2025. The NSACP will be developing a transition plan which should be used for this purpose.

2. The National AIDS Committee (NAC), should be strengthened. The representatives should be the ministry secretaries of ministries such as education, tourism, foreign employment, foreign affairs, etc. The NAC should have a paid secretary to plan the meetings, prepare minutes and follow up.

3. The Secretary Health should use an indicator to monitor the integration of HIV into other health sector platforms.

4. The circular on pre-departure migrant workers' HIV testing data should be issued for the private sector laboratories by the Secretary of Health, after obtaining the permission of the Attorney General.

5. Include the part of sub-components of stigma and discrimination reduction in to healthcare curriculum and the school curriculum, after discussing with the Ministry of Education and PGIM.

6. Incorporation of age-appropriate sexual health into the school curriculum should be a priority.

7. Take steps for accreditation of STI/HIV tests.

Programmatic

1. Increase innovative approaches to reach the unreached, such as virtual reaching to the unreached KP population groups.

2. Training curriculum should be updated in the armed forces, prison sector, police, youth sector and tourist sector.

3. Engaging and empowering of people affected and infected by HIV and STIs, and programme for the empowerment of overcoming self-stigma.

4. Normalization of HIV testing through a social media campaign with the promotion of self-testing.

5. Key population supportive strategies should be strengthened by improving the link between the key populations and the STD clinics.

6. Separate programmes should be established for returning external migrant workers and internal migrant workers.

7. Coverage of prison sector HIV testing should be increased, and the NSACP should coordinate with the focal points of all Three-Armed forces to follow returning UN peacemakers 3 months after arrival to reach the maximum number of testing coverage.

8. Develop a Sexual Health Curriculum for University students and implement it through the University Medical Officers and Department of Sociology.

9. Strengthen HIV testing among TB patients, and it should be internalized to all TB clinics.

10. Integration of HIV/STI prevention and care activities into the existing public health system and regular interactions and institutionalization of HIV and STI prevention activities.

11. Sustainability of KP interventions should be identified, and identify the ways for KP interventions in districts which are not covered by GFATM funds.

Sub strategy 1.12: To enhance active case detection & preventive measures to minimize the transmission of tuberculosis

The National Programme for Tuberculosis Control and Chest Diseases (NPTCCD), Sri Lanka, is the central level organization responsible for planning and M&E of control and prevention of tuberculosis and chronic chest diseases and functions through a network of district chest clinics, laboratories, chest wards and hospitals. The work of the NPTCCD is under the supervision and guidance of the Director General of Health Services (DGHS) and the Deputy Director General of Public Health Services (DDG-PHS 1). The NPTCCD is assisted by a National Advisory Committee under the chairmanship of the DGHS, and consists of representatives from the Directorates of Health Services, Consultant Respiratory Physicians, Consultant Microbiologists, representatives from Professional Colleges, representatives from Prison and Social Service Department, other senior administrators, public health professionals, university academia, private practitioners, and non-governmental organizations.

Disease Burden

The burden of TB in the country is reflected in the estimates and the notification rates. For the year 2020, the estimated number of all forms of TB cases was 14,000 whereas, the total number of notified cases to the NPTCCD was 7258, which implies nearly 6500 cases are not being detected by the routine system. There is a district disparity in the cases distribution, with nearly 20-25% cases reported each year from the Colombo district. The Colombo Municipal Council area is considered the hot spot for TB patients harbouring nearly 2/3rd of the patients in the district. The Western province accounts to 40-45% of TB patients each year. The pediatric case detection has reduced to around 2.5% of the total TB cases, which is below the WHO predictions. The TB treatment success rate was maintained around 85% up to 2019, however, in 2020, it was reduced to 82.2%, while the TB death rate has risen to 7.6% and this could be attributed to the COVID 19 situation. However, the defaulter rate remains low at around 3.5%.

The SDGs are fully aligned with the WHO End TB strategy and SDG targets are to end TB epidemics by 2030, whereas, WHO End TB targets are to End TB epidemic by 2035. The indicators for SDG are monitored at the national level using two indicators, the TB incidence rate (13 per 100,000 by 2030) and TB treatment success rate (target by 2030 is >= 90%). However, End TB by 2035 gives a target to reduce the absolute number of TB deaths by 95% (from baseline 2015) 90% reduction (10/10000 cases) in the TB incidence rate and 0% catastrophic cost incurred by the TB patients and their households due to TB. Since there is no baseline data available, a costing study is being carried out by the NPTCCD.

Service provision

Detection of TB patients

Early detection and timely treatment are essential for prevention and control of TB. There are two main ways of detecting TB patients.

1. Passive case detection: when a patient with symptoms of TB is presented to a healthcare facility and diagnosed.

2. Active case finding mainly through screening of high –risk categories for TB. As Sri Lanka is a low burden country, active screening is carried out among populations where prevalence is more than 0.5%. Screening of close contact of TB patients is the mainstay of active case finding.

Active case finding for TB is conducted in a systematic way, among high-risk groups such as contacts of TB patients, people living with HIV (PLHIV), prisoners and in people living in other penitentiary institutions, and geographically defined sub populations with high levels of undetected TB (e.g., people living in

urban slums, etc.). Collaboration between the NPTCCD and the National Sexually Transmitted Diseases and AIDS Control Programme (NSACP) started in 2013, and a common policy has been included in the NSP of the NSACP published in 2018. The policy is to screen all TB patients for HIV and vise-versa. All HIV patients are screened for TB, and there is a 10% gap in screening all TB patients for HIV. During the active case finding, adherence to the Standard Operating Procedures (SOP) for Active Case Finding, Clinical screening, Sputum examination and Chest Xray (According to facility availability, investigations may be carried out at the site, District chest clinic or nearby hospital available with relevant investigations), are used.

Latent Tuberculosis Infection management

Among the individuals who are infected but not having active disease, TB preventive therapy is currently being implemented. According to the national policy of Latent TB Infection (LTBI) management, it is introduced in a phased-out manner starting from January 2022. Many large hospitals, especially teaching hospitals, still do not have the facilities to diagnose TB from the outpatient's department, where they admit suspects to the medical wards at a considerable expense for the patients and the system, as well as the risk for the others.

The clinical presentation of childhood TB is atypical, and mostly could present as failure to thrive. The case detection rate among children seems poor. There are only three paediatric pulmonologists in the country and most of the cases are handled by the general paediatricians. All children less than 15 years are treated for latent TB according to the new guideline. BCG vaccination is carried out among newborns according to the Expanded Programme of Immunization (EPI). To improve compliance of drug adherence, anti TB drugs are provided to the patients through Directly Observed Treatment Strategy (DOTS), initiated in Sri Lanka since 1995 through island wide DOT providers. That process is supervised by various persons based on the patient's characteristics and background.

Continuous funding is provided through the Government of Sri Lanka and the Global Fund for AIDS, TB and Malaria (GFATM). In addition, World Health Organization (WHO) and South Asian Association for Regional Cooperation (SAARC), and World Bank also provide financial and technical support in carrying out activities. Availability of a strong structure for implementation of activities from the national level to the grassroot level through District Chest Clinics and microscopy centers, availability of guidelines in accordance with international standards, having a strategic plan for the NPTCCD and an electronic based surveillance system, are strengths for this strategy.

Curative care The diagnosed TB patients are managed mainly through ambulatory care which is provided through 26 District Chest Clinics (DCCs) in 26 health administrative districts. The DCC is the focal point of TB care at the district level, which is headed by a District Tuberculosis Control Officer (DTCO). Out of the 26 DCCs, two chest clinics (Central Chest Clinic – Colombo & Chest Clinic Gampaha) are directly under the administration of the Director/ NPTCCD, while others are under the respective PDHS and RDHS. These chest clinics provide care for TB and other chest diseases, as well. Inward care for needy patients is provided by the chest wards in health institutions in the country and by the National Hospital for Respiratory Diseases (NHRD), Welisara, which is a tertiary care hospital with 382 beds for TB and 186 for non-TB patients, and a specialized ward for patients with Multi Drug Resistant Tuberculosis (MDRT).

Diagnostic facilities The National Tuberculosis Reference Laboratory situated at Welisara, headed by a consultant Microbiologist, is a Bio Safety Level 3 laboratory with culture and Drug Susceptibility Testing (DST) capacity. There are four Intermediate TB Laboratories (located in Kandy, Rathnapura, Karapitiya & Jaffna) with culture facilities. The investigations for TB include conventional sputum smear examinations as well as newly introduced genetic testing such as GeneXpert testing free of charge at the DCCs. In

addition, Chest Xray is used for screening and diagnosis of TB. There are 31 GeneXpert machines available in selected chest clinics and main hospitals covering all the provinces. There are over 160 microscopy centers which provide services up to the grass-root level. Xray facilities are provided through all chest clinics which include 17 digital X-ray machines provided by the NPTCCD. It was observed that there is an underutilization of GeneXpert machines and microscopy in some places. The private sector is rapidly expanding to provide TB diagnosis and management. GeneXpert machines and Digital Xray facilities were provided by the GF grant.

Drug Provision Central Drug Stores of the NPTCCD is responsible for the estimation, procurement, supply and distribution of anti – TB drugs in the country. Anti TB - Fixed Dose Combination (FDC) drugs for drug sensitive TB patients procured through Global Drug Facility (GDF) till the end of 2018, is now being procured by the government of Sri Lanka. Anti –TB drugs are only available in DCCs and issued only for registered TB patients at DCCs. Each chest clinic has a drug store and an outdoor dispensary to issue drugs to the patients.

Field level care: All diagnostic cases from DCCs are notified to the relevant MOH via H816A form, with a copy to the NPTCCD. After completing the field investigation, the investigation report (H816B) is provided by the range PHI through the MOH to the relevant DCC. There are two TB registers, the TB Notification register at the MOH (TB 18) and the TB investigation register (TB 19) at the field PHI office. In investigating the notified TB patient at the field level, the range PHI should visit the household to confirm the patient's residence, treatment enrolment compliance and provide health education. In addition, the range PHI can act as a DOT provider and assist the DCC PHI in contact tracing and defaulter tracing. The PHI has to follow up the patient until treatment is completed, as well as follow-up the close contacts six monthly for two years.

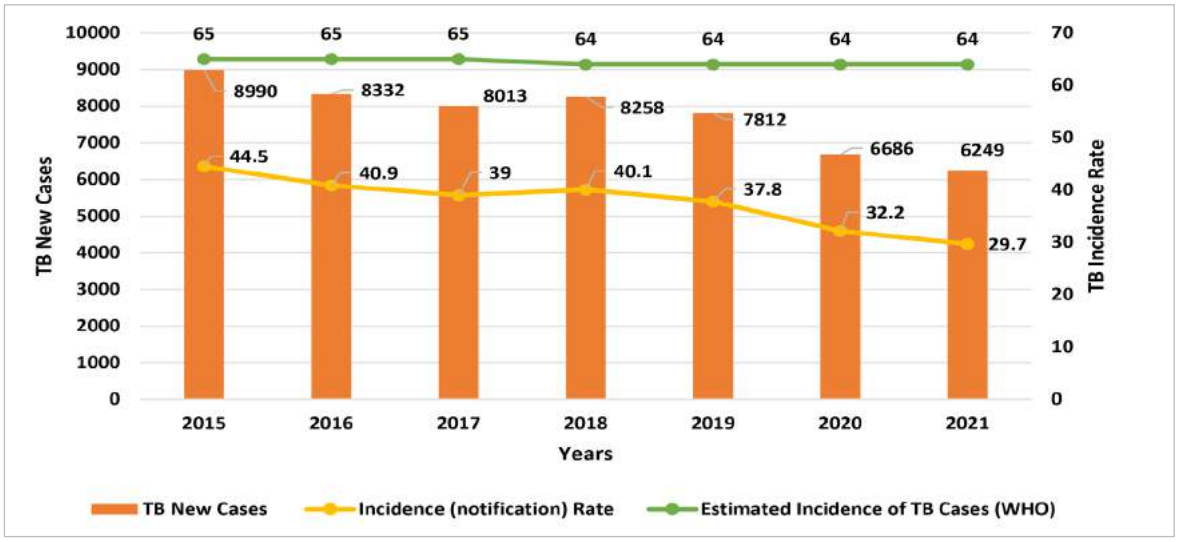
Guidelines and reports To address and guide all service provision categories in TB, regularly updated guidelines in accordance with the international standards such as the National Manual for Tuberculosis Control (2021), Programmatic Management of Drug Resistant Tuberculosis (PMDT), Latent Tuberculosis Management Guideline (2021), Laboratory Manual for Tuberculosis Control (2021) and National Guidelines for Management of Tuberculosis in Children (2018) are available through the NPTCCD. For effective implementation of programme activities in line with End TB targets, National Strategic Plan is developed by the NPTCCD periodically. The current plan is for the period of 2021 – 2025. This has been developed based on the recommendations given in the "Tuberculosis Epidemiological Review in Sri Lanka 2020" and End Term External Review Report – "National TB Programme of Sri Lanka -2020", conducted jointly by both international & local experts.

Patient management and disease surveillance have been enhanced by an electronic based system (ePIMS) which is operated by the NPTCCD and available at DCC and MOH level, for enhanced case finding and treatment sustainability among patients. In addition, digital health interventions are used to improve case finding and patient compliance.

Monitoring & Evaluation Regular supervisions to DCCs by the central level and quarterly progress reviews of district level activities are routinely carried out from the central level. In addition, midterm and end term reviews for implementation of strategic plan activities are carried out with the involvement of international and local experts with specialists in relevant fields. All TB deaths are investigated, and district death reviews are conducted at each district. The selected preventable deaths are reviewed annually with experts.

Research In implementing TB control activities, the NPTCCD adopts an evidence-based approach. Therefore, to generate new evidence in identified areas, NPTCCD promotes and carries out research to gather new evidence. The recently concluded research include "Care pathways, care delays and correlates

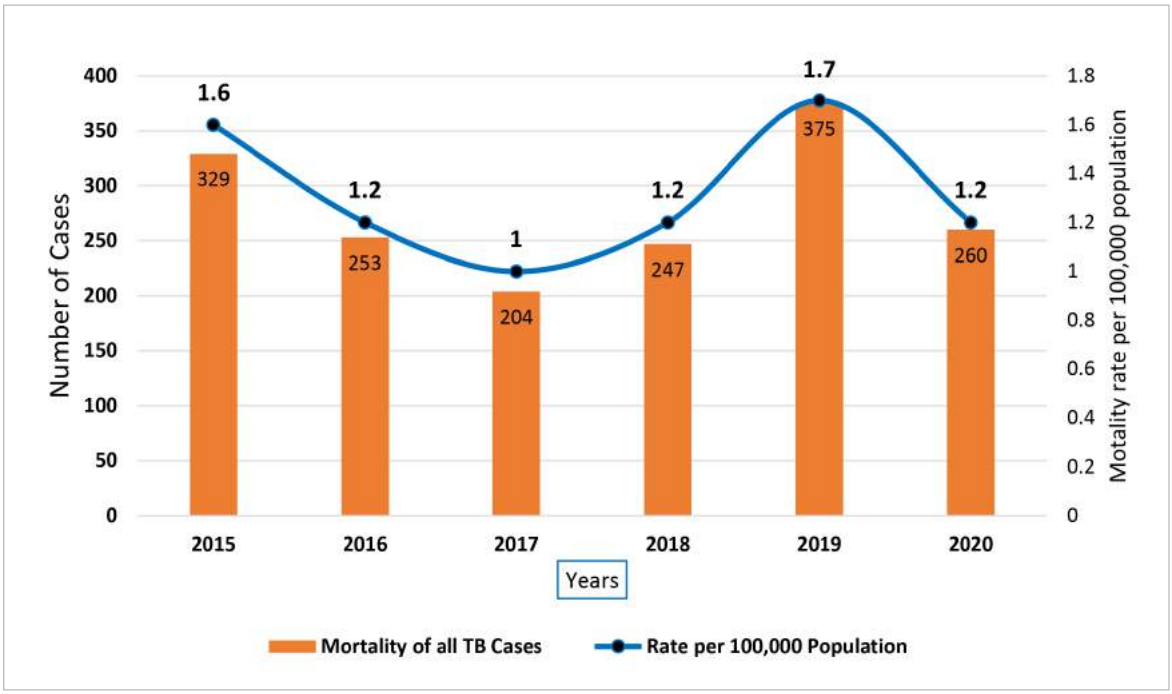
of care delays among pulmonary tuberculosis patients attending district chest clinics in Sri Lanka" (2020), "Gender, Socio Cultural and Human Rights related Barriers in reaching Tuberculosis Prevention, Diagnosis and Treatment Services in Sri Lanka" (2020 – 2021) and "Proportion of pulmonary tuberculosis among patients attending diabetes clinic of National Hospital of Sri Lanka" (2019). In addition, "Estimating TB cases and their additional economic cost incurred by TB patients and their families for TB diagnosis and treatment", a multi country study, is currently ongoing. Currently, the NPTCCD is planning to carry out an inventory survey to estimate underreporting and the TB incidence in the country.



Source: Data from NPTCCD

Figure 81 :Tuberculosis new cases, incidence rate notified and TB estimated incidence from 2015 to 2021

The gap between the estimated TB incidence rate and TB notification rate has widened from 2015 to 2021.



Source: Data from NPTCCD

Figure 82 : Number of TB Mortality and TB Mortality Rate per 100,000 population from 2015 to 2020

The mortality rate has gradually declined from 2015 to 2017, and a sudden rise seen in year 2019.

Drug Resistant TB

The resistance to anti-TB drugs can occur for a single drug (mono resistance) or two or more drugs (poly resistance). If resistance is detected for both the drugs rifampicin and isoniazid, it's called Multi Drug Resistant Tuberculosis (MDR TB). The resistance could be primary or acquired. The acquired resistance could be due to patient and service factors, such as,

- Inadequate dosage or duration
- Inappropriate drug combinations
- Treatment with substandard drugs - Erratic treatment and poor compliance.

The incidence of MDR TB is very low in Sri Lanka compared to other countries in the region. There are many recommendations given in the End of term External review report. It mentioned that the midterm review report recommendations have not been implemented, and has given further recommendations in areas of governance, active case finding, treatment and human resource.

Recommendations

1. Address under-reporting through ensuring that all people with TB are registered, whether or not they are treated, and conduct an inventory study (data audit) to quantify estimates of under-reporting of TB cases.

2. Establish a task force, chaired by the Secretary Health, to raise the priority of TB, and ensure an urgent response to bring down the burden of TB in Sri Lanka.

3. To decrease death rates, respiratory wards should be designated, established, or constructed in all districts that do not have them, and high-risk patients (with extensive disease, advanced age and/or comorbidities) should be identified and admitted for specialized care in collaboration with other specialists.

4. Human resources should be strengthened at all levels to match the cadre. Collaboration between DTCO and RE, MOH at the district level to be strengthened to make public awareness and preventive purposes.

5. Active case finding (ACF) should only be undertaken with chest X-rays and GeneXpert, and Standard Operating Procedures should be developed for ACF, and their implementation monitored.

6. A TB designated ward should be established in the NHSL, and OPD diagnosis should be started in all provincial and district hospitals.

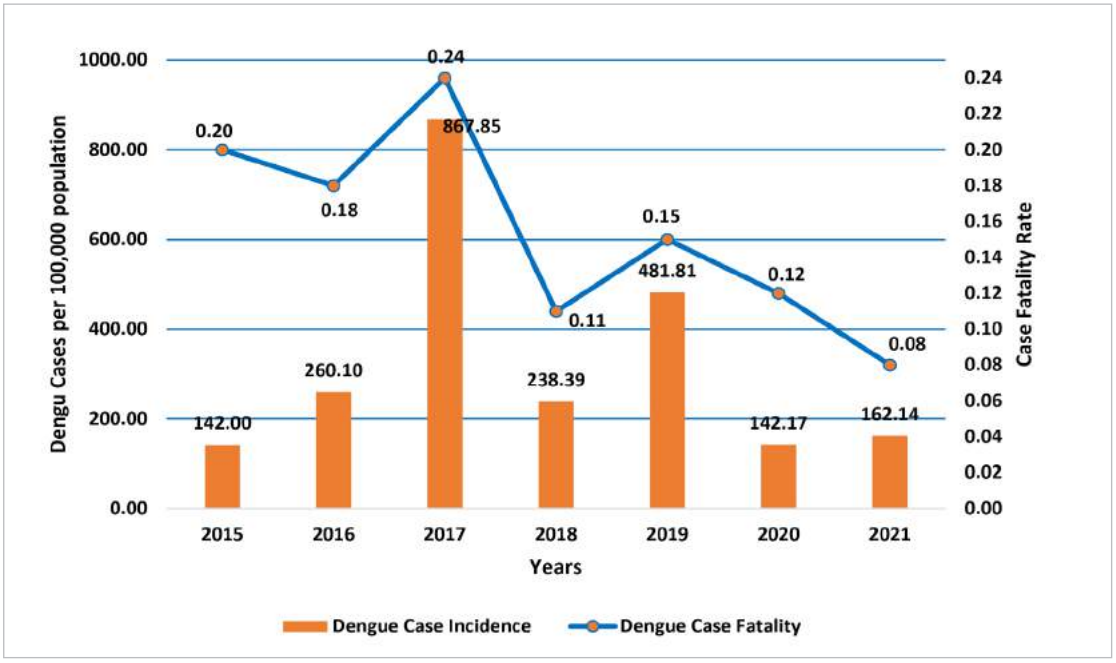
7. All recommendations given by the End of term External review report should be implemented without any delay.

8. Secure the continuous availability of funding from other partners to carry out the TB activities.

Sub strategy 1.13: To reduce the occurrence of Dengue outbreaks through multi-sectoral involvement

Dengue virus is spread by the bite of an infected mosquito. There are four serotypes of the virus that can cause dengue that are closely related but have different antigens (DEN1, DEN2, DEN3 and DEN4). The infection could be asymptomatic or symptomatic. Morbidity and mortality from dengue fever can be reduced with early diagnosis and treatment. In the hyper-endemic environment that currently exists in Sri Lanka, dengue illness (dengue fever-DF/ dengue haemorrhagic fever-DHF) is taken into consideration in the differential diagnosis of patients who present with acute onset of fever along with headache, retro-orbital pain, myalgia, arthralgia, rash (diffuse, erythematous, macular), haemorrhagic manifestation, (petechiae, positive tourniquet test), Leukopenia (<5000/mm3), Platelet count ≤150,000/mm3 and rising Haematocrit of 5-10%.

Although dengue fever has been documented in Sri Lanka for over 40 years, and possibly dengue hemorrhagic fever for nearly as long, increasingly massive epidemics of DHF have been occurring on a regular basis since the early 1990s. Dengue case incidence is measured by the number of dengue cases reported through the routine surveillance system. Case fatality rate is measured as, the number of deaths due to dengue over a year out of all dengue cases reported during the same period. The National Action Plan for Prevention and Control of Dengue in Sri Lanka (2019-2023) is based on, to achieve a case incidence below 100/100 000 population and to reduce and maintain case fatality rate below 0.1% by 2023. It has seven specific objectives, to intensify epidemiological and entomological surveillance, apply Integrated Vector Management (IVM), improve early diagnosis and treatment, detect early epidemics, and respond, M&E and carry out operational research in prevention & management of Dengue. However, not identifying community engagement as a specific objective is considered a drawback in this action plan.

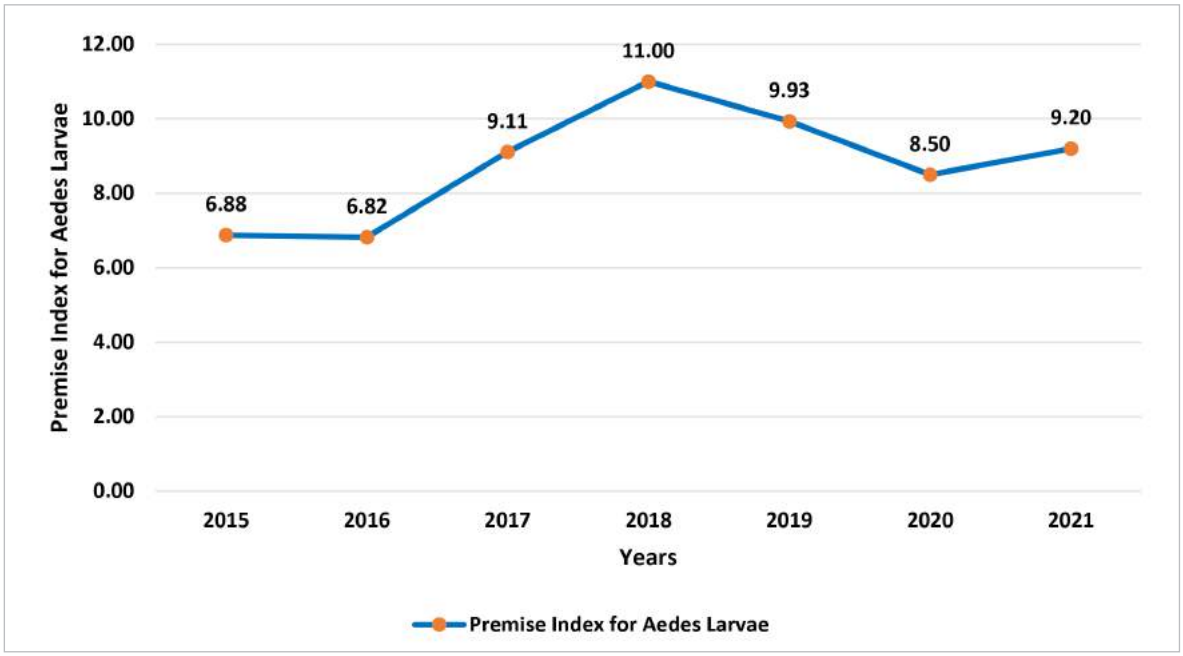


Source: Data from National Dengue Control Unit

Figure 83 : Dengue cases per 100,000 population and CFR of Dengue from 2015 to 2021

The dengue vectors are container breeders; they breed in a wide variety of artificial and natural wet containers/receptacles, preferably with dark colored surfaces and holding clear (unpolluted) water. The most common breeding sites of *Ae. aegypti* and *Ae. albopictus* in Sri Lanka can be classified broadly as follows: discarded receptacles, water storage containers, automobile tyres and machinery parts, building structures, household /institutional appliances, other artificial breeding sites and natural breeding sites (leaf axils, tree holes).

The vector related index identified is the Premise index (percentage of premises found positive for mosquito larvae out of all premises inspected). Calculating this index through routine data collection has limitations. The premise inspection is carried out on selected areas and the selection of these areas is mainly decided by the level of case reporting. One of the alternatives is to calculate premise index only in sentinel sites. Conducting a national survey with a probability sampling method would be an alternative. The scientific validity of such approaches is being currently reviewed by the National Dengue Control Unit. Based on the outcome of these reviews, vector indices will be determined in the future.



Source: Data from National Dengue Control Unit

Figure 84 : Premise Index for Aedes Larvae from 2015 to 2021

Dengue Control

National Dengue Control Unit (NDCU) was established in 2005 as a decision taken by the Ministry of Health (MoH) following a major DF/DHF outbreak whitch occurred in 2004. It is responsible for the coordination of control and preventive activities related to dengue at the central level between different stakeholders. Having felt the social, economic and health cost of the burden of dengue, the establishment of the Presidential Task Force for Dengue Control in 2010, has been instrumental in establishing an effective inter-sectoral coordination for dengue control among health and non-health government sectors, private sector, non-governmental organizations and the civil society. The NDCU of the MoH is the main focal unit of the dengue prevention and control, targeting the activities under disease surveillance, vector surveillance and integrated vector management, inter-sectoral collaboration, and social mobilization.

Surveillance

Disease surveillance

Disease surveillance is a main strategy in disease prevention and control. The disease surveillance and notification go together. All Medical Practitioners (in Government and private medical institutions) who attend to patients with a tentative diagnosis of dengue illness should notify the disease to the proper authority. The disease should be notified immediately at the time of first suspicion, without waiting for laboratory confirmation. The case definitions have been given for adults and children separately. Passive surveillance, sentinel site surveillance and special surveillance are carried out under the disease surveillance. Surveillance of dengue patients is done via the DenSys, which provides real time data of suspected dengue patients who are currently hospitalized. In addition, suspected dengue cases are

notified to the Medical Officer of Health (MOH) of the area where the patient is residing through the routine Notification Form (H544) by public and private hospitals. The NDCU uses DenSys data for early detection of evolving epidemics, to identify clustering and initiate early intervention to reduce further spread of the disease. Outbreaks are recognized and a rapid response is initiated, funded and supervised by the NDCU. These sentinel Site Surveillance include the details of patients who are suspected of having dengue illness entered into the web-based system called "DenSys" by the hospital Infection Control Nursing Officer (ICNO) or by an assigned officer. This will reduce the undue delay of H-544. Special Surveillance is used to identify the dynamics of Dengue Fever and Dengue Haemorrhagic Fever.

The main tasks of the NDCU are to monitor the disease trends in all MOH areas and advise on relevant control activities. Further to that, the NDCU, in cooperation with the Epidemiology unit, Regional Epidemiologists and MOH, is carrying out dengue fever surveillance activities in the country. However, the DenSys system doesn't currently cover OPD patients.Furthermore, the midnight total of dengue patients is updated daily after the midnight ward-round by the ward NO using the google sheet. Every week, the average number will be calculated and compared with the previous week.

Dengue Death Surveillance

This was initiated by NDCU since 2021. All deaths due to dengue were reported with the form provided by the NDCU, were sent with the signatures of the consultant and head of the institute signature along with the Bed Head Ticket. These reports were reviewed by an expert committee and discussed further in the institutional review within a month, for further improvement in clinical management and avoid delay in seeking medical care. Several training programmes were carried out for all categories of health staff based on the findings in all parts of the island.

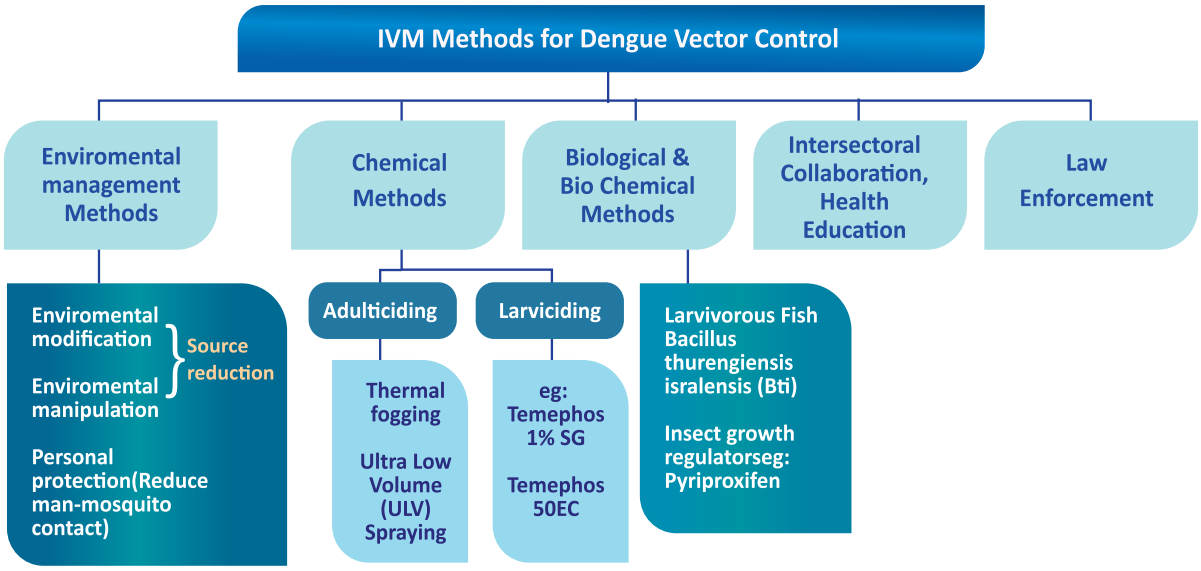
Vector surveillance: Vector surveillance is an important and essential component of the dengue control programme, as the information generated from vector surveillance guides the vector control programme and helps for early warning and epidemic forecasting. Since there is no effective vaccination for prevention or any drug for cure of dengue, the mainstay of dengue control lies with the control of the dengue vector and minimizing human contact with the vectors. The NDCU provides directives for vector control based on the principles of integrated vector management (IVM).

Dengue vector surveillance is carried out regularly at sentinel sites and/or routine sites. Surveillance at spots (spot checks) is carried out in special localities and circumstances, based on environmental and epidemiological information. Vector surveillance is carried out by the NDCU in cooperation with the Anti Malaria Campaign (AMC), Anti Filariasis Campaign (AFC) and Medical Research Institute (MRI). In addition to the central level offices, these institutions have their district level offices headed by Regional Malaria/ Medical Officers (RMOO), Medical Officers of AFC or Entomologist who are responsible for planning, implementation, monitoring and evaluation of entomological surveillance at the district level. Currently, 172 entomological teams are deployed for entomological surveillance at the central and district level offices of the AMC, AFC and MRI. The NDCU routinely carries out 12 special mosquito control campaigns (SMCC) and 2 National mosquito control weeks (NMCW) per year.

Integrated Vector Management

Dengue vector control measures are aimed at both immature and adult stages of *Ae. aegypti* and *Ae. albopictus.* These measures are included in the Integrated Vector Management (IVM) strategy which incorporates environmental, biological, and chemical methods to prevent or mitigate an impending outbreak and control ongoing outbreak. As per evidence, case based fogging is no more recommended, to prevent resistance to insecticides. A cluster-based fogging is now being recommended (2 dengue cases in a GN division within 200m radius is considered as a cluster).

IVM is a rational decision-making process for the optimal use of resources for vector control. IVM uses the available resources, the existing health system and evidence based appropriate vector control interventions singly or in combination, to suppress the vector population. Key elements of IVM strategy are mentioned below.



Source: Data from National Dengue Control Unit

Figure 85 : Dengue vector control interventions in Sri Lanka

Novel methods: Wolbachia Replacement method was introduced in 2022 to Modara, Mattakkuliya and Nugegoda MOH areas. Wolbachia is a bacterium which prevents the growth of the dengue virus in *Aedes aegypti*. This project was initiated in the Monash University in Australia through the World Mosquito Programme. Sterile Insect technique is another method introduced in one GN division in Gampaha to suppress the Aedes mosquito population.

Viral surveillance: The Center for Dengue Research was established in September 2012 by a cabinet directive in the Faculty of Medical Sciences, University of Sri Jayewardenepura.

Case Management: The MOH has issued guidelines on management of Dengue Fever and Dengue Hemorrhagic Fever in Adults (2012), children and adolescents (2012) and pregnant mothers (2019) separately, and developed monitoring charts. With the new evidence, these guidelines are regularly updated and staff training is conducted. The MoH provides infrastructure facilities for the diagnosis and the management for the hospitals and provides partnership for the establishment of High Dependency Units (HDU) at primary, secondary and tertiary care hospitals in relation to clinical management of Dengue. Provision of patient care services are rendered by both central and provincial healthcare institutions based on the National Guidelines on Clinical Management of DF/DHF. Establishment of high-dependency units for dengue patients in secondary and tertiary care levels has enormously contributed for provision of optimum care, thereby minimizing dengue mortality.

Improvements of the curative care to manage dengue fever patients has improved the clinical outcome of the patients, and have significantly reduced the Case Fatality Ratio. The number receiving treatment for dengue is an SGD indicator. It has limited use since hospitalization of the dengue cases is determined by many factors to the patient, the treating clinician and the hospital. Furthermore, the level of the dengue outbreak nationally or locally may decide who will receive hospital care or ambulatory care.

Multisectoral collaboration: The Presidential Task Force on Dengue was established in 2010, with the coordination of the Health, Defense, Environment, Education, and Provincial Councils and Local

Government Ministries. Predicting the Dengue outbreak experienced in year 2017, the Presidential Task Force was reinstated in May 2017. The Task force pays special attention to the most affected Divisional Secretariat divisions in the district level. Five committees (the National Committee, Provincial Committee, District committee, Divisional Secretariat division level committees and Grama Niladari level committees) are available from the National Level to the grass root level. A circular has been issued by the President's Secretory with the objective of prevention and control of dengue in identified different localities to work at different levels to strengthen the multisectoral approach in January 2022.

Dengue prevention and control activities are carried out to the grassroot level through responsible central and provincial bodies. At the central level, the NDCU provides technical guidance including policy development, planning, capacity building, resource allocation and monitoring and evaluation. At the provincial level, execution of field level dengue prevention and control activities are carried out through the network of district and divisional (Medical Officer of Health Unit) preventive health services. At the central level, integrated disease surveillance was carried out by the Epidemiology Unit until 2021. Since then, central coordination of all dengue control activities is carried out by the NDCU.

NDCU is also involved in researching novel methodologies for mosquito control such as the implementation of the Wolbachia project, partnering with the Monash University, Australia. The release of *Aedes aegypti* mosquito infected with Wolbachia as a pilot project was completed in mid-2021. Molecular assessment for Wolbachia frequency among mosquito samples is commenced since 2022. It is planned to expand the research to the rest of the Colombo Municipal Council area and the Dehiwala and Maharagama MOH areas in 2022-2023. The release of sterile Aedes albopictus male mosquitoes into the environment for mosquito population control is being piloted in the Gampaha district as a collaborative project of the University of Kelaniya and the NDCU of the Ministry of Health.

Social mobilization: Social mobilization enhances community participation for sustainable dengue fever / dengue haemorrhagic fever control and prevention programmes. Communication for behavioural impact (COMBI), espoused by the WHO, is an innovative approach to fill this gap to mobilize individual and family action, utilizing social mobilization and communication to bring measurable changes in behavior. It helps to plan, implement and monitor a variety of communication actions intended to engage individuals for adoption of healthy behaviours. The following measures have been included for social mobilization activities such as declaration of Mosquito Control Weeks and media seminars production of Information, Education and Communication (IEC) materials and advertising campaigns through electronic and print media to create awareness among public on control / prevention strategies & to promote health seeking behavior.

Construction sites, schools and educational institutes were considered as special target groups as recent entomological surveys and routine school inspection programmes conducted by health teams detected that 60% of the schools have potential for dengue breeding habitats. The Ministry of Education is one of the main responsible ministries in the Presidential Task Force. It has been given a mandate to engage all schools and higher education institutes to conduct clean–up campaigns. In addition, a community engagement plan has been initiated with Sarvodaya, Rotaract and Red Cross in 60 MOH areas in 12 high risk districts by mobilizing existing community networks for source reduction, community awareness and reserve cadre for mobilization during an outbreak.

Enforcement of law against offenders : Enforcement of law against the offenders who are keeping dengue mosquito breeding places in their premises which will endanger the lives of others.A major obstacle to effective implementation of selective/ integrated mosquito control has been the inability to achieve and sustain expected desired behaviour. Despite growing levels of knowledge and awareness about dengue and mosquitoes, adopting and maintaining effective and feasible new behaviour which remains a challenge. The Quarantine ordinance (1938), Nuisance ordinance, western province statute

and the Prevention of Mosquito Breeding Act No 11 of 2007 have provided legal provision to act against offenders. However, several flaws have been identified in the Prevention of Mosquito Breeding Act, which is currently under revision. A court order is needed to enter inside bare lands and un-occupied properties and verbal consent is necessary to inspect a house for potential breeding sites.

Recommendations

1. A comprehensive National Action Plan to be developed which identifies multisectoral collaboration and community engagement as a separate strategic objective for the next five years which provides room for incorporating evidence-based interventions.

2. Convert the NDCU into the National Programme for Dengue Control & Prevention, with new cadre revisions. A molecular biologist to be appointed at the national level.

3. Mosquito breeding is found in public and private institutions, construction sites, schools, religious places, fishing harbours and residential premises, etc., and therefore, stringent guidelines and regulations needs to incorporate rules, regulations and guidelines relevant to construction industry, and formulate legal provisions to prevent breeding of dengue mosquitoes in bare lands, un-occupied properties, abandoned/ underutilized boats, etc.

4. According to the vector surveillance data, majority of the dengue vector breeding sites are man-made. Public contribution in elimination of such vector breeding sites or maintaining such sites vector free needs to be advocated at all levels.

5. Good coordination with the local health authorities in the approval and maintenance process of construction sites needs to be established for effective vector control.

6. Despite extensive vector control measures, dengue infections are rampant in Sri Lanka and are reported from all geographical locations in the country. The average cases of dengue have increased fivefold from the period from 2010 to 2019. Changes in virus serotypes, vector densities and social & environment factors may have contributed to such development. Environmental adaptation of the dengue vector is also a major challenge to be encountered. Therefore, it is recommended to carry out extensive research on novel vector control measures and follow evidence-based interventions.

7. Absence of a responsible technical officer at the sub-national level to coordinate and implement dengue control activities is also identified as a drawback in dengue control. In response to the expansion of the scope of dengue prevention and control strategies, it is proposed to establish a "Dengue Control Cell" at the district level, with "Medical Officer-Vector Borne Diseases" (new designation) as the focal point, to focus on sustainable vector-control activities with well-defined responsibilities and accountability.

8. With reference to circular no. PS/RD/Circular/3/2022 dated 12.01.2022 by the Secretary to the President, dengue control and prevention activities to be strengthened for a "Dengue Free Environment", through a multisectoral approach.

9. A web-based comprehensive epidemiology reporting system will be implemented with an electronic data management platform. Early identification and timely notification of school clusters through the 'Dengue Free Child App', the mobile phone-based surveillance, is also recommended.

10. Reactivation of School Dengue Prevention Committees and mandatory reporting of school Dengue prevention activities to the local health authorities.

11. The need for the establishment of a joint mechanism with the Ministry of Housing and Construction, to enforce provisions stipulated in the letter 'Prevention of mosquito breeding areas in construction sites' issued by the Ministry of Housing, Construction & Cultural Affairs (1/1/001-A dated 18.10.2018).

12. Ensuring the job security of Field Mosquito Control Assistants and absorption of them into the permanent cadre through the Ministry of Health or through the Multipurpose Development Task Force Department (based on the educational qualifications) is urgently required. The National Dengue Control Unit has already been registered as a training center for NVQ level – 3 to conduct the training for the Field Mosquito Control Assistants who do not have the basic education qualifications. Similarly, granting permanent employment for 20 drivers who were recruited on contract basis for dengue control activities also should be carried out.

13. The highly adaptive behaviour of the vector demands regular monitoring of vector bionomics in all geographical areas of the country. Therefore, entomology surveillance activities in all districts should be further strengthened, and the services of a Biologist is necessary.

14. Involvement of all stakeholders including Divisional Secretariat in dengue control is a major deciding factor in the dengue control. Apart from the health sector, contribution by the education, fisheries, local government, urban development and other relevant sectors is essential for effective dengue control in the country.

15. Gaps identified in laws need to be sorted, and authority to be given to the MOH to inspect potential breeding sites and local government to clean those areas.

16. Construction sites vary based on the capital investment and the fines need to be revised based on the type of construction.

17. Employers to be advocated for their occupational biosafety measures. Acquiring dengue in the working place is not considered as an occupational hazard.

18. The number receiving treatment for dengue is an SDG indicator, and further discussion should be done to change the indicator as it has limitations, since hospitalization of the dengue cases is determined by many factors to the patient, the treating clinician and the hospital. Furthermore, the level of the dengue outbreak nationally or locally may decide who will receive hospital care or ambulatory care.

Sub strategy 1.14: To ensure delivery of cancer prevention and control through a strengthened health care system

The aetiology of cancer is multifactorial. Lifestyle risk factors causing non-communicable diseases are described under strategy 1.15, and most of them contribute to developing cancers, as well. In addition, constitutional characteristics of the individual and hereditary factors also contribute to the development of cancers. Tobacco use, alcohol and arecanut use, exposure to radiation, chemicals and hormones which could be carcinogenic, obesity and physical inactivity can cause genetic mutations. The other known risk factors for cancer are viral infections such as hepatitis B and C causing liver cancer and human papilloma virus (HPV) causing cancer of the cervix uteri. Modifiable factors can lead to metabolic/physiological

changes and alter the DNA of cells. Controlling modifiable risk factors could reduce oral, lung, colorectal and cervical cancers.

National policies and strategies

The National Cancer Control Policy was approved by the Parliament in 2015. The National Policy and Strategic Framework on Prevention and Control of Cancers in Sri Lanka was developed in 2015 with a vision of 'A country with a low incidence of preventable cancers and high survival rates with good quality of life and minimal disabilities/ suffering from effects of cancers". The National Cancer Control Programme(NCCP) is the focal point which is responsible in policy formulation, programme planning and monitoring and evaluation. Prevention interventions are mainly conducted by the district level public health team led by the MoH. The National Cancer Control Programme administratively comes under the line Ministry of Health, while cancer care hospitals are under either the line ministry or the administration of provincial health authorities.

Treatment services for cervical cancer including pre-cancerous lesions and invasive cancer are available at the National Cancer Institute – Sri Lanka (NCI-SL) and in a number of secondary and tertiary government medical institutions throughout the country, provided by specialist oncologists. Current treatment modalities offered include surgery, chemotherapy and radiotherapy including brachytherapy. The NCI-SL is the premier center for the treatment of adults and children, and it networks with centers of excellence in each of the 8 provinces and 24 other cancer treatment centers distributed across the country. In addition, surgeries in base Hospitals and above are done by general surgeons, OMF surgeons and gynecologists, and in selected private hospitals, patients are referred for radiotherapy and chemotherapy to cancer treatment centers.

The National Strategic Plan for Prevention and Control of Cancer in Sri Lanka was revised and the operational plan is from 2020-2024. The revised NSP derives its mandate from the overarching National Health Policy and the National Health Strategic Master Plan, and harmonizes with several health and non-health related policies as cancer is caused by a wide range of risk factors. In addition, four strategic plan documents, namely, (i) National Strategic Plan for Palliative Care Development 2019-2023, (ii) National Strategic Plan for achieving interim targets for elimination of cervical cancers 2022-2030, (iii) Social Behaviour Change Communications (SBCC) strategy to support prevention and control of common cancers in Sri Lanka (iv) National Strategic Plan on Childhood & Adolescent Cancer Care in Sri Lanka 2021-2025, were developed. Sri Lanka became the first country in Asia for taking the initiative of developing the "National Strategic Plan for achieving interim targets by 2030 for the elimination of cervical cancer in Sri Lanka".

Further, the National Guideline on Early Detection and Referral Pathways of Common Cancers in Sri Lanka, was developed. As per the circular on the establishment of Cancer Early Detection Centres (CEDCs), per province which was identified at the NAC on Cancer Prevention and Control, three CEDCs were established in Jaffna and Matara in 2021 and in Rathnapura in 2022, in addition to the CEDC at Narahenpitiya to improve equitable services. The handbook on Comprehensive Breast Cancer Care for Healthcare Workers was developed in 2021. National Guidelines for Self-Breast Examination and Clinical Breast Examination were also developed in 2021.

In 2020, Sri Lanka's first-ever "National Guideline on Radiation Safety for Health Sector" was developed, with the partnership of the Sri Lanka Atomic Energy Board (SLAEB), Sri Lanka Atomic Energy Regulatory Council (SLAERC) and the WHO, with the aim of providing a detailed approach to design, implementand operate a comprehensive radiation safety culture at a medical facility specializing in cancers while prioritizing the safety of health staff. The Radiotherapy National Strategic Plan is yet to be developed.
Several interventions are implemented through integration into existing programmes in order to increase

the coverage and quality of activities and to be cost effective. Political leadership is provided, as the Government of Sri Lanka has endorsed the agenda for achievement of Sustainable Development Goals (SDG) and will be displayed by overseeing the progress of the current NSP, allocating funds, and taking up chronic NCDs and cancer as an agenda item at high level meetings. The National Advisory Committee (NAC) is the statutory body for prevention and control of cancer in Sri Lanka and oversees the progress of activities of the National Strategic Plan for Prevention and Control of Cancers (NSP) 2020 - 2024, as given in the national monitoring & evaluation Plan. The NAC meetings are chaired by the Secretary of Health and are held every quarter of the year. The revised NSP gives priority to cancer prevention interventions, which are aimed at eliminating or minimizing exposure to risk factors through strengthening of the ongoing health promotion and prevention interventions. Prevention of cancer through "Best Buy" interventions proposed by the WHO, are practiced in the country.

The social behavioral change communication strategy (SBCC) was developed to improve health literacy of people behavior change of population and individuals, to reduce cancer related risk factors by adopting healthy lifestyles to reduce the occurrence of cancer and knowledge on available services and referral pathways. The NSP also addresses the need to avail of cancer screening facilities which are available at Cancer Early Detection Centers (CEDC), Healthy Lifestyle Clinics (HLC) and at Primary Medical Care Institutions (PMCI) across the country. Further, opportunities are provided for a large segment of the society to reduce cancer related risk factors through health promoting settings in schools, workplaces, hospitals, universities, vocational training centers and villages.

The National Cancer Institute Sri Lanka (NCI-SL) is the premier center for the treatment of all forms of pre-cancerous and cancers of adults and children. The current treatment modalities offered are surgery, chemotherapy, radiotherapy, and other novel therapeutics including targeted therapies, immunotherapy etc. NCI-SL networks with centers of excellence in other 8 provinces and 15 other cancer treatment centers (altogether 24 centers) distributed across the country. Additionally, all the Base Hospitals and selected private hospitals provide cancer screening and some treatment facilities. The NCCP has developed Treatment and Care Guidelines for common cancers to ensure the standard of care and improve the quality of care. Continuum of care includes appropriate treatment pathways, survivorship, rehabilitation and palliative care.

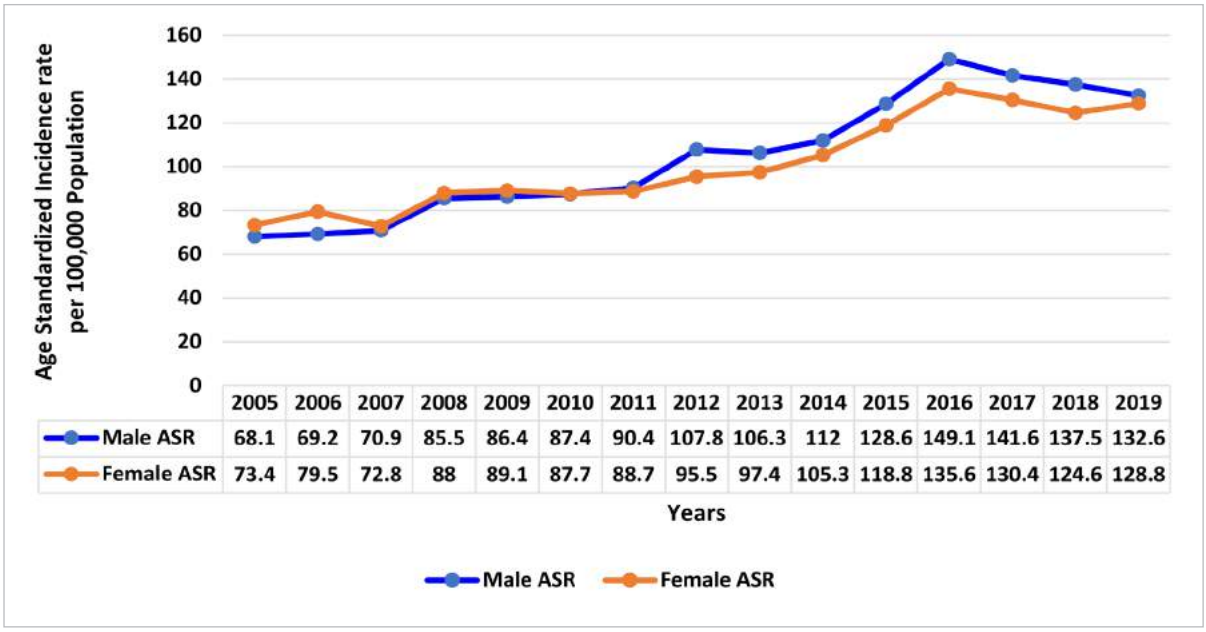
Cancer burden in Sri Lanka, prevention, treatment and care

The increasing burden of cancer has become a major challenge faced by Sri Lanka. Over the last 25 years, the overall incidence of cancer in Sri Lanka has doubled, as well as the cancer related mortality. Cancer is now the third leading cause of hospital deaths in Sri Lanka, accounting for 14% of all hospital deaths in 2019. The rapidly increasing elderly population and socioeconomic changes have led to the adoption of unhealthy lifestyles leading to an increase in cancer incidence, and it is estimated that nearly 23.4% of premature deaths in the country are due to cancer.

The National Cancer Control Programme (NCCP) has been able to upgrade the cancer registration system which was established in 1985, to a comprehensive National Cancer Register which collects country wide data, and introduce a NCR-SL web based data visualization dashboard displaying national cancer statistics. According to data of the National Cancer Registry, Sri Lanka (NCR-SL) in 2019, there were 14,845 (47%) males and 16,989 (53%) females diagnosed with cancer. Sri Lanka observed a female preponderance from the year 1990.

The NCR-SL revealed that the Age Standardized Incidence Rate (ASR) in males for all cancers increased from 68.1 per 100,000 Population in 2005 to 132.6 in 2019, and the rates in females have increased from 73.4 per 100,000 in 2005 to 128.8 in 2019. It further stated that the leading cancers among males were Lip, tongue and mouth (15%), with a Crude Rate (CR) of 20.6 and ASR of 19.1 per 100,000 population,

followed by trachea, bronchus and lung cancer (9%), colorectal (8%), oesophagus (7%) and prostate (7%). The leading cancer in females was breast cancer (26%), with a crude rate (CR) of 39.5 per 100,000 Population and an age-standardized rate (ASR) of 33.5 per 100,000 Population. This was followed by thyroid (13%), colorectal (7%), cervix (6%), uterus (6%) and ovary (6%). A majority of male and female top ten cancers were either preventable by the reduction of risk factor exposure and/or by early detection. According to the national cancer incidence data and experience of clinicians, a significant number of cancers are diagnosed at a late stage of the disease. Consequently, this will lead to reduced survival and poor quality of life of patients, with a higher economic burden to the individual patient and the health system.



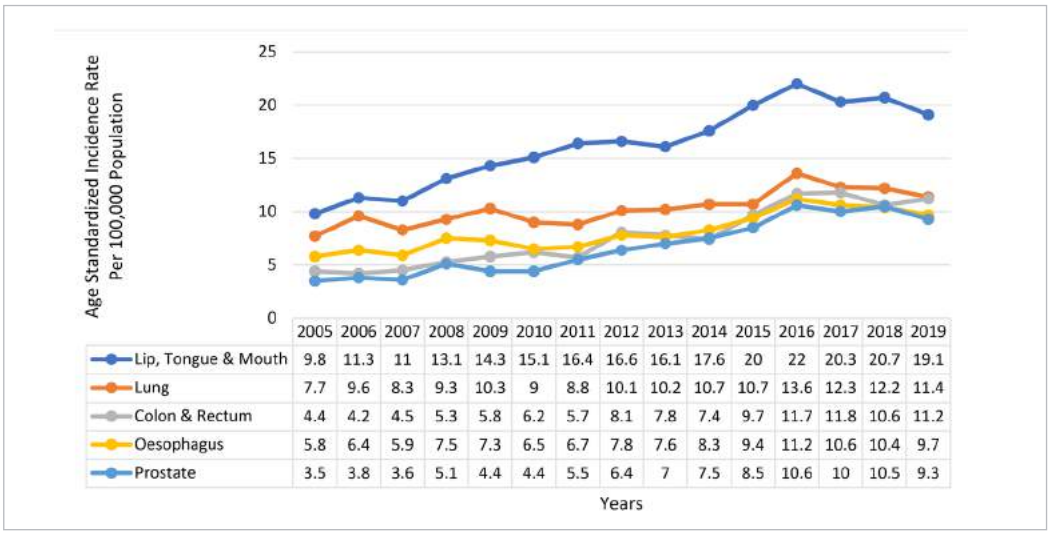
Source: National Cancer Registry 2005- 2019

Figure 86 : Age Standardized Incidence Rate of Male & Female Cancers from 2005 - 2019

Table 18 : Age Standardized (incidence) Rate of common cancers per 100,000 Population in Sri Lanka compared with regional and world statistics

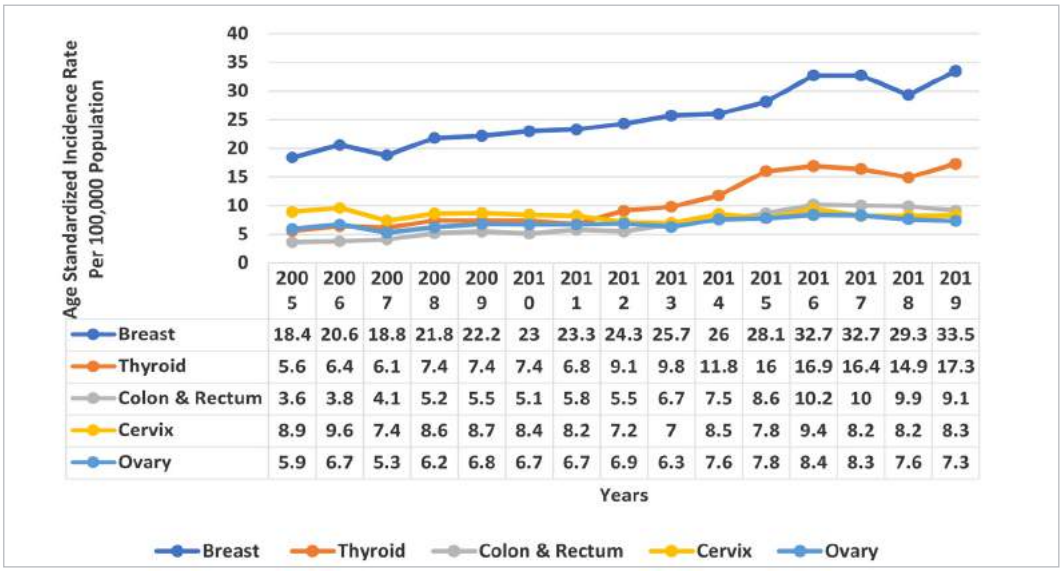
	World Situation 2020		Southeast Asia 2020		Sri Lanka 2019	
	Male	Female	Male	Female	Male	Female
All Cancers	206.9	178.1	110.3	110.8	132.6	128.8
Breast	-	47.8	-	28.3	1	33.5
Lip, tongue & Oral cavity	6	2.3	12	4	89.9	4.3
Uterine cervix	-	13.3	-	18.1	-	8.3
Colon, rectum & anus	23.4	16.2	8.5	5.5	5.2	3.4
Lung	31.5	14.6	12	5.1	11.4	4.3
Thyroid	3.1	10.1	1.2	3	3.9	17.3
Oesophagus	9.3	3.6	6.4	3.2	10.1	6.1
Ovary	-	6.6	-	7	-	7.3

The above table indicates the ASRs of different cancers in the world & Southeast Asia in 2020, and in Sri Lanka in 2019.



Source: NCCP DATA

Figure 87 : Age Standardized Incidence Rate of leading cancers Among Men in Sri Lanka (2005 - 2019)



Source: NCCP DATA

Figure 88 : Age Standardized Incidence Rate of leading cancers among Females in Sri Lanka (2005 - 2019)

Regression Trend analysis of top cancers

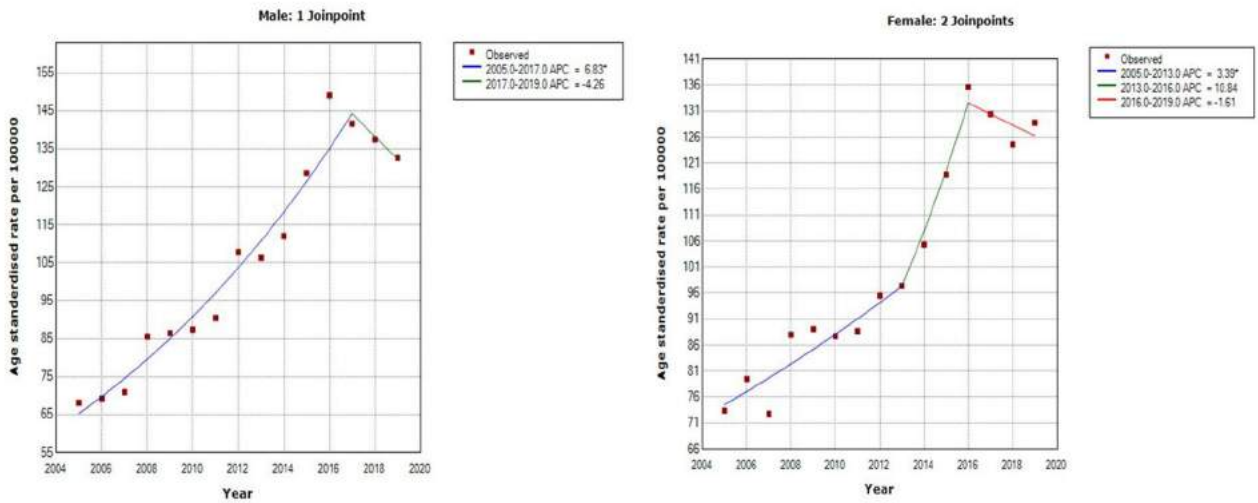


Figure 89 : Trend analysis Age Standardized Rates for Male and Female Cancers from 2005-2019

The ASR of males showed one join point model of regression with two incidence trends. From 2005 to 2017, it has an upward significant trend with an Annual Percent Change (APC) of 6.8% (95% CI: 5.7-8.0,

p=<0.001) and a non-significant decreasing trend of APC of -4.3% (95% CI: -20-14.3, p=0.6) from 2017-2019. However, Average Annual Percentage Change (AAPC) showed an overall increasing significant trend of 5.2% (95% CI: 2.7-7.7, p<0.001). The ASR of females showed two join points of a regression model with three incidence trends. From 2005 to 2013, it has an upward significant trend with an APC of 3.4% (95% CI: 1.5-5.3, p=0.003) and a non-significant increasing trend of AAPC of 10.8% (95% CI: -6.2-31.0, p=0.18) from 2013-2016. From 2016 to 2019, there is a decreasing trend with an APC of -1.6% (95% CI: -1.6- -9.5, p=0.66), which is not significant. However, the AAPC of females showed an overall increasing significant trend of 3.8% (95% CI: 0.3-7.5, p=0.03).

Breast Cancer Trend

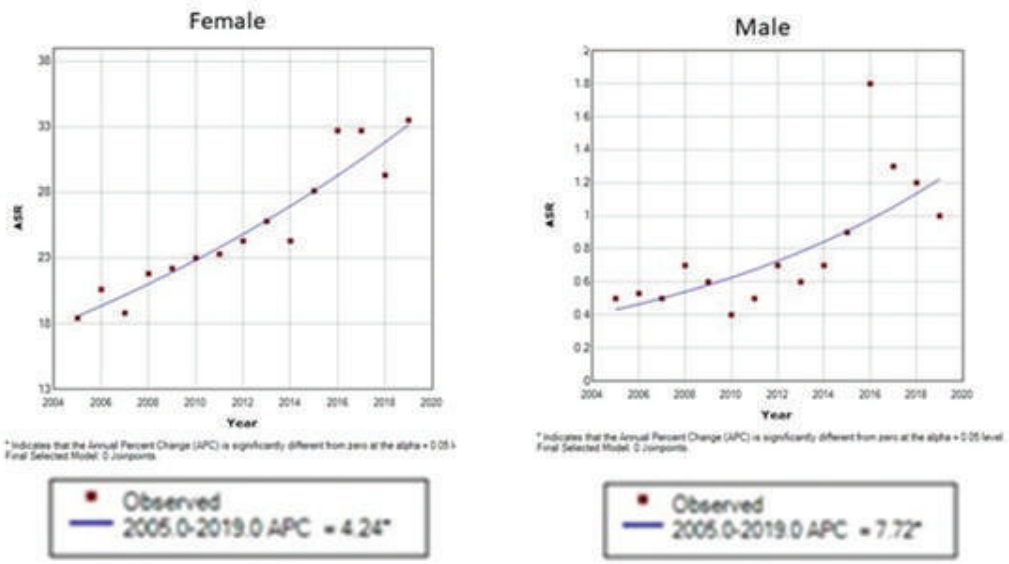


Figure 90 :Trend analysis of Age Standardized Rates for Male and Female Breast Cancer from 2005-2019

According to the joint point regression analysis, the AAPC for ASR of breast cancers among both sexes showed a statistically significant upward trend: Male breast cancer AAPC for ASR was 7.7 (95% CI 4.0-11.6) and female AAPC for ASR was 4.2 (95% CI: 3.4-5.0).

The national breast cancer early diagnosis programme was given priority, and currently, breast clinics in all the secondary and tertiary care hospitals are being established. As a result, the MOH has issued a circular (NCCP/ADM/44/2020) to establish breast clinics at Base Hospitals and above, and therefore, this process is ongoing.

The handbook on Comprehensive Breast Cancer Care for Healthcare Workers was developed in 2021 while district level and breast care clinic staff are provided continuous training. Mammography is used only for diagnostic purposes and screening high-risk categories. However, the under-utilizations of mammography services is due to the less availability of female radiographers, poor referrals, long waiting lists in some major hospitals and poor maintenance. (Handbook on Comprehensive Breast Cancer Care for Healthcare Workers, 2021)

Oral Cancer trend:

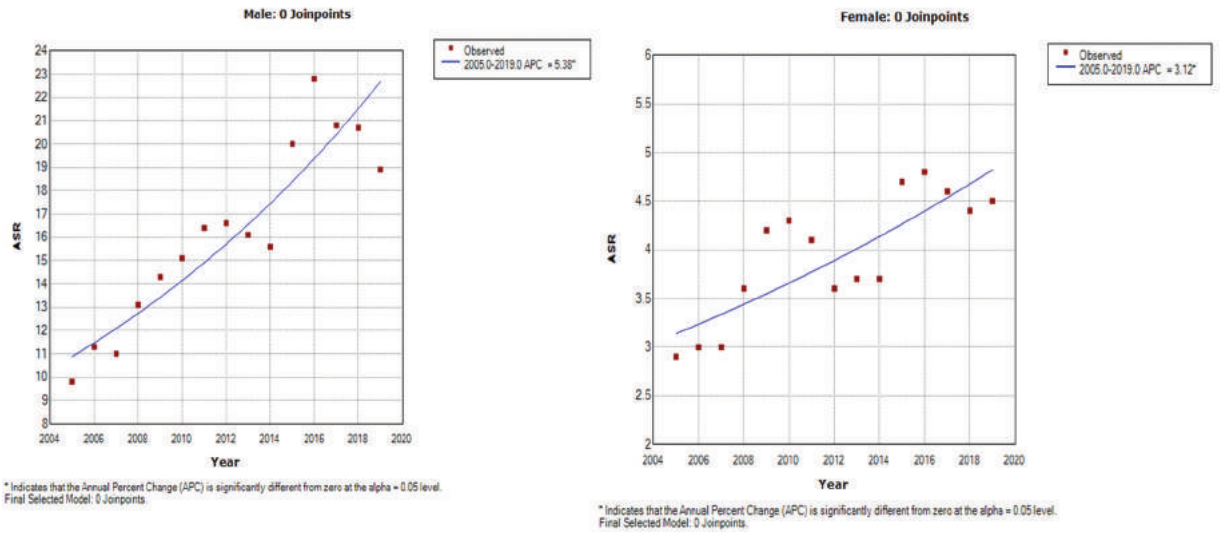


Figure 91 : Trend analysis of Age Standardized Rates for Male and Female Oral Cancer from 2005-2019

The ASR of oral cancer for males has increased from 9.8 per 100000 population in 2005 to 18.9 per 100000 in 2019. It showed a 1.9-fold increase (p <0.001 for trend), with an average annual percentage change (AAPC) of 5.38% (95% CI: 4.1-6.7). In females, ASR has increased from 2.9 per 100 000 in 2005 to 4.5 per 100 000 in 2019. There was a 1.55-fold increase (p <0.001 for trend) with an AAPC of 3.1% (95% CI: 1.8-4.5), and both AAPC changes for male & female are statistically significant.Opportunistic screening, is carried out for all patients at Dental clinics. In addition, public awareness, self-mouth-examination, and routine dental check-ups are promoted through Primary Health Care (PHC)staff. All identified Oral Potentially Malignant Disorders (OPMD) and suspected oral cancer cases are referred to Oral and Maxillo-Facial (OMF) clinics for management which includes long term follow-up care. A Management guideline for OPMD is available.

Cervical Cancer

Cervical cancer could be prevented and cured if detected early and adequately treated. From 2015 to the present, cervical cancer has been placed fourth among all female cancers in Sri Lanka. Cervical cancer in Sri Lanka accounted for 8.2% (n=1114) of all female malignancies in 2019. From 2005 to 2019, the crude incidence rate ranged between 7 and 10 per 100,000 females, indicating a modest upward trend. From 2005 to 2019, the average yearly percent change in the crude incidence rate increased by 1.7 percent every year. According to data from Sri Lanka's National Cancer Registry, a large percentage of patients presented in the late stages of cancer (stages III and IV). Unfortunately, in the years 2016, 2017, 2018, and 2019, 52.7 %, 38.7%, 39.1%, and 49.6%, respectively, were identified at stages III and IV.

Early identification of cervical cancer is carried out systematically through the Well Woman Programme of the Ministry of Health (MoH). Poor community awareness about cervical cancer and screening facilities, as well as stigma, myths, and misconceptions about cancers, have been cited as roadblocks to achieving early cervical cancer detection. In 2019, many districts reported lower coverage and even lower than the national average of 53%. By 2030, in alignment with World Health Organization targets to reach one of its intermediate goals, Sri Lanka is committed to screen 70% of women between the ages of 35 and 45years for cervical cancer.

The Family Health Bureau (FHB) has introduced the HPV-DNA test as a screening method, which the WHOs recommends as a high-performing screening tool. Currently, HPV-DNA testing is implemented in 20 districts and samples are sent to the FHB and TH Anuradhapura for analysis. In addition, opportunistic screening for cervical cancer is carried out at the gynecological clinics. The screened positives will be

referred to the closest gynecological clinics for further management according to the algorithms for HPV DNA and Pap smear tests. There are about 21 colposcopy clinics distributed island-wide and they are geographically maldistributed. (Annual Report Family Health Bureau, 2019)

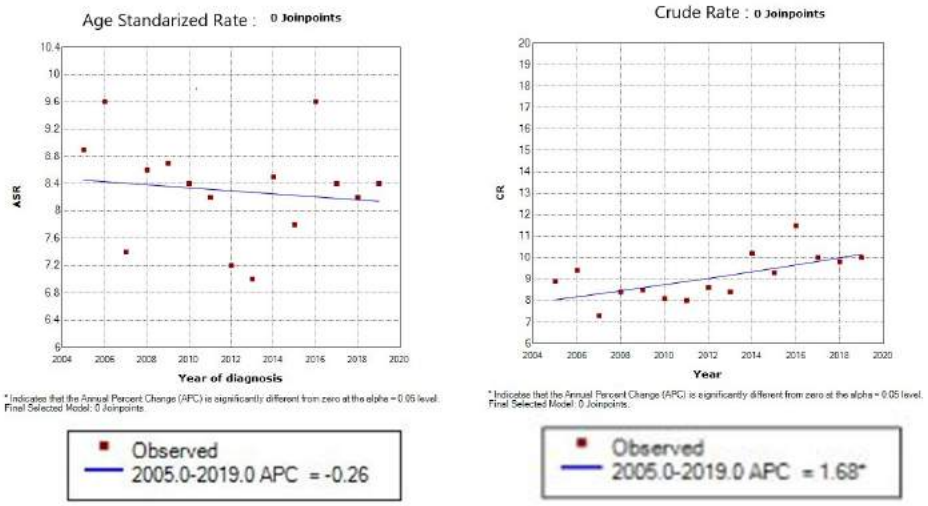


Figure 92 : Trend analysis of Age Standardized Rates and Crude Rates for Cervical Cancer from 2005-2019

In the Joinpoint regression analysis, the zero-join point model was the best fit model for both CR and ASR. The CR showed an overall significant increasing trend with an AAPC of 1.7% (95% CI: 0.5–2.9, p<0.05) while the AAPC of ASR shows a decline at -0.3% (95% CI: -1.5-1.0, p>0.050), which was not statistically significant.

Thyroid Cancer Trend:

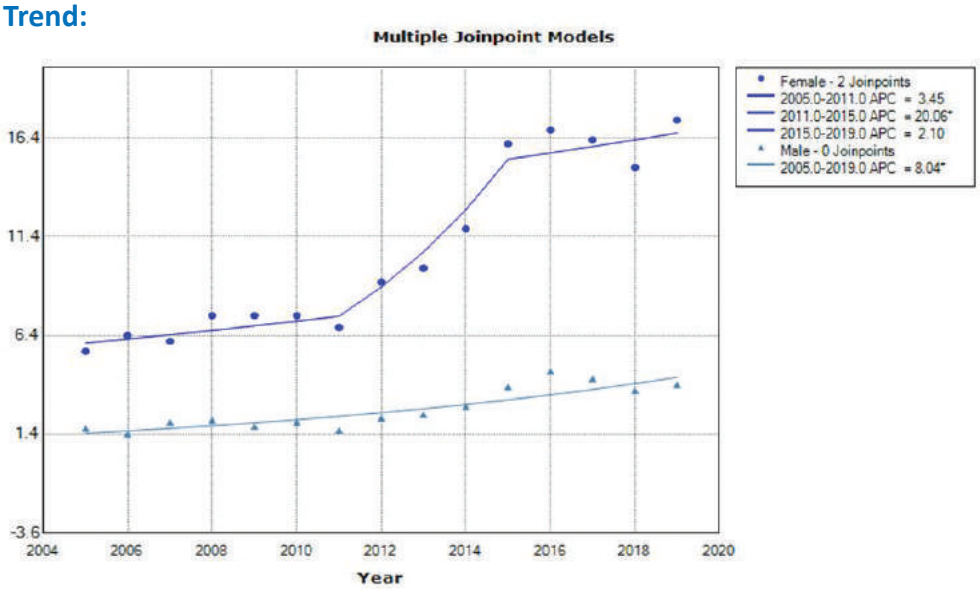


Figure 93: Trend analysis of Age Standardized Rates for Male and Female Thyroid Cancer f from 2005-2019

The ASR of thyroid cancer among women in Sri Lanka has increased from 5.6 per 100,000 in 2005 to 17.3 per 100,000 in 2019, which was a threefold rise. This is reflected in an AAPC of 7.5% (95% CI: 4.1-11.1, p<0.05). However, this observed rate of increase was not seen to be consistent throughout the years. The only significant APC was seen from 2011-2015 (20.06%, 95% CI: 7.9-33.7, p<0.05), whereas in 2005-2011, and 2015-2019, a significant increase was not demonstrated. Among men, the ASR of thyroid cancer has increased from 1.7 in 2005 to 3.6 in 2019. Unlike in females, the significant increasing trend among males has been steady over the years (APC=AAPC= 8.0%, 95% CI: 5.5-10.6, P<0.05). Thyroid screening is not recommended in Sri Lanka based on the imPACT review and the world evidence of over diagnosis of screening.

Lung Cancer trend

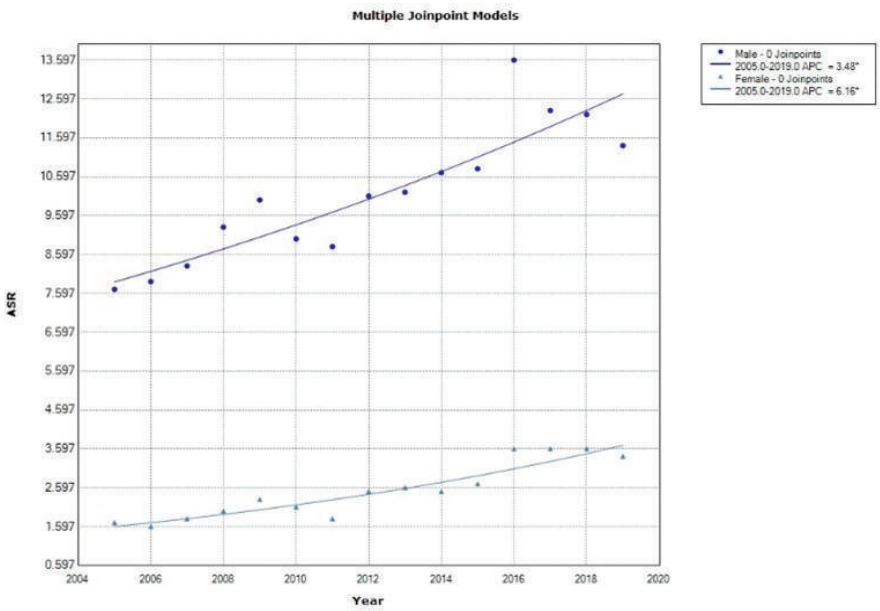


Figure 94 : Trend analysis Age Standardized Rates for Male and Female Lung Cancer from 2005-2019

The Joinpoint regression analysis showed a linear statistically significant increasing trend of ASR for both sexes from 2005-2019. However, the proportional increase in ASR from 2005 to 2019 was higher for females [AAPC = 6.16 (95% CI: 4.8–7.6)] than for males [AAPC = 3.48 (95% CI: 2.5– 4.5)].

Colorectal Cancer Trend:

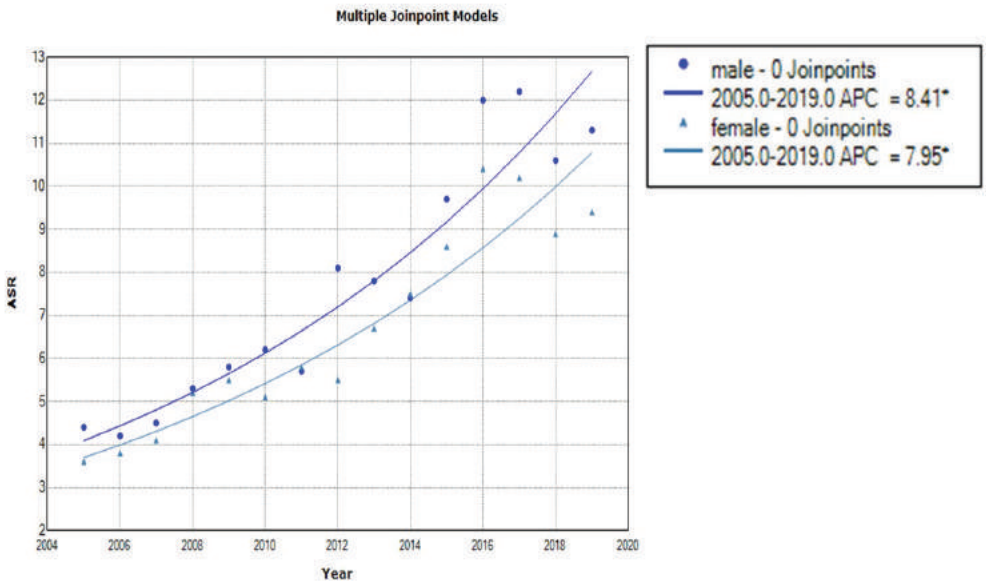


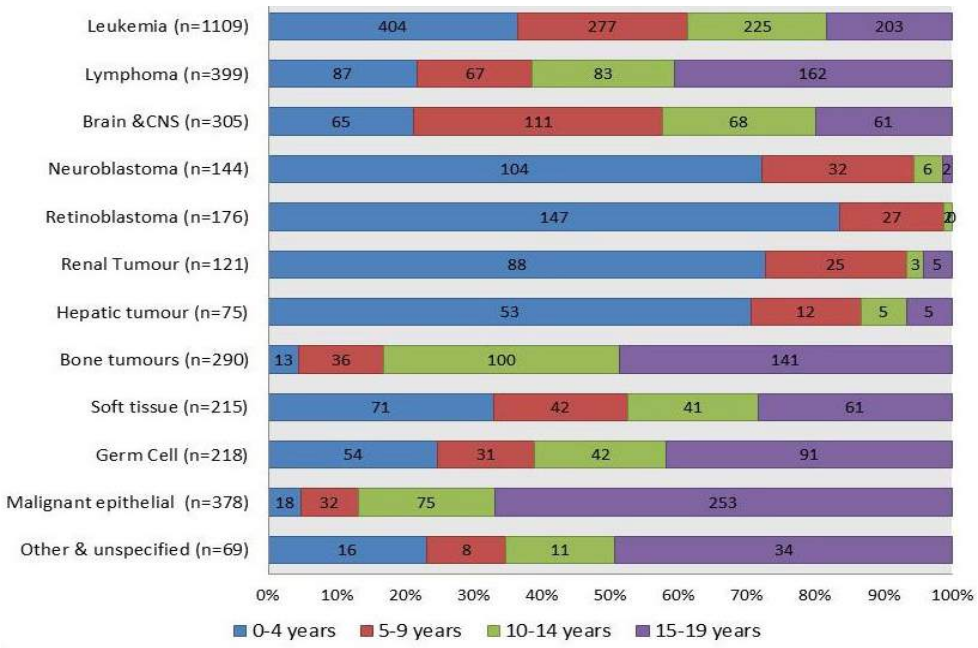
Figure 95: Trend analysis of Age Standardized Rates for Male and Female Colorectal Cancer from 2005-2019

The Joinpoint regression analysis showed a linear statistically significant increasing trend of ASR for both sexes from 2005-2019. However, the proportional increase in ASR from 2005 to 2019 was higher for females [AAPC = 7.9 (95% CI: 6.5–0.4)] than for males [AAPC = 8.41 (95% CI: 6.9-9.9)].
Colorectal Cancer is the third highest incident cancer in Sri Lanka according to the cancer registry data (National Cancer Incidence & Mortality Data of year 2019). Currently, screening is not recommended as it is not cost effective according to an analysis done recently.

Childhood Cancers

According to the latest available data in the year 2019 in Sri Lanka, 778 cancers were childhood cancers (0 -19 age group), accounting for 2.4% of all cancers. Out of 778 cases, 400 (51.4%) were males, while 378 (48.6%) were females, leading to an overall ASR of 107.8 per million paediatric population in the year 2019.

Though many childhood cancers are treated and cured presently, cancer remains a significant cause of childhood mortality. Childhood cancer survival rates are high as 80% in developed countries. There is no published data on paediatric cancer survival rates available in Sri Lanka. According to the experience of treating consultants, it is reasonable to assume the survival rates of children with common childhood cancers to be around 60% at present.



Source: NCCP DATA

Figure 96 : Distribution of childhood cancers from 2015-2019

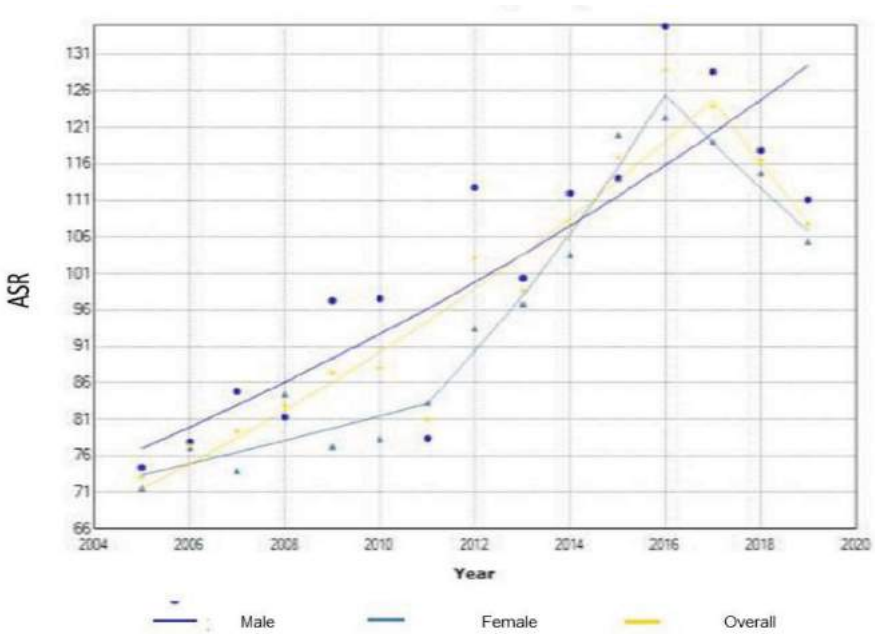


Figure 97 : Trend analysis of Age Standardized Rates for Paediatric Cancers from 2005-2019

The incidence trend of childhood cancer in both sexes (overall) was found to have one Joinpoint with two

segments. According to this, from 2005-2017, there is a significant increase ($p < 0.05$) in incidence with a 4.8% APC (CI: 3.6 -6), followed by a subsequent decline which is non-significant.
However, the overall trend analysis indicates a significant increase in childhood cancer incidence in both sexes from 73.1 per million paediatric population in 2005 to 107.8 per million paediatric population in 2019, which is a 1.5-fold increase ($p < 0.05$) with an AAPC of 3.0 (CI: 0.4- 5.7).
Palliative care: this has been described under sub-strategy 3.1.

Strategic information and management

The National Cancer Registry of Sri Lanka which was initiated with cancer incidence data in the year 1985, has evolved over the period incorporating newly diagnosed cancers from the point of diagnosis and from the point of treatment. Currently, cancer data can be obtained from (i) National Cancer Registry Programme from the registers maintained in treatment centres (ii) Population Based Cancer Registry of Colombo district, (iii) Hospital Based Cancer Registry of National Cancer Institute Sri Lanka (Apeksha Hospital, Maharagama), (iv) Pathology Laboratory Based Cancer Registries of Lady Ridgeway Hospital for Children, Colombo and Sirimavo Bandaranayake Memorial Children Hospital, Peradeniya and (v) Civil Registration System of Sri Lanka. Although the NCCP publishes National Cancer Incidence Data with frequency distribution details of paediatric and adolescent cancers for the 0-19-year age group from the year 2011, clinical outcome details and follow-up details are not being included in the report.

The NCCP and National Cancer Institute of Sri Lanka established a hospital-based paediatric cancer registry in 2021. The hospital-based paediatric cancer registry gives the latest evidence on paediatric cancer care, follow up & survival in Sri Lanka. Several interventions were commenced to strengthen the childhood and adolescent cancer care through the Global Initiative of Childhood Cancer, by the NCCP in partnership with the WHO country office. The NCI-SL obtained the facility to utilize SJCARES cancer registry software for commencing the Hospital Based Paediatric Cancer Registry through the membership of St. Jude Global Alliance for childhood cancer care. New guidelines have been issued for public and private hospitals for mandatory reporting to the cancer surveillance system in 2021 (01- 44 I 2020). One of the imPACT (Improving Patient Access to Clinical Trials) review recommendations was to clear the backlog of the national cancer registry from 2015-2019 and the population-based cancer registry, Colombo, for enabling better surveillance. This was completed with the support of the WHO, and it is one of the main achievements of the imPACT review.

Research

A list of ongoing research projects related to the prevention & control of cancers and priority areas for cancer research has been published on the NCCP website, and is updated annually following stakeholder consultations. Every month, the NCCP has arranged to disseminate the available current research evidence through a web-based seminar. In addition, prioritized topics in the cancer field have been developed and published on the NCCP website. Separate promotional funds are not available for cancer research in the country. Secondary analysis based on data of the cancer registry was completed by the NCCP members, and eleven articles were published in the Journal of College of Community Physicians of Sri Lanka in 2022.

Challenges in diagnostics and comprehensive treatment

The NCCP is faced with several challenges, although the national policies are emphasizing on the need to provide optimal continuum of care in an equitable manner. More than half of all cancer patients will require radiotherapy at some point in their disease course. Therefore, the annual number of cancer patients who require radiotherapy is estimated to be more than 15000 in 2019. A modern linear accelerator (LINAC) can treat 500 patients in a year, and it delivers quality radiotherapy. The minimum requirement is considered to be 1 machine per one million population, and currently, there are only 10 functioning

machines available. Due to this shortage around 8000 patients who would be considered cured have been deprived of radiotherapy treatment. With the shortage of machines, the available machines too are overloaded and the patients already on radiotherapy too will have significant delays in following their scheduled treatment resulting in inferior results. A proportion of 9000 patients who got advanced cancers too will require radiotherapy for their symptom control, and these patients also will be deprived of being treated on time. An analysis of current trends show that Sri Lanka would need 22 machines at least for the centers of excellence. The new procurements should be according to international standards, as the currently available machines are not up to the internationally recommended standards.

There is an ongoing project to supply Linear Accelerators to 5 more stations; Anuradhapura, Rathnapura, Kurunegala, Badulla & Hambantota. Out of these, Badulla, Hambantota & Rathnapura stations have completed the construction work to house a Linear Accelerator, but since 2019, not a single machine was supplied. This delay prevents patients from getting proper treatment via quality radiotherapy and results in over 1500 patients dying every year in these 3 stations alone. The magnitude of the health impact of this shortage of quality radiotherapy is significantly more pronounced and multifold than the impact of the unavailability of cancer medicines or medicines in other fields. The only possible option for these patients is to have their treatment by the private sector, but the treatment cost exceeds SLR 500,000 for any cancer site and nearly SLR 1 million for most common cancers such as head & neck and cervix. Due to this high cost, only a few patients opt for the private sector treatment and the others will not get the proper treatment and get relapses and die subsequently.

Since the number of current radiotherapy machines cannot cover the needs, there is a long waiting list, especially at National Cancer Institute (Apeksha Hospital). Even a four-week delay in treatment for a cancer patient is associated with an increase in mortality. Therefore, policies focused on minimizing system-level delays and providing radiotherapy treatment facilities to all provinces could improve population-level survival outcomes. Further, timely radiotherapy could save many lives as well as millions of foreign currency spent on expensive end-stage palliative chemotherapy drugs. The Radiation safety sector has been strengthened after the imPACT review. The development of Radiation safety guideline was commenced in partnership with the IAEA to improve radiotherapy in Sri Lanka.

Treatment centers provide chemotherapy as per the guidelines, but they are challenged with stock-outs. This was experienced badly during these few months due to the prevailing economic crisis. The MoH is spending a large sum of money on purchasing chemotherapy drugs annually and mostly for local purchasing, It is understood that the MoH is spending a large amount of money on purchasing chemotherapy drugs annually, and a major part of that is spent on local purchasing. Therefore, it is important to purchase chemotherapy drugs by considering the clinical and cost-effectiveness, as it will improve the quality of life of the patients and the cost of expenditure. It is important to develop a standard procedure plan for purchasing chemotherapy drugs in a scientific way, using available evidence and considering the clinical and cost-effectiveness, which is being used by many countries at present. This will cut down the unnecessary expenditure on chemotherapy drugs without changing the benefits for the patients.

A Cyclotron Plant is required to manufacture the radioactive drug (fluorodeoxyglucose FDG 18). The service of a PET/ CT scanner is essential for the purpose of observing cancer-related growth, assessing the response, and providing accurate treatment for cancer patients. As of now, only three functioning PET/ CT scanners are available in Sri Lanka at: National hospital - in Colombo, Apeksha hospital - in Maharagama and a private hospital in Colombo. The cost of a PET/CT scanner in the private sector is approximately SLR 150,000/-. This amount is charged to obtain an examination report and an exorbitant sum has to be paid for the radioactive drug (FDG 18). Currently, PET scans are conducted only once a week at Apeksha hospital, due to the short half-life of the FDG-18. The number of PET scans done does

not reflect the real need for this facility due to the unavailability of FDG-18 in Sri Lanka. The clinicians currently recommend a PET scan for highly specific cases only. Ideally, PET scans provide a wide range of utilities such as diagnosis, staging, assessing the effectiveness of cancer treatment and monitoring recurrence of cancer.

In Sri Lanka, PET scans are done only for diagnostic purposes in about 25% of cancer patients. PET scans for cancer staging, treatment outcome assessment, and monitoring recurrences are currently not conducted due to this unavailability. The waiting list for PET scans is approximately six (6) months. This reflects the poor quality of care received by cancer patients in Sri Lanka. Because of the excessive price of PET/CT scans, clinicians are reluctant to order this investigation. Patients will miss a gold standard investigation, and it significantly affects the quality of care for patients. If the cost is relatively low, the clinicians may prescribe it as the investigation of choice, and it will improve the quality of patient care tremendously. Since Sri Lanka has only three PET/ CT scanners, it is very difficult to predict the current demand. This is due to a lack of data to reflect whether necessary patients are prescribed PET/ CTs due to their limited availability.

Table 19: Use of FDG-18 in the National Cancer Institute during 2018-2020

Year	Number done
2018	127
2019	435
2020 (up to June)	107
Total	**669**

To get an approximate estimate regarding the demand for PET scans for a particular year, we used the data from the latest cancer registry in 2019. It gives a quick 'snapshot' of the cancer profile reported in Sri Lanka. A total of 31,848 cancers were diagnosed in the country. PET scans are directly used to diagnose and manage the following cancers: lymphomas (n=1051), trachea, bronchus, lung (n=1721), oesophagus and stomach (n=2571). This cohort of cancers (n=5343) comprise 16.8% of total cancer cases in 2019. This shows that at least 5343 PET scans are needed annually to diagnose these few types of cancers for the staging, treatment effectiveness and to monitor recurrence.

Partnerships

As a Medical Affiliate of Apollo Hospitals Enterprise Limited (AHEL) of India, Ceylinco Healthcare was able to offer a package deal which included a digital PET-CT scan for patients at the Chennai facility, with overnight accommodation at the facility and meals for two. Even with the cost of air tickets for two people, visa fees and airport transfers for the patient and an accompanying person, the total cost would on average be about 8 per cent lower than the cost of getting an analogue PET scan in a private hospital in Sri Lanka. This reflects the higher cost pertaining to PET/CT scan facilities in Sri Lanka. Therefore, the Sri Lanka Atomic Energy Board (SLAEB), with the Kothalawala Defence University (KDU), jointly commenced the building of a cyclotron plant at the premises of Kothalawala Defence University in the year 2021, and planning to complete in five years. The MoH has signed a MOU with the SLAERC for purchasing the radioactive drug (FDG 18). It is important to install new PET/ CT scanners in three main hospitals in future, namely, National Hospital - Kandy, Teaching Hospital Karapitiya and Teaching Hospital Jaffna. It is expected to increase the number of patients in need of PET/CT scanning in the next five years. The radioactive drug FDG 18 will be needed for these proposed centres in the future.

In general, a primary challenge for cancer-control planning in Sri Lanka is the lack of essential health system capacity and infrastructure needed to prevent, detect, and treat cancer. Human resource

shortages, availability of theatre time and long waiting lists for radiotherapy, surgery are reasons for poor outcomes in cancer care. Better coordination of care and more resources at primary and secondary care facilities would lessen the burden on tertiary health centers and help ensure a more equitable implementation of the NCCP. Amidst these challenges, prevention and control of cancer in Sri Lanka has come a long way and is a noteworthy effort of a wide range of healthcare providers, however, new advancements are required to overcome the current constraints and meet the growing cancer burden.

Recommendations

Leadership, Advocacy & Governance

1. National Strategic Plan on Prevention & Control of Cancers 2020-2024 and the other supporting strategic plans: (i) National Strategic Plan on Childhood & Adolescent Cancer Care 2021-2025, (ii) National Strategic Plan on achieving interim targets of Cervical Cancer Elimination 2021-2030 (iii) National Strategic Framework on Palliative Care Development 2019-2023 (iv) Social Behavior Change Communication Strategy for Prevention & Control of Cancers, need to be fully implemented.

Primary Prevention

1. Primary Prevention of cancers should be strengthened by implementing the strategies identified in the NSP 2020-2024, with a special focus on Health Promotion approaches using Social Behaviour Change Communication Strategic Plan.

2. Conduct advocacy programmes to implement the new Tobacco Tax Formula developed by the National Authority on Tobacco & Alcohol considering the inflation rate and Gross Domestic Product, which was another recommendation of the imPACT review.

Early Detection

1. Screening and early diagnosis of cancers should be strengthened by implementing the strategies identified in the NSP 2020-2024 with a special focus on oral, breast and cervical cancers.

2. Oral cancer screening programmes should be strengthened in a structured manner to detect early stages.

Diagnosis & Treatment

1. Upgrading identified one center in each province as the “center of excellence” for cancer diagnosis and treatment to ensure good geographical representation of the services, and a cluster system should be developed to share the facilities. A facility survey of treatment centres should be done periodically.

2. Standard Operation Procedures, guidelines and protocols should be updated regularly and stratified as per the health service level for diagnostics and treatment and care

3. To ensure an uninterrupted and sustainable supply of cancer medicines, and it should be included in the National Health Technology Plan. Purchasing chemotherapy drugs need to consider several factors such as quality of drugs, cost-effectiveness and clinical effectiveness.

4. Guidelines need to be developed for radiotherapy and speed up the development of the radiotherapy strategic plan.

5. Strengthening radiotherapy facilities by purchasing the LINAC machines with a private-public partnership. Centers of excellence which do not have LINACs need to be prioritized to be given the facilities. Cobolt 60 machines should be replaced by high-energy LINACs. Each center of excellence should be supplied with a brachytherapy machine.

6. Implementation of radiation safety measures as per the recently developed radiation safety guideline.

7. Regular in-service training and continuous medical education programmes for specialists related to provision of care.

Surveillance of Cancers (Cancer Registration)

1. Continuous update of the cancer Registry from 2019, incorporating the National Identity Card/ Patient Health Number to avoid duplications and to maintain data security. Mortality data is to be incorporated with the collaboration of the Registrar General Department for survival analysis.

2. Establishment of Hospital Cancer Registries for identification of survival rates.

3. In order to improve data (long term, prospective), especially survival data, a cohort database for survival analysis of common cancers with high death rates should be introduced in main cancer hospitals.

Cancer Research

1. Identify research priorities annually and dedicated funding lines towards cancer related research.

2. Strengthen the research activities on survivorship and the treatment modalities and the waiting list.

3. A regular facility survey should be done for diagnosis and treatment in cancer care hospitals.

Sub strategy 1.15 To reduce mortality and morbidity due to Non-Communicable Diseases

Background

Globally, non-communicable diseases (NCD) are the leading cause of death, and more than 40% of NCD deaths are premature, occurring before the age of 70 years. In Sri Lanka, NCDs are estimated to account for 83% of all deaths in the year 2018. The proportional mortality for cardio-vascular disease (34%) is the highest, followed by cancer (14%), diabetes (9%), chronic respiratory disease (8%), other NCDs (18%) and injuries (10%). The major risk factors for chronic NCDs are tobacco, physical inactivity, unhealthy diet and harmful use of alcohol. There are several other risk factors such as overweight and obesity, stress, high lipid levels and air pollution. Children, adults and elderly are all vulnerable to NCDs due to these risk factors. These diseases are driven by forces that include rapid unplanned urbanization, globalization of unhealthy lifestyles and population ageing. Sri Lanka is currently experiencing a demographic, epidemiological and socio-economic transition. The communicable disease burden is well controlled, and the country is challenged with an emerging epidemic of non- communicable diseases due to lifestyle changes and aging, as the country is in an advanced stage of demographic transition with the adult life expectancy reaching 75.3 years. The associations of health and aging are well documented.

Over the last four decades, Sri Lanka has experienced urbanization, industrialization and an increase in foreign investments. The adoption of the open economy policy has brought about economic prosperity

with positive and negative effects on social life and the health of people. The open economy policy led to liberalization of trade and market policies, increased internal and external migration, increased access to a wide range of communication channels, increased screen time, sedentary work patterns, and the inevitable consequences were life style changes and adopting risky behaviors which have a negative impact on health. Unhealthy diets and physical inactivity may show up in people as raised blood pressure, increased blood glucose, elevated blood lipids and obesity. These are called metabolic risk factors and can lead to cardiovascular disease, the leading NCD in terms of premature deaths, diabetes and chronic respiratory diseases. The harmful effects of tobacco and alcohol amplifies the disease burden. The newly found freedom and disruption of the family fabric promotes risk taking behaviors which have led increased road traffic accidents and infectious diseases such as sexually transmitted infections including HIV.

The impact of chronic NCDs is disproportionately borne by the poor, as they are at greater risk of being exposed to harmful products, such as tobacco, or unhealthy dietary practices, and have limited access to health services. The already poor are pushed to further poverty due to healthcare costs and loss of income due to absenteeism from work. NCDs threaten progress towards the 2030 Agenda for Sustainable Development, which includes a target of "reducing the probability of pre-mature death from any of the four main NCDs between ages 30 and 70 years by one third by 2030 through prevention and treatment to promote mental health and well-being”

National policies and strategic directions relevant to NCD

The National Policy and Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases was published by the Ministry of Health in 2010. The overall purpose of this NSP is to reduce the incidence and impact of the increasing trend of NCDs by reducing the prevalence of common risk factors, by increasing health literacy across the life cycle for people to make healthy lifestyle choices and seek healthcare services using their knowledge and skills, screening for early detection, early diagnosis and providing integrated evidence-based continuum of care including palliative care for diagnosed NCD patients.

In alignment with the policy, the Multi-Sectoral Action Plan 2017-2022 (MSAP) was developed to achieve targets with the support of several other government and non-government organizations and community based organizations, and was revised in 2022. The policy directions harmonize with international best practices and are mainly to control NCDs focusing on reduction of risk factors and to identify low cost but high impact interventions.

The national strategic plan gives priority to strengthening and scaling up the WHO recommended population and individual based “best buy” interventions. These interventions are identified as the WHO Choice analysis found an average cost-effectiveness ratio of ≤ I$ 100 per DALY averted in low- and lower middle-income countries.

A wide spectrum of interventions are implemented linked to “Best Buys” using health and non-health platforms across the life-cycle, and include empowerment and promotion of healthy lifestyles through a Social and Behavior Change Communication (SBBC) Strategy, formulating legislation and policies to minimize or eliminate exposure to carcinogens, counselling for tobacco cessation, implementing school and workplace canteen policy, increasing access to physical activities in schools and workplaces, promoting, procuring and provision of healthy diets in hospitals, and creating health promotion settings in cities and villages. Since most of the risk factors for chronic NCDs are also risk factors for cancers, the current NSP calls for a stronger horizontal integration of interventions to the National Cancer Control Programme and the Family Health Programme of the Family Health Bureau, which has a wide population coverage to reduce the modifiable risk factors on the basis of reducing “shared risk factors”. In addition,

monitoring progress and trends of NCDs and their risk is important for guiding policy and priorities. The revised NSP has identified the need to integrate NCD interventions to the Family Health Programme of the Family Health Bureau. This shared approach in planning interventions is important in the wake of evidence of the consistent protective effect of breastfeeding against breast cancer (4.3% reduction per 12 months' breastfeeding) and ovarian cancer (30% reduction associated with longer periods of breast feeding). Breastfeeding has a protective effect on development of childhood leukemia.

Further, the revised NSP will promote the implementation of school and workplace canteen policies, advocate for enforcement of laws for sale of sugar-sweetened beverages (SSB) for children, front of pack labeling (F-O-P) of foods and drinks to enable public to select healthy foods, reduce salt intake and replace trans-fat with unsaturated fats. Advocacy to the Ministry of Agriculture to provide fruits and vegetables to schools, hospitals and workplaces is essential.

The Directorate of Non-Communicable diseases of Ministry of Health, Sri Lanka is the national focal point, which is responsible for planning, implementation, monitoring and evaluating of activities identified. The district level implementation is done by the MOH and the team, with technical guidance by the Medial Officer NCD. The Monitoring and evaluation is done by the MO-NCD and is reported to the NCD Directorate. Guidelines were issued for the duties of the MO-NCD to maintain uniformity of service provision. In secondary and tertiary hospital settings, a medical officer was identified for NCD related work by the DGHS circular (letter No. NCD/23/2022 and dated 12th March 2022), to ensure that all chronic NCD and acute NCD (injury) related activities are carried out according to the list of expected functions under the direct supervision of the Head of the institution. The assigned NCD focal point attached to hospitals both under the line ministry, and provincial ministry is expected to work in coordination with the district MO NCD (focal point) and the Directorate of NCDs.

The primary healthcare services are being strengthened to implement NCD related interventions by the adoption of the "shared care cluster" system approach. The Healthy Lifestyle Clinics (HLC) and Well Women Clinics (WWC) are playing an important role in providing people with knowledge on healthy lifestyles and skills for behavior change, and opportunistic screening for risk factors for NCDs. However, since these services are patronized mainly by women, the present NSP will pay more attention on identifying settings such as workplaces, universities and vocational training centers (VTC) to reach out to adult males.

The policymakers have identified the need to strengthen the settings approach, and the NSP which was revised in 2022 has highlighted the need to adopt the 5 principles as specified in the Ottawa Charter when planning healthy lifestyle promotion, inclusive of consumption of healthy diets, access to physical activities, promotion and protection of breastfeeding in health promoting settings in schools, universities, vocational training centers (VTC) and hospitals. Using the settings approach also provides an opportunity for male participation, reduces inequalities and provides social justice while reducing the burden on health services.

NCD burden

According to the WHO estimate, NCD related mortality in Sri Lanka in years 2018 was 83% out of all deaths. The WHO (2018) estimated Sri Lankan mortality data based on the country profile, and the details are given in the figure below:

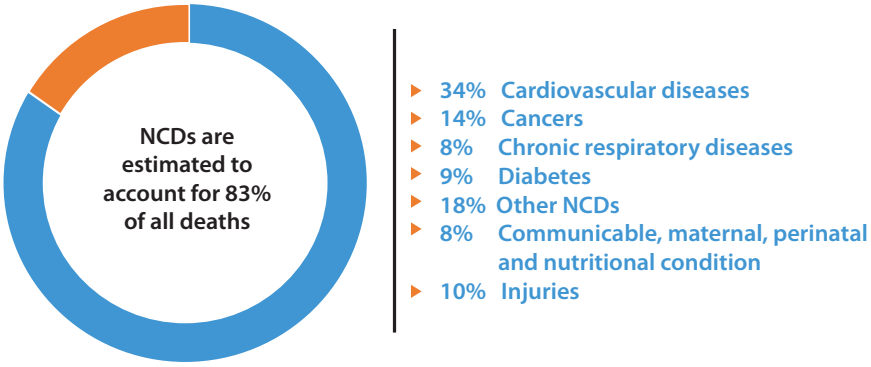
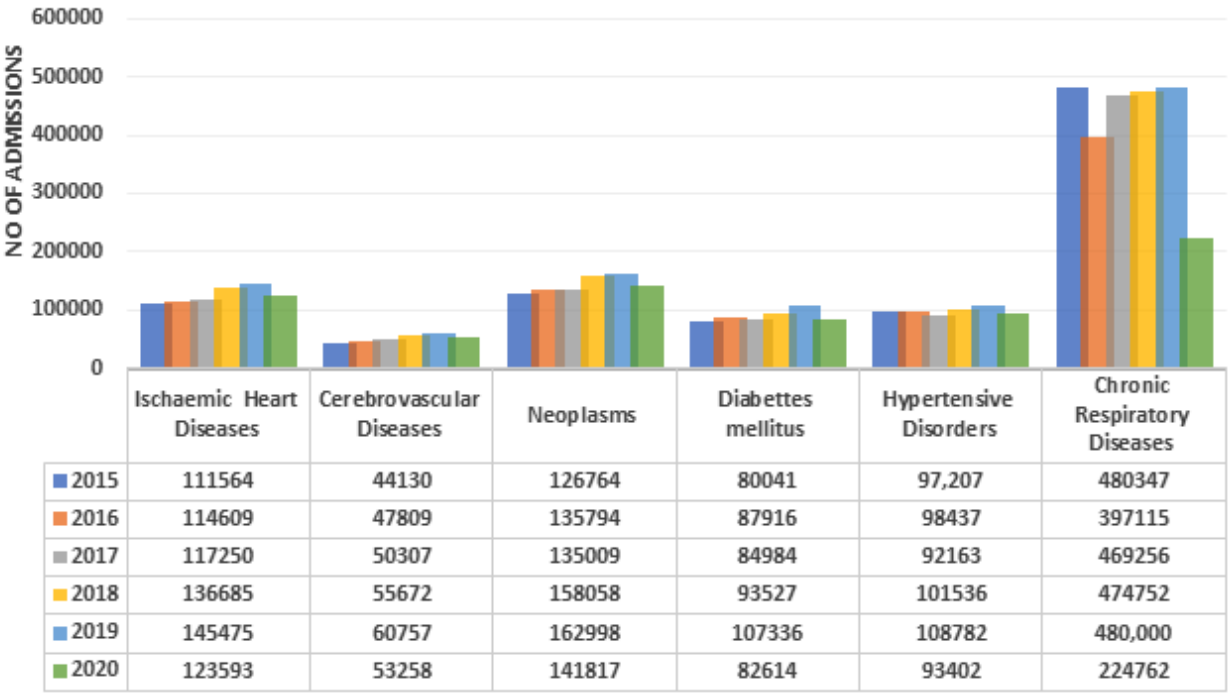


Figure 98: Estimated NCD related mortality data for Sri Lanka in 2018

According to the records of the Medical Statistics Unit of the Ministry of Health, during 2015-2020, the highest mortality was due to ischemic heart diseases. A steady increase was observed from 2016-2019. Neoplasms have recorded the second highest mortality rate.

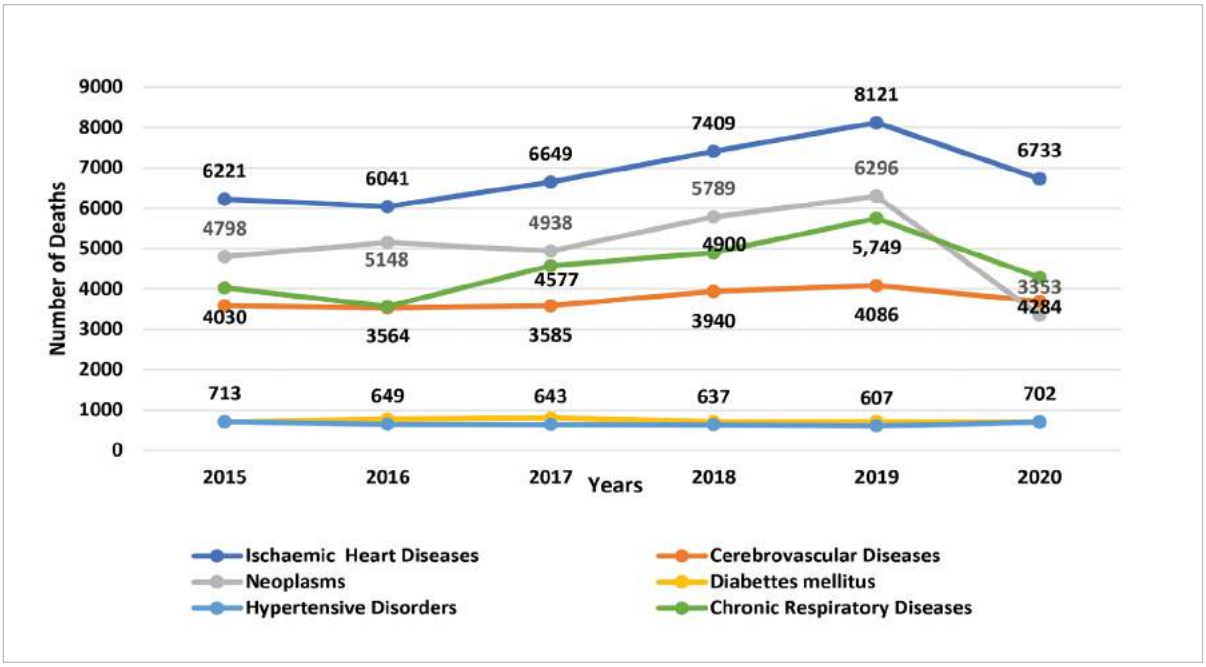


	Ischaemic Heart Diseases	Cerebrovascular Diseases	Neoplasms	Diabettes mellitus	Hypertensive Disorders	Chronic Respiratory Diseases
2015	111564	44130	126764	80041	97,207	480347
2016	114609	47809	135794	87916	98437	397115
2017	117250	50307	135009	84984	92163	469256
2018	136685	55672	158058	93527	101536	474752
2019	145475	60757	162998	107336	108782	480,000
2020	123593	53258	141817	82614	93402	224762

Source :Medical Statistics Unit, Ministry of Health.

Figure 99 : The number of admissions to government hospitals due to chronic NCDs for 2015 to 2020.

Chronic respiratory diseases have been the major cause for hospital admission among chronic NCDs during this time period. It was evident that there is no structured pulmonary rehabilitation programme in the country, which led to repeated readmission of Chronic respiratory diseases patients to the hospitals.



Source: Medical Statistics Unit, Ministry of Health.

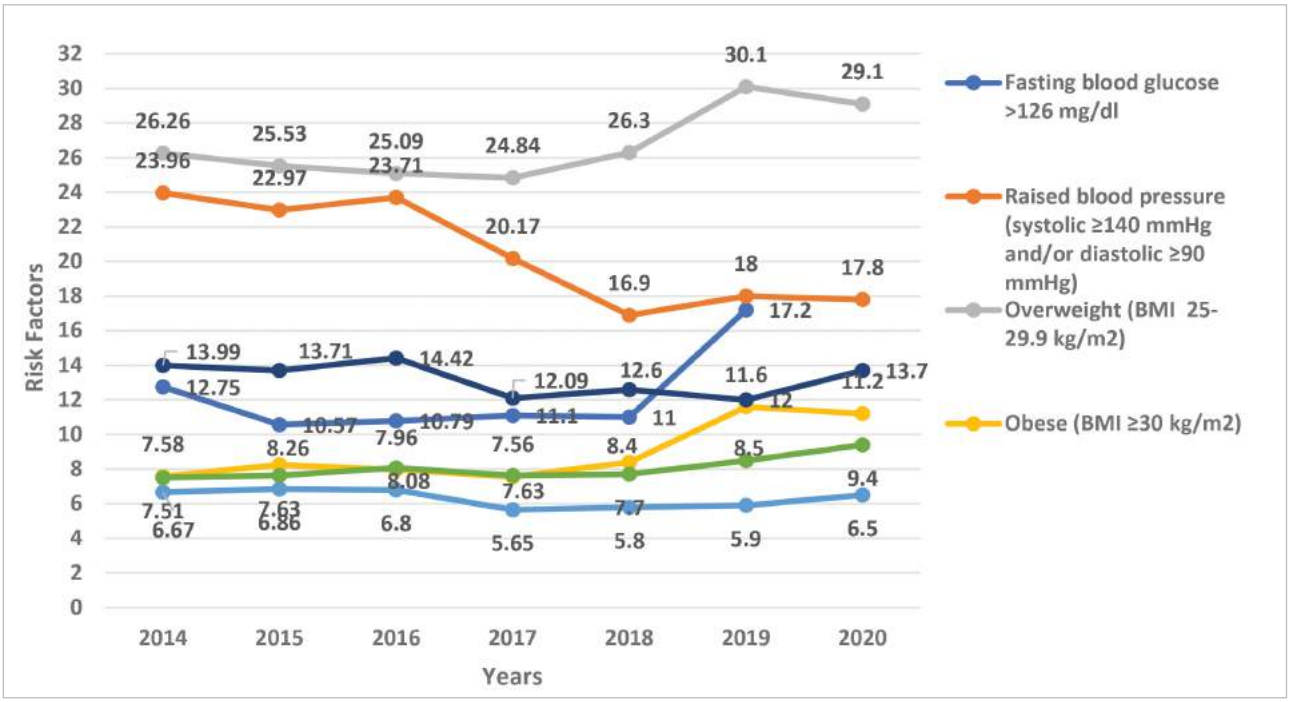
Figure 100 : Trend of mortality due to chronic NCDs in government hospitals from 2015-2020

In 2019, 50.7% hospital-based deaths were due to non-communicable diseases. The actual number of deaths are higher, as the deaths that are occurring in the community have to be considered. (which is about 60%). According to the government hospital admission data, in 2019, the case fatality rate of Essential Hypertension (ICD- I 10) was 0.55 per 100 cases and a total of 97,885 live discharges were recorded. The number of public hospital admissions for asthma was 498 per 100,000 population, and the death rate was 2.8 in 2019. According to the public hospital admission data in 2019, the case fatality rate of Ischemic heart disease (ICD- I20-I25) was 5.58 per 100 cases, with a total of 137.354 live discharges. The number of public hospital admissions was 667 per 100,000 population, and the death rate was 37.2 for Asthma in 2019.

Screening for risk factors and early detection of non-communicable diseases through Healthy Lifestyle Centers

The Ministry of Health in Sri Lanka established the Healthy Lifestyle Centers (HLCs) in 2011, to address the non-communicable disease (NCD) screening service through the lowest level of primary healthcare institutions. These are walk in clinics and the patients are referred from PMCI. The objective of the HLCs is to identify and reduce the risk of NCDs men and women of 35 years and above which is estimated as 40% of the mid-year population by detecting risk factors early and referring those with higher risk of cardio-vascular disease (CVD) to specialized centers. As of 31.05.2022, there were 1,015 functioning Healthy Lifestyles Centers. The clients are screened to assess the 10-year CVD risk using the revised WHO/International Society of Hypertension risk-prediction chart 2019. Those with a 10-year CVD risk of more than 30% are referred to the specialized medical clinics in the cluster, while others are managed with lifestyle modification and are requested to visit the HLC for rescreening and follow-up, based on the levels of CVD risk and intermediate risk factors. Identified challenges to date include: underutilization of services, especially by men; weak staff adherence to protocols; lack of integration into pre-existing NCD-screening services; non-inclusion of screening for all the major NCDs; and human resources. A total of 272,605 clients were screened during the year 2021 (255,333 were 35 years or above) and the estimated mid-year population for the year 2021 was used for the calculations.

These HLC clinics also serve as surveillance sites for the risk factors of non-communicable diseases. The surveillance system of the NCD programme is strengthened by the availability of a cloud-based Information Management System which is being gradually scaled, up featuring individual level data, cohort monitoring facility, etc. Several guidelines were issued by the MoH for the stranded operating procedures and guidance for HLC, and the last update was issued in 2020.



Source: NCD unit

Figure 101 : Risk factors identified through the HLC from 2014 to 2020

Table: 20: Behavioural risk factors exposure and screening data among males and females in STEPS survey 2015 & 2021

STEPS - Results for adults aged 18-69 years	Both Sexes				Female	
	2014	2021	2014	2021	2014	2021
Percentage who currently smoke tobacco	15.00%	14.10%	29.40%	30.20%	0.10%	0.20%
Percentage who are lifetime alcohol abstainers	67.90%	65.10%	40.20%	34.20%	96.50%	91.90%
Percentage who currently drink (drank alcohol in the past 30 days)	17.90%	20.70%	34.80%	43.30%	0.50%	1.20%
Mean number of servings of fruit consumed on average per day	1.3	1.2	1.3	1.2	1.3	1.3
Mean number of servings of vegetables consumed on average per day	3	3.3	3	3.3	3.1	3.4
Percentage with insufficient physical activity (defined as < 150 minutes of moderate-intensity activity per week, or equivalent)	30.40%	34.80%	22.50%	24.20%	38.40%	43.90%
Percentage of women aged 30-49 years who have ever had a screening test for cervical cancer					24.50%	40.20%
Mean body mass index - BMI (kg/m^2)	22.9	24.2	22.4	23.1	23.5	25.1

STEPS - Results for adults aged 18-69 years	Both Sexes				Female	
	2014	2021	2014	2021	2014	2021
Percentage who are overweight (BMI ≥ 25 kg/m^2)	29.30%	39.40%	24.60%	30.00%	34.30%	47.60%
Percentage who are obese (BMI ≥ 30 kg/m^2)	5.90%	11.00%	3.50%	6.30%	8.40%	15.20%
Average waist circumference (cm)			82.3	85.3	82.1	86.4
Percentage with raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP)	26.10%	34.80%	25.40%	35.80%	26.70%	34.00%
Mean fasting blood glucose, including those currently on medication for raised blood glucose [mg/dl]	81.6	104.2	81.9	103.3	81.4	104.9
Percentage with raised fasting blood glucose as defined below, or currently on medication for raised blood glucose (plasma venous value ≥ 7.0 mmol/L (126 mg/dl) (capillary whole blood value ≥ 6.1 mmol/L (110 mg/dl)	7.40%	15.60%	7.30%	15.60%	7.60%	15.60%
Mean total blood cholesterol, including those currently on medication for raised cholesterol [mg/dl]	152.2	187.2	146.8	182	157.8	191.7
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol)	23.70%	48.70%	19.10%	42.70%	28.40%	54.00%
Mean intake of salt per day (in grams)		8.5		9.7		7.6
Percentage aged 40-69 years with a 10-year CVD risk ≥ 20%, or with existing CVD	9.1% (>=30%)	14.20%	8.9% (>=30%)	16.90%	9.3% (>=30%)	11.80%
Percentage with none of the above risk factors	8.20%	8.40%	7.60%	9.30%	8.80%	7.70%
Percentage with three or more of the above risk factors, aged 18 to 44 years	12.50%	18.00%	12.10%	18.50%	13.00%	17.60%
Percentage with three or more of the above risk factors, aged 45 to 69 years	27.80%	36.10%	24.00%	31.50%	31.40%	40.10%
Percentage with three or more of the above risk factors, aged 18 to 69 years	18.30%	26.50%	16.40%	24.50%	20.20%	28.20%

In 2015, the STEP survey reported that 30.4% of the Sri Lankan adult population do not engage in the recommended 150 minutes of moderate intensity physical activity level per week, making them more vulnerable for NCDs, with females (38.4%) being more inactive compared to males (22.5%). Promoting physical activity is done by advocating for prioritizing and integrating promotion of physical activity into policies across all governmental and private sector organizations. The NCD Directorate provides technical advice on evidence-based interventions and capacity building for promotion of physical activities. The NCD Directorate conducts a national communication campaigns to increase awareness and knowledge of the multiple benefits of physical activity and lifestyle behaviour change, and organizing public participation (free) events and/or health days/weeks. The Ministry of Sports is involved in creating awareness through

sports officers at district level and urban settings to build up a national sports culture. Institute of Sports and Exercise Medicine of the Ministry of Sports has developed the “Physical Activity and Sedentary Behaviour Guidelines for Sri Lanka” in 2018, and the MoH is using it for training Programmes. Promotion of Physical Activity in Primary Healthcare Facilitator Guide for Training of Trainers' Session was developed in 2020 by the Directorate of Non-Communicable Diseases and trainers were trained.

The MoH has issued a circular for banning the betel quid chewing and selling of the betel quid, tobacco and areca nut products in hospital premises and all other healthcare facilities under the circular number 01- 14/2018.

The MoH has issued a circular (01-42/2015) to reduce consumption of sugar and instructed to Government Institutes & Corporation when they conduct workshops, meetings and other functions, should serve tea, coffee, milk tea, without sugar and make a available a sugar pot with spoons for those who need sugar. It also instructed that a sticker should be pasted on the sugar pot as follows: "Let's consume less sugar to prevent Non-Communicable Diseases like Diabetes." Further, it is advised to select food items with less sugar, less fat & less salt as refreshments, and hotels, restaurants, work place canteens & eating places are also advised to serve plain tea, tea, coffee, milk tea without sugar as instructed above. The same circular highlighted the school canteens should advise not to sell high sugar, high salt & high fat food items. Further to that Guidelines on Introduction of Healthy Food Menus at official meetings (01-14/2016) and Introduction of Healthy Canteen in Workplace (01-17/2015), were issued.

The NCD unit of the MoH developed several treatment guidelines and has given training for necessary staff categories, together with relevant stakeholders. Those guidelines are namely: Management of Overweight and Obesity Guideline for Health Care Providers (2018), Management of Diabetes Mellitus Guideline for Primary Health Care Providers (2018), Management of Common Chronic Respiratory Diseases Guideline for Primary Health Care Providers (2020), Cardiovascular Risk Management (Total Cardiovascular Risk Assessment Approach) Guideline for Primary Health Care providers (2018), National Guideline for Management of Diabetes for Secondary and Tertiary Health Care Level (2021), National Guideline for Risk Assessment and Primary Prevention of Cardiovascular Diseases for Secondary and Tertiary Health Care level (2021), National Guideline for Management of Hypertension for Secondary and Tertiary Health Care Level (2021), National Guideline for Management of Dyslipidemia for Secondary and Tertiary Health Care Level (2021), National Guideline for Management of Dyslipidemia for Primary Health Care Providers (2021). In addition to that, National Guideline for Cardiovascular Risk Management (Total cardiovascular risk assessment approach) for Primary Health Care Providers (2022) and National Guideline for Management of Hypertension for Primary Health Care Providers(2022) were revised during 2022 due to economic crisis (No. NDC/29/2021 and dated 11/07/2022).

The Directorate of Non-communicable Diseases, Ministry of Health has developed frequency follow-up criteria for patients attending medical clinics at the Primary Care Level with the guidance of the Professional Colleges, aiming to reduce overcrowding at medical clinics and to improve health outcomes and client responsiveness. A strategy should be adopted to give appointments within a shorter time interval for patients who need early follow up and longer intervals for regular follow ups to reduce overcrowding.

During the COVID 19 epidemic, several new guidelines were issued to reduce overcrowding at hospitals, while ensuring continued care for people living with NCDs during the new normal situation following COVID 19. Those are: Frequency of follow up criteria for patients attending medical clinics in Primary Care Level, Referral criteria from primary Health Care to Secondary or Tertiary Health Care for NCD patients.
The NCD unit has conducted initial discussions with the MSD to introduce blister packaging for selected NCD medicines which need to be held for propolged durations due to being used for long-term treatment for prolonged durations held. Due to the high cost involved with blister packing, it was postponed, and

decided to provide suitable containers to patients to store the drugs instead, till the financial situation is favorable. The revised updated Essential NCD Medicine List (2022) was issued to manage NCDs at Primary Health Care Institutions (In accordance to the updated guidelines), during 2022 with the economic crisis.

Sri Lanka aims to achieve the following targets by 2025 from the baseline of 2010 :

1. A 25% relative reduction in premature mortality from cardiovascular disease, cancer, diabetes, or chronic respiratory diseases
2. A 10% relative reduction in the use of alcohol
3. A 10% relative reduction in prevalence of insufficient physical activity
4. A 30% relative reduction in mean population intake of salt/sodium
5. A 30% relative reduction in prevalence of current tobacco use in persons aged over 15 years
6. A 25% relative reduction in prevalence of raised blood pressure and/or contain the prevalence of raised blood pressure
7. Halt the rise in obesity and diabetes
8. A 50% of eligible people receive drug therapy and counseling (including glycaemic control) to prevent heart attacks and strokes
9. An 80% availability of affordable basic technologies and essential medicines including generics, required to treat major non-communicable diseases in both public and private facilities

   The WHO estimates an economic return of 7 United States dollars (US$) per person for every dollar spent on so-called “best buys” – evidence-based, highly cost–effective policy interventions which tackle non-communicable diseases.

Tobacco and alcohol prevention and control

Use of tobacco has become a well-documented worldwide health problem. Tobacco kills over 8 million people each year due to non-communicable diseases. Tobacco use is a risk factor for at least 20 cancer types and for other medical conditions, such as cerebrovascular disease, heart disease and chronic respiratory disease. Tobacco is the only legal drug that kills many of its users when used exactly as intended by manufacturers. Tobacco smoke contains approximately 4000 chemical substances, of which at least 438 can produce cancer. Both direct use of tobacco from active smoking and use of smokeless tobacco and exposure to second-hand smoke are harmful to health. Tobacco use increases the risk of cardiovascular disease, cancer, chronic respiratory disease, diabetes and premature death. It is documented that tobacco kills over 8 million people each year from its associated NCDs.

Tobacco use in all forms is responsible for about 30% of all cancer deaths in developed countries, and this percentage is rising steadily in developing countries, particularly in women. Tobacco is responsible for 80–90% of all lung cancer deaths, and probably some of the deaths from cancer of the oral cavity, larynx, oesophagus and stomach. As per the Global Adult Tobacco Survey (GATS) 2020, more than 7 million deaths are caused by direct tobacco use, while approximately 1.2 million are caused by non-smokers who have been exposed to second-hand smoke globally.The best approach to preventing tobacco-related cancer is preventing the use of tobacco.

The STEPS conducted in 2015, among 18-69 years old adults, reports that 45.7% of males and 5.3% of females in Sri Lanka were current users of some form of tobacco product. It records that nearly a quarter (25.8%) of 18-69-year-old adults consume tobacco in either the smoke or smokeless form. Among males 29.4% were current tobacco smokers and 26.4% were current smokeless tobacco users. Exposure to second-hand smoking (SHS) at home during the last 30 days was almost equal in both sexes, while SHS at the workplace during the last 30 days indicated a 25% increase among males compared to females. Overall, it showed that males had more exposure to tobacco in all the indicators related to tobacco in the STEPS survey (2015), compared to females.

The Global School-based Health Surveillance System survey (2016) done among 13 to 17-year-old students recorded that the prevalence of current use of any form of tobacco was 9.2%, with 3.5% being current tobacco smokers and 2.3% being smokeless tobacco users. A significant amount (42.3%) of students were exposed to second-hand smoke as either a parent or guardians were smokers. Tobacco-related premature mortality is estimated to cost a LKR 179.3 billion economic loss annually. In 2016, tobacco smoking costs and economic productivity losses due to tobacco use in Sri Lanka were estimated to be LKR 213.8 billion, equivalent to 1.6% of its Gross Domestic Product (GDP). In 2020, the global mean economic cost of 100 packs of manufactured cigarettes as a percentage of per capita GDP is 18.1%. In 2015, the direct and indirect costs of tobacco related diseases was estimated to be SLR 89.37 billion (USD 662 million), and the cost related to cancers was SLR 16.3 billion (USD 121.1). Oral cancer which is associated with tobacco chewing habits, is the commonest cancer among Sri Lankan males and was the major contributor to cancer costs. Tobacco is often mixed in a quid with betel, areca nut and lime, and retained in the mouth for long periods of time.

Oral Health Survey 2015 observed that smoking among males was higher than among females. It indicated that percentages of smoking among the 35-44-year male group and the 65-74-year male group as a habit were 30.9% and 34.6%, respectively, while in females, the same practice was 0.7% among the 35-44-year age group and 1.1% among the 65-74-year age group. Both surveys observed similar findings of higher smoking rates among males than among females.

The GATS survey was conducted by the NATA, with the support of the WHO, during the year 2020. The results showed that the prevalence of tobacco smoking among Sri Lankans has dropped to 9.1%.
The STEPS survey 2015, further revealed that the current alcohol consumption during the last 30 days was 33 times higher among males (34%) compared to females (<1%). The National Survey on Alcohol Consumption conducted in 2016 showed that the prevalence of current drinkers was 39.6% among males and 2.4% among females. It was noted that alcohol consumption has increased since the last national survey on alcohol consumption carried out in 2008 (male: 26%, female: 1.2%). The National Survey on Alcohol Consumption which was conducted in 2016 observed that alcohol consumption, among both male and female was slightly higher than in the STEPS Survey (2015). The female alcohol consumption showed around a 2% increase compared to the results of the STEPS survey (2015), but it accounted for <1% among female. The Oral Health Survey (2015), observed the consumption of alcohol to be higher among males than among females. It observed that the alcohol consumption as a habit among the 35–44-year male group and the 65-74-year male group were 51.7% and 43.4%, respectively, while females having the same practice were 1.5% among the 35-44-year age group and 1.8% among the 65-74-year age group. The results of all these surveys show that the consumption of alcohol is higher among males than among females.

A public opinion survey conducted by the Cessation & Prevention of Tobacco & Alcohol Subcommittee in 2021, noted that the general public understands the importance of the need to impose effective tobacco regulatory requirements. The result showed that 77.5% have claimed that they have observed indirect tobacco promotions through digital media, and 94.5% agree with banning tobacco sales within an area of 500 meters from schools in the Sri Lankan context. Including health messages in school textbooks was done and a circular was issued (20/2020) on making educational institutions free from tobacco and alcohol.

National policies, strategies an governance on tobacco prevention and control:

Tobacco is a risk factor for most of the non-communicable diseases, including the top ten cancers among both males and females in Sri Lanka. Governance on tobacco control in Sri Lanka has many governing structures to control tobacco products, and it applies to reduce exposure, reduce demand, reduce availability and implementations of laws and legislations.

The Sri Lankan government authority for tobacco and alcohol control is the National Authority on Tobacco and Alcohol (NATA). The NATA Act regulates all aspects of tobacco control in the country. In 2003, Sri Lanka ratified the WHO Framework Convention on Tobacco Control (FCTC) as the first country in the WHO South-East Asia Region and the fourth in the world. Sri Lanka gives high priority to tobacco control with the main objective to protect present and future generations from the devastating health, social, environmental and economic consequences of tobacco. Tobacco controlling laws and regulations were introduced under the NATA Act No. 27 of 2006, which was amended in 2015 as the National Authority on Tobacco and Alcohol Act (Amended) No.3 of 2015. Through the Act, tobacco free policies, health warnings, advertising bans and taxations were introduced.

In order to develop strategies in keeping with the government policies, NATA appointed seven subcommittees in 2019. They are: sub-committee on Amendments to the NATA Act, Comprehensive taxation formula for Tobacco & Alcohol, Cessation & Prevention of Tobacco & Alcohol Subcommittee, Smokeless Tobacco subcommittee, Introducing Alternative Crops for Tobacco Cultivation subcommittee, Enforcing and strengthening NATA media policy subcommittee, curriculum development on tobacco and alcohol prevention for the medical undergraduate subcommittee.

The subcommittee on smokeless tobacco was established under the National Authority on Tobacco and Alcohol (NATA) in August 2015. The aim was to formulate preventive policies to protect the health of the population from smokeless tobacco and monitor smokeless tobacco use. On the recommendations of the subcommittee, in September 2017 the Government issued a regulation that bans the import, marketing and sale of any type of smokeless tobacco product in the country.

Sri Lanka is committed to achieve the globally set targets by 2025, and the tobacco related targets, are: 25% reduction in premature mortality from non -communicable diseases and a 30% relative reduction in prevalence of current tobacco use in persons aged over 15 years. To achieve these targets, further prevention and control of tobacco strategies have been included under the several policies and national strategic documents, namely, Cancer and Non-Communicable Disease Prevention Strategic Plans which are mainly related to tobacco prevention and control. In addition to that, several units and directorates of the MoH are involved in health promotion activities relevant to tobacco and alcohol.

Measures to reduce demand for tobacco products

In keeping with government policies, several strategies were developed and implemented to reduce the demand for tobacco products. It includes price and tax measures of tobacco, protection from exposure to tobacco smoke, regulation of the contents of tobacco products, regulation of tobacco product disclosures, packaging and labelling of tobacco products, community empowerment, preventing ilicit trade in tobacco products, and prohibiting sales to under 21 year olds. The committee on curriculum development on tobacco and alcohol prevention for medical undergraduates successfully developed the curriculum on tobacco, alcohol and substance use prevention and presented the developed curriculum to the University Grants Commission (UGC).

The NATA has upgraded the 1948 Tobacco Quit Line service as a 24 x 7 toll-free and it helps tobacco and alcohol users get rid of those substances. Zip trunk was established to upgrade the service. Four members can answer the phone calls at one time, and after 4 .00 pm, two people can answer the phone calls. 1948 Quit line service is promoted through media (TV, Radio, social media). A total of 23 counselling trainees of the certificate course of counselling on cessation and prevention of tobacco and alcohol were recruited for on-call service after 4.00 pm. Five pre-intern medical officers of the University of Sri Jayewardhenepura were recruited for the 1948 Quit line service. The Second batch of the Certificate course of counselling on cessation and prevention of tobacco and alcohol was commenced on the 21st of January 2022. In addition to this, a Facebook page and YouTube channels were created for social media coverage.

Packaging and labelling of tobacco products and prohibition of promotion of alcohol and tobacco

The NATA Act covers the packaging and labelling of tobacco products, and it revealed that Sri Lanka implemented the pictorial warning of 80% in the total area of a packet, package or a carton on both sides of the cigarette packets through a Parliament Act in 2015. This was improved to include health messages and changed every six months. This helps to provide accurate information about the risk associated with tobacco use and help to reduce tobacco use by stimulating tobacco users.

Tobacco advertising, promotion and sponsorship of tobacco advertisement as, among others, any moving picture and/or audible message that promotes the purchase or use of a tobacco product, are prohibited under the NATA act and prohibits such advertisement in television and films. The law further prohibits tobacco industry sponsorship. TV channels were prohibited in screening smoking scenes in TV programmes after NATA became effective in 2006. The law is interpreted as banning paid placement of tobacco products on TV, films or other media. However, implementing the laws and monitoring was a challenge, especially the cigarette smoking scenes in films. Even though there is a censor board, it has failed to take action to remove such scenes in some instances. As a measure to mitigate this barrier, NATA was able to appoint a Board Member to the Censor Board. This has helped to control some actions before the film is released.

A Mass Media Policy was developed by NATA in partnership with the Ministry of Media to limit tobacco and alcohol scenes in traditional media, and it was implemented from 2021. All media channels were instructed to use the mosaic method if cigarette and alcohol content was included in programmes, including movies and tele dramas aired on television channels, and launched a mobile application called "Media Violation App". The success of these moves are yet to be seen.

Price and tax measures of Tobacco Tax

Sri Lanka imposes a tax on cigarettes, cigars, beedies, cigarette substitutes and pipe tobacco by the legislative support of the Tobacco Tax Act, No 8 of 1999, which was amended in 2004. According to the Act, the government can change excise tax several times per year. Tax system fluctuations took place on several occasions but not according to a formula. At the moment, a five- tiers specific excise tax system is used for cigarettes. This tax system is based on the length of the cigarette, where the cigarettes with the longest length have the highest taxation. The Nation-building Tax (NBT) of 2% of the wholesale price is levied on cigarettes. The Value-Added Tax (VAT) rate was 15% in 2002-2008.

The largest changes in cigarette taxation in Sri Lanka took place at the end of 2016. In October 2016, excise rates were increased by 26- 28% for two higher tiers, by 37-40% for two middle tiers, and by 67% for the lowest tier. From November 1, 2016, the VAT rate was increased to 15 percent, and cigarettes were again subjected to VAT and NBT. The main aim of this taxation is to make tobacco products less affordable to the community, and while the government makes a revenue, in parallel, it supports the cancer prevention and control, too. Although a tax system is available, the lack of a regular tax increasing system, and cigarettes are still affordable for the community. The new taxation model developed by NATA in 2021, with the support of University of Cape Town and WHO, was rejected by the Cabinet of Ministers. The NATA lobbied with the Hon: Minister of Finance on the introduction of a proper formula for tobacco products and the sub-committee developed a comprehensive tax formula adjusting for inflation and Gross Domestic Product.

Protection from exposure to tobacco smoke

There are a number of protection laws and policies available in Sri Lanka. The NATA Act further regulates exposure to secondhand smoking by prohibiting smoking in many enclosed public places, such as government departments, office premises, court houses, libraries, schools, universities, educational institutions, healthcare facilities and public transport. This reduces the direct exposure and indirect

secondhand exposure. However, it does not cover the open public places. In 2015, in keeping with government policies, NATA initiated a project to establish tobacco-free zones in each MOH area, with the support of the WHO. Anuradhapura, Mahamewna Uyana and Gal Viharaya in Polonnaruwa have been declared tobacco-free zones. During 2015-2019, these zones were established in 20 districts but, it was unable to reach the target of 253 due to the covid-19 pandemic.

The Smokeless Tobacco Subcommittee conducted several programmes to educate people on the harm of smokeless tobacco. Production of a video on oral health, population screening for oral cancer, introduction of an Ayurveda product and publishing a scientific magazine on smokeless tobacco were some of the initiatives taken by the NATA. A circular (01-14/2018) was issued by the Director General of Health Services on the banning of betel quid chewing and selling of betel quid, tobacco and areca nut products in hospital premises and other healthcare facilities.

Regulation of the contents of tobacco products

Sri Lanka prohibits misleading packaging and labeling of tobacco products, which includes phrases like “light” and “low” when describing tar and nicotine contents in tobacco products during manufacturing, importing, or selling smokeless tobacco products. This ban was extended to tobacco-containing e-cigarettes, and flavored, colored, or sweetened cigarettes. The NATA Act prohibits installation of tobacco products vending machines, free distribution of tobacco products, displaying tobacco products, tobacco advertisements and sponsorships and the use of trademarks of tobacco products on any article which is not a tobacco product.

The Alternative Crops for Tobacco Cultivation Subcommittee of NATA introduced alternative crops to tobacco farmers in 2021. The farmers accepted the idea and shifted to alternative crops. The result of this initiative was impressive, as 51% of farmers have stopped cultivating tobacco while 24% of farmers have reduced their tobacco cultivation, and 18% of land owners are planning to stop cultivating tobacco. Overall, 78% of the farmers have acted positively to reduce tobacco cultivation. The tobacco and alcohol industries are constantly taking steps to bypass the enforced provisions by the Act and increase their profits by increasing public consumption of their deadly products by using different strategies. One of the main strategies is funding false research and disseminating wrong and misleading information through so-called scientific papers. Apart from that, a vast group of research academics representing universities, government organizations, non-governmental organizations and civil organizations also research tobacco and alcohol-related aspects, and such results are contradictory to the false research. Accordingly, the NATA established an Ethics Review Committee (ERC-NATA) on 29th December 2021 to ensure the credibility and quality of research on tobacco and alcohol-related aspects and not to allow research to be conducted in line with the objectives of the tobacco and alcohol industries. The committee consists of 24 highly qualified members representing all domains related to tobacco and alcohol control. National Symposium on Tobacco and Alcohol Prevention (NSTAP) is organized by the NATA with the aims of enriching the literature in tobacco and alcohol-related research conducted in the Sri Lankan setting and creating a platform for Sri Lankan researchers who are interested in tobacco and alcohol control.

National Policies and strategies related to prevention of harmful use of alcohol

The adverse social and health related consequences and sequel of harmful use of alcohol are uncountable, and impacts not only the individual but the family, community and the country. Therefore, under the overarching guidance of the National Health Policy, the National Health Policy on Alcohol Control (NHPAC) was developed in 2012, giving due consideration to the obligations of the Government of Sri Lanka under the WHO Global Alcohol Policy initiative and the WHO Global Plan to reduce mortality due to NCDs by 25% by 2025, as stated in the Political Declaration of the High-Level Meeting of the UN General Assembly on Prevention and Control of Non-Communicable Diseases. There are several health sector plans which are supporting the NHPAC such as the National Policy framework and Action Plan for Prevention and

Control of NCDs, National Cancer Control Policy and the National Strategic Plan of Prevention and Control of Cancer in Sri Lanka, National Policy Framework and Action Plan for Prevention of Sexual and Gender Based Violence.

The strength of the National Health Policy on Alcohol Control is that it has identified several priority areas namely: marketing, pricing, trade and investment, availability and accessibility of alcohol products from any source, interventions to protect from consequences of alcohol use, drink driving, community actions, surveillance, monitoring & evaluation, and research, strengthen supportive services and rehabilitation, preventing alcohol industry interference and institutional arrangements and financing.

Another important policy which supports the NHPAC is the Sri Lanka National Policy for the Prevention and Control of Drug Abuse (2005) and legislations such as National Authority on Tobacco and Alcohol Act No 27 of NATA Act 2006, Excise Ordinance No 8 of 1912 Sri Lanka Police Ordinance (Amended in 1984).

The disease burden

Harmful use of alcohol is associated with a risk of developing health problems such as alcohol dependence, liver cirrhosis, cancers and injuries. Alcohol consumption has been identified as carcinogenic for the following cancer categories (International Agency for Research on Cancer, 2012): cancer of the mouth, nasopharynx, larynx, oesophagus, colon and rectum, liver, pancreas and female breast cancer. STEPS (2015) recorded that 39.6% males in the 18-69-year-old group and 2.4% females were current alcohol users. In 2015, the estimated cost related to treatment of alcohol related disease and lost earnings due to mortality and morbidity caused by hazardous use was SLR 119.7 billion (costs related to cancer was 9.8 billion and the cost related to NCDs were 109.9 billion). In 2016, the total alcohol consumption per capita (≥ 15 year olds) was 4.3 liters of pure alcohol.

The NCD Bureau guides the implementation of the interventions identified in the national strategic plan such as reducing alcohol through the social behavioral communication strategy, advocating for enforcement of the initiated pricing policies such as excise tax increases on alcoholic beverages, regulating commercial and public availability of alcohol and restricting or ban on alcohol advertising and promotions (Best Buys), and also for enforcing laws on sale of alcohol to minors and drink driving offences aligning with the Sri Lanka National Policy on Alcohol Control. The NCD Bureau, in keeping with the government policies which are reflected in several health sector policies, promotes partnerships with civil society organizations which are involved in prevention and control of harmful use of alcohol, specially to reach the school-aged and adult population to increase awareness through social media and health promotion at schools, youth clubs, youth camps and through social media.

National policies and strategies related to healthy living (address nutrition and physical activity)

The National Health Policy recognizes that nutrition and physical activity are vital for healthy living. These help ensure optimum growth and development, strength, energy and resistance to infections. Under the policy directions of the National Health Policy, the National Nutrition Policy, an the National Policy on Health of Young People, address the key areas on promoting rapid physical growth, maintaining nutrition and reducing micronutrient deficiencies which would help improve the health of young people in optimizing the Body Mass Index (BMI). Health related policies on NCDs and MCH have emphasized the need to reduce diseases such as cardio vascular disease, diabetes, stroke, osteoporosis, to name a few. The National MCH Policy has addressed the need for women to enter pregnancy with the recommended BMI level to prevent complications during pregnancy which have adverse health outcomes on the mother and child.

Physical inactivity among adults and school students was highlighted in several survey reports. According to the STEPS survey (2015), nearly 23% men and 38% women do not satisfy the WHO recommendations

for physical activity. A third of women and one fifth of men are overweight or obese. Only 17.5% of the adult population consume WHO recommended daily healthy food servings. Diets consisting of high carbohydrate, high sugar, salt and trans-fat and high quantities of processed food, and physical inactivity are associated with overweight and obesity. It was estimated that, in Sri Lanka, every year 52,000 years of healthy life are lost due to consumption of sugar sweetened beverages (SSB). Adult consumption of salt is two to three times higher than the recommended. The leading cause of death in Sri Lanka is ischemic heart diseases, and the immediate risk factor for cardiovascular disease is hypertension or increased blood pressure and salt intake is the number one risk factor for high blood pressure. High salt intake is associated with gastric cancers.

Consumption of unhealthy diet is the root cause of overweight and obesity which has an impact on health such as cardio-vascular disease including hypertensions and myocardial infarctions, diabetes, stroke and cancers. Several NCD risk factors among children are rising, and the STEPS 2015 has shown that one in four students (26.2%) reported drinking carbonated soft drinks one or more times a day and 21% of school children having admitted to consuming food from fast food outlets more than twice a week. Only 28% of students have engaged in physical activities at least 60 minutes on five or more days of the week. Nearly 38% spend more than three hours daily, attending to activities involving sitting down.

The National Salt Reduction Strategy 2018-2022 was developed to harmonize with the National Heath Policy. It has identified almost all the evidence based WHO recommended interventions. The overall aim is a 30% reduction in mean population intake of salt/sodium by 2025 from its baseline of 10.5g/day in 2012, which was determined by a national survey. The recommended intake for adult Sri Lankans is less than 8g per day. In Sri Lanka, universal salt iodization became mandatory in 1995 and has resulted in sustained control of iodine deficiency disorders over the past 15 years. Surveys during this period have consistently shown that over 95% of households were using salt with at least some iodine (>5 mg/kg).

Environment related risk factors

Environmental toxic elements (such as arsenic, copper, lead, cadmium and mercury) have a detrimental effect on health outcomes. High level of arsenic from contaminated drinking water and food has been linked to a wide range of cardiovascular and neoplastic conditions. Some air pollution sources including fumes and solid fuel may cause lung cancer. Exposure to carcinogens such as asbestos, diesel exhaust gases and ionizing and ultraviolet radiation in the living and working environment can increase the risk of cancer and NCDs. Similarly, indiscriminate use of agrochemicals in agriculture and discharge of toxic products from unregulated chemical industries may cause cancer and other non-communicable diseases such as chronic kidney disease. Data on these risk factors is sparse in Sri Lanka.

Challenges

There are a few challenges faced by the NCD programme. Since root causes of the NCDs are multi factorial, some are not modifiable (e.g. genetic factors) and some are difficult to change e.g. environment factors causing NCDs Further, majority of the root causes are related to non-health sector, and obtaining their support to address them has been a challenge. Inadequate priority for risk reduction through health promotion at the grass root level, inadequate integration of NCD services between Regional Directorate and Medical Officer of Health level, lack of human resources skilled in health promotion at the MOH level, inadequate scientific evidence on behavioural risk factors and feasible interventions, and scarcity of resources poor involvement of the private sector have been identified as challenges when implementing NCD prevention strategies. Poor coordination of the multi-sectoral response is a challenge.
Need of coordinated multi-sectoral approach has been identified as a key challenge in this programme and involvement of private sector partners and private public partnerships need to be strengthened further.

In addition to the above-mentioned areas of prevention, the Poison Center of the Ministry of Sri Lanka plays a major role in NCD activities. It provides up-to-date medical information on all kinds of poison, aspects of poisoning and on acute poisoning management in Sri Lanka. This unit provides a 24 hour service covering the whole island. This unit is manned by a consultant physician, two medical officers and two research officers. Provision of training of post graduate trainees in critical care medicine is also another main service catered by this center. Comprehensive information is available to the healthcare staff as well as the general public through their website. However, shortage of staff, lack of analytical laboratory facilities to carry out toxicological analysis, inadequate facilities to conduct outreach educational programms/services, ambiguity in the available poison management guidelines, unavailability of snake bite prevention programme and unavailability of surveillance for chronic poisoning e.g., lead poisoning ,have been identified as some of the main challenges.

Recommendations

1. An expert team should be appointed to carefully assess the STEP survey 2021 and provide recommendations to revise the health sector policies and strategies to achieve 2025 NCD targets based on the global targets. Most of the policies are comprehensive, but there are areas which need to be strengthened and focused to achieve the 2030 targets.

2. Country level yearly assessments should be done for the best buy programme.

3. As hospital mortality data is under-represented, it is important to discuss with the Registrar General to obtain the data to assess the mortality data on NCDs

4. Dash boards should be developed for the NCD data

5. Urgent implementation of primary health care reforms to reduce NCD morbidity and mortality

Recommendations relevant to Tobacco

1. Submit the new taxation module developed for tobacco to the Ministry of Finance.

2. The Amendment of the NATA Act to be made very precisely and submited for approval by the Parliament and subsequently publish a gazette with the necessary regulations.

3. The minimum age of sale, purchasing and promotion of tobacco products will be increased from 21 to 24 years, considering the fact that complete neurophysiological development of the human brain leads to rational thinking and decision making.

4. Advocacy with the Ministry of Agriculture to promote alternatives for tobacco cultivation.

5. An incentive to be given from the amount fined, to the authorized officer who files the lawsuit.

6. Implementation of law enforcement against those who breach the NATA Act, and increase public awareness.

7. Increase the penalty for breaching the law.

8. A permanent membership to be given for NATA in the censor board.

9. Prohibition of cross-border advertising in relation to tobacco and alcohol products and through the internet including social media, with the collaboration of relevant stakeholders.

Recommended Indicators

1. Age standardized prevalence of persons aged 18 – 69 years not currently using tobacco products (SGD)
2. Reduce annual cigarettes sales from 10% by the end of 2025.
3. Sustain the smoking prevalence rate less than 10% among the adults
4. Reduce tobacco prevalence rate less than 10% among the adolescents
5. Reduce smokeless tobacco prevalence rate from 10% by the 2025
6. Reduce per capita alcohol consumption from 10% by the 2025
7. Amend the NATA act to cover all the loopholes which have been identified by the 2025
8. Increase the number of tobacco free zones by the 100% by year 2025
9. Reduce tobacco cultivation (farmers/areas) from 50% by year 2025
10. Reduce Alcohol prevalence rate from 5% by the 2025 among the adults
11. Reduce Alcohol prevalence rate from 5% by the 2025 among the adolescents
12. Increase the number of legal actions by 10% by the year 2023

Sub strategy 1.16-: To improve the health status and reduce the dependency of the Elderly, Disabled, and Displaced

Sub strategy 3.4: To ensure healthy ageing with multisectoral collaboration

Sub strategy 3.6: To provide community-based comprehensive rehabilitative care for the people with disabilities to enable them to self–support their daily activities

Strategies 1.16, 3.4 and 3.6 are amalgamated.

Component 1- Elderly Care

Background

Population aging which involves an increasing portion of older persons in a population is a global phenomenon which results from a rapid demographic transition due to decreasing mortality and fertility and increasing life expectancy. Sri Lanka defines an older person as a person aged 60 years and above.

Over the years, Sri Lanka has witnessed socio-economic development which is accompanied by improvements in health indicators, from high fertility and high mortality to low fertility and low mortality. The resulting increase in longevity changes the age composition of the population over a long period (Ministry of Health., 2017). Sri Lanka is one of the world's fastest ageing countries and the rapid increase in the share of the elderly which has been happening since 1980's and is projected to happen much faster than in developed economies, and at a lower level of per capita income (ADB., 2019). Population aging is viewed as progress in achieving various social indicators.

According to the Sri Lanka Population and Housing Census (2012), the elderly population over 60 years of age living in Sri Lanka was 12.4%, the life expectancy at birth for males and females was 72 and 79 years, respectively. Women will be living seven years more than men, marking the feminization of aging. This figure will be doubled by the middle of the century, when one in four persons will be aged 60 or over. By 2030, 1 in 5 people in Sri Lanka will be above the age of 60 years. It is estimated that one quarter of the population (24.8%) is expected to be elderly by 2041 due to the rapid demographic transition. It translates to, one in every four people will be an elderly person, while the other countries in the South-Asia region will have lower rates (UNFPA., 2018).

Another observation is the increase in the oldest age category (80+ years, also called super old) compared to the lower old age categories. By 2050, the 80+ age will increase to account for 5% of the overall national population (Ministry of Health., 2017). The inevitable consequences of an aging population are

the challenges the individual, family and the government have to bear in provision of socio-economic support and healthcare.

In this scenario, a key characteristic of Sri Lanka's demographic population projection is that the age structure will gradually switch from a pyramid structure, typical of most developing economies, to a pillar shape (ADB., 2019). The shift in shape is the result of a rapid rise expected in the share of population over 60 years over the decades. There will be fewer younger people to support older people in Sri Lanka in the future.

The situation becomes more challenging due to changing lifestyle structures of moving from traditional extended family system to a nuclear system, lack of social support systems, and poor access to and availability of specific health services. One-third of older women in Sri Lanka are widowed,and among the others, most of them belong to vulnerable and marginalized groups such as plantation and urban poor sectors, bringing a sequence of implications as most older women are economically dependent, have low levels of literacy, and are less aware of their basic rights ((UNFPA., 2018).

There is a strong association between the increase in life expectancy and the concomitant increase of non-communicable diseases (NCDs) including cancer. Deaths due to NCDs in 2018 accounted for 83% of total deaths in Sri Lanka (AHB ., 2020). The Demographic and Health Survey 2016, observed that 52.8% of older men and 52.1% of older women were suffering from heart diseases, while diabetes mellitus was prevalent in 46.5% of the elders aged 60 years and above. Furthermore, 54.7%, and 48.7% of the elders were suffering from high blood pressure and high blood cholesterol, respectively . A recent analysis of cancer registry data has shown a high prevalence of several cancers in the above 70-year age group. Late presentation to health services due to the asymptomatic nature of some cancers should be handled cautiously when interpreting data.

The World Health Organization (WHO) reports that dementia has become the seventh leading cause of death worldwide. The incidence, prevalence, death and DALYs of dementia increase with age, and a significant increase was seen in the 70+ age group. This trend will continue in the future with the aging population (Li, X., Feng et. al., 2019). The prevalence of disabilities increases with age, and difficulties in seeing, hearing, and walking also increase sharply after the age of 70 years. The prevalence of deterioration in cognition also increases sharply after 70 years, while difficulties in self-care increase sharply after 80 years. Sri Lanka has put in place policies and programmes to face the demographic transition, with a rapidly ageing population, bearing in mind the socio-economic and health related challenges.

National policies, strategies and action plans

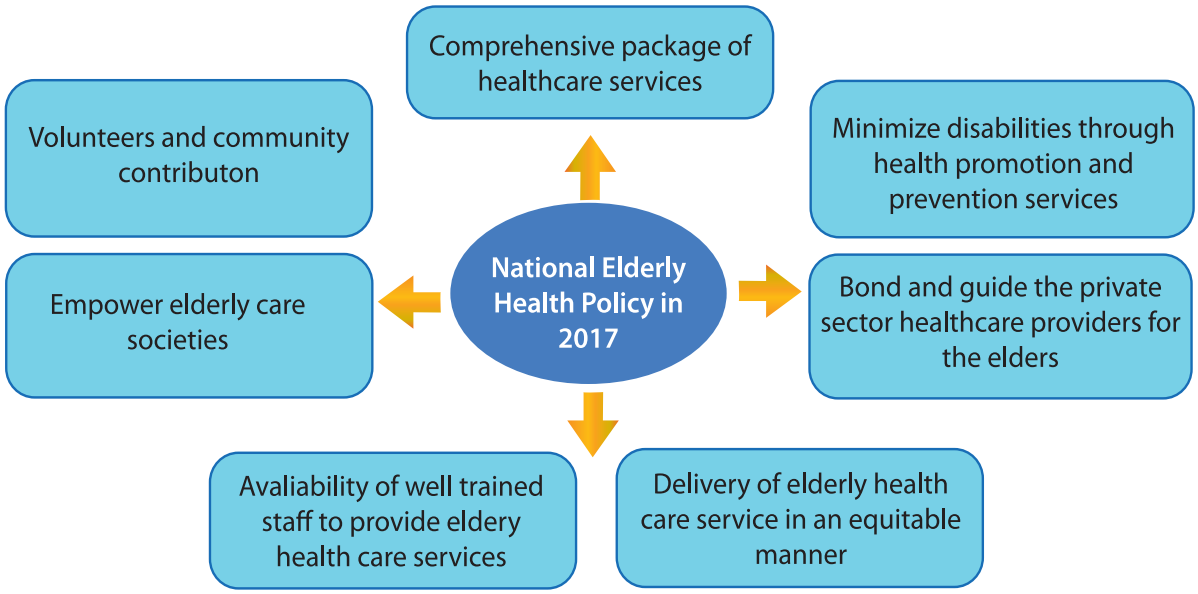
The Constitution of the Democratic Socialist Republic of Sri Lanka (1978) has unified the realization by all citizens of an adequate standard of living for themselves and families, including food, clothing and housing; the continuous improvement of living conditions and the full employment of leisure and social cultural opportunities. It also states that, equal fundamental human rights should be available for all and equal protection of the law should be given to all, without any discrimination. This includes the elderly population, as well.

The Protection of the Rights of Elders act, No. 9 of 2000 and the Protection of the Rights of Elders (Amendment) Act, No. 5 of 2011 are key rights based instruments which were introduced to ensure rights and welfare of elders. Following the Act, no: 9 of 2000, the National Council for Elders (NCE) was established, and the National Secretariat for Elders (NSE) was created to assist the NCE in discharging its activities. The Act ensures that the NCE and NSE recommend programms to support families, establish welfare centres, establish elders care centres, and day care centres. The National Policy for Senior Citizens of Sri Lanka was adopted by the Cabinet in 2006 which defines the rights and responsibilities of older persons in Sri Lanka. the National Charter for Senior Citizens was also adapted by the Parliament in 2006.

The National Elderly Health Policy was developed by the Directorate of Youth, Elderly and Disabled, Ministry of Health and was approved by the Cabinet of Ministers in 2017. The policy was developed in alignment with the National Policy for Elders in Sri Lanka and the National Health Policy of the Ministry of Health. The policy is founded on recognizing the demographic and epidemiological transitions, socio-economic consequences of inadequate care systems and developing the capacity of healthy aging and elderly healthcare services.

It has highlighted that the policy conforms to national development objectives of the country, and the policy directions given are: the availability of a comprehensive package of health services to be provided by trained staff, across the life-course, in an equitable manner to maintain optimal levels of health, and minimize ill health and disability. The strategy is to adopt a multisectoral approach with private-public partnership and engagement of NGO, volunteers and other community-based organizations in provision of care and ensure availability of trained human resources to provide quality preventive, curative, rehabilitation, palliative care, and long-term care, increase infrastructure and diagnostic facilities in public hospitals, and establish care homes and hospice facilities. The policy emphasizes the need for Long Term Care (LTC) and proposes that some underutilised healthcare facilities be converted to government-run LTC establishments.

The policy emphasizes critical areas such as reinforcing traditional care practices, reducing catastrophic health expenditure due to serious illnesses which will have an economic impact on the individual, their families and the country, integration of elderly care into the primary healthcare system, generation of data through a Health Information System, and for monitoring and evaluation of interventions and to inform policy development and programme management. Therefore, the policy recognizes the need to re-orientate the existing health system to facilitate care for the aging population.



Source: National Elderly Health Policy

Figure 102: Elaboration of the key areas covered by the National Elderly Health Policy 2019

The National Policy on Disability (2003) highlights the commitment of the Government of Sri Lanka to protect and promote the rights of people with disabilities (PWDs). Sri Lanka signed the International Convention on the Rights of Persons with Disabilities (CRPD) on 30th March 2007 and ratified the same on 8th February 2016.

The Population and Reproduction Policy (1998) and the National Maternal and Child Health Policy (2012) aretwo important policies of the Ministry of Health which have anchored care the for elders.

The Directorate of Youth, Elderly and Disability (YED) of the Ministry of Health, is the focal point for elderly health in Sri Lanka. The directorate is responsible to develop policies and programmes to promote the health of elderly and promote healthy ageing in partnership with multiple stakeholders and monitor and evaluate the interventions implemented. The Ministry of Health has established a Technical Advisory Committee (TAC) on elderly care to advise on policy, programme planning, strengthening multidisciplinary and multisectoral collaboration at all levels and monitoring and evaluation of the implementation process. The country's standard health system provides healthcare services for the elderly.

In par with the National Elderly Health Policy and Results Framework on Elderly Care of the Directorate of YED, a plan for "Elderly Care Delivery" and "Standards for Long Term Care Facilities for Elders Homes" were developed. The directorate has an overall coordination role since activities are carried out by several stakeholders. The Nutrition division, Directorate of Non-Communicable Diseases, Mental Health Unit, Health Promotion Bureau, Director Nursing Public Health, and the Policy and Planning Unit are some of the partners recognized within the Ministry of Health. Non-health sectors such as the National Secretariat for Elders, Ministry of Social Services and Non-Governmental Organizations provide their invaluable contribution in carrying out these activities.

Service delivery

In the Sri Lankan health services delivery system, there are no dedicated in-patient wards for elderly people. Like all other people, they have access to out-patient department (OPD) treatment and in-ward care in general wards. There is no dedicated public healthcare centre for elderly care. Even at the OPD level, there are no healthcare providers who are specifically trained to provide elderly care. The primary healthcare system strengthening which is on-going has addressed this issue to a certain extent in the context of appointing a Family Health Physician (FHP) to oversee service provision at the OPDs, and they are able to provide elderly care. The roles and responsibilities in respect of FHP should be clearly identified together with guidelines and protocols. The National Secretariat of Elders (NSE) under the National Council, together with the Ministry of Health and other experts, takes policy decisions on promotion of well-being among elders and healthy ageing. Elders' Rights Promotions Officers (ERPO) were appointed to the Divisional Secretariat office to promote the rights of the elders. Currently, 100 ERPOs provide services that are coordinated by the NSE, with a ratio of about 1: 25,000 or more older people. The uneven distribution of ERPOs across the country is a challenge to the provision of equitible services.

The circular issued in 2018 by the National Secretariat of Elders has approved a monthly payment of 2000/= rupees for the elders who are above 70 years of age with a low-income.Although state-funded and private centres, as well as social clubs, provide a variety of daytime and residential services that allow elders to socialize and remain active, there is still a significant unmet need for such services.Under the supervision of the National Secretariat of Elders, there are 349 Elder's Homes functioning throughout the country. Six of them are under government direct administration, and the rest are taken care by faith-based NGO operating institutions, and a small percentage are profit-based homes. However, there are some non-registered elderly care homes, and the National Elderly Secretariat has the power to take legal actions against non-registered elderly homes. Further, in collaboration with the YED, the National Elderly Secretariat has developed standards for the Elderly Care Homes, but there is no supervision by any higher authority.

Component 2- Disability Care

The Act on "Protection of the Rights of Persons with Disabilities" describe, the legal definition of disability in Sri Lanka as a "Person with Disability" means any person who, as a result of any deficiency in his physical or mental capabilities, whether congenital or not, is unable by himself to ensure for himself, wholly or partly, the necessities of life. This definition is a reasonably broad one, encompassing both medical and socio-economic aspects of disability, (National Policy on Disability in Sri Lanka, 2003).

As of the last Sri Lanka Population and Housing Census 2012, the number of Persons with Disabilities (PWDs) in Sri Lanka constituted 8.7% of the population. The census also observed that 60% of the oldest–old persons (80+ years) had experienced at least one disability while for the young-old and middle-old persons, the values were 25 percent and 43 percent, respectively. Nearly one third of the oldest-old persons had experienced three or more number of difficulties, reflecting the severity of disability prevalent among the oldest-old population. It is therefore, vital to address the implications of ageing for health and long-term care for the older population in Sri Lanka. Since majority of the older population had experienced difficulties in seeing, hearing, walking and difficulty related to cognition, considerable attention should be given to improve geriatric healthcare services. The Sri Lankan Survey (2014) on national blindness, visual impairment, ocular mobility and disability conducted by the Vision 2020 Secretariat of the Ministry of Health reported that the prevalence of disability is significantly higher in females than in males (especially among lower socioeconomic strata and in rural districts). Thirty years of war, non-communicable diseases and road traffic accidents are the main causative factors for the increased disability rate in Sri Lanka. Furthermore, increased awareness of the ground-level service providers has resulted in increased reporting of disabilities contributing to an increased disability rate.

The ability to perform Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) are tools frequently used to determine the need for care and support among the elderly. Unfortunately, Sri Lanka lacks nationally representative data on the frequency with which people require ADL and IADL assistance.

In addition to elderly care, the Directorate of Youth, Elderly and Disability (D/YED) of the Ministry of Health, coordinates national-level activities related to disability care and provides guidance for implementation of strategies and guidelines to promote healthcare facilities, promotes health service infrastructure facilities, and strengthen human resource for disability care & rehabilitation. In addition, the directorate is involved in advocacy and multisectoral coordination at all levels.
There are seven rehabilitation hospitals in Sri Lanka which provide a wide spectrum of rehabilitation services to PWDs. In addition, The National Secretariat for Persons with Disability provides several incentives and in-kind benefits to poor people living with disabilities, which include: a monthly financial support benefit; self-employment, housing, medical, education, and school material assistance; toolkits for self-employment; allowance for disabled vocational trainees; and assistive devices.

Strengths and achievements of the programme through multisectoral collaboration

Infrastructure development and capacity building of healthcare workforce in identified intermediate care centres in Colombo district and Nuwara-eliya districts were initiated, and the work is in progress. It will be expanded throughout the country based on the identified health institutions in the Elderly Care Delivery Plan. The Ministry of Health is in the process of establishing an intermediate care centre in the Athurugiriya hospital for elderly rehabilitation with voluntary community support, which will be able to provide physiotherapy and other paramedical services for rehabilitation.

Capacity building of formal and informal caregivers on community-based elderly care was conducted as several outreach sessions in selected districts. The concept of integrated care for older persons was adapted from the WHO South East Asia Region (SEARO) and is currently being implemented at the primary healthcare level in the Western and Southern Provinces. Integrated care clinics for the elderly were established initially at pilot sites, Maligawatte and Athurigiriya, and will be expanded to the other areas of the country.

Based on the related sub-strategies of the National Health Policy, the following disability-related activities were conducted. In order to provide quality care, National guidelines for rehabilitation services in Sri Lanka were developed and implemented by the Directorate of Youth, Elderly and Disabled persons.

A national surveillance system on disability & rehabilitation is established to monitor & evaluate disability-related activities at national & provincial level. A guideline: "Considerations on Accessibility for Persons with Disabilities" was developed by the directorate of YED in year 2013, in collaboration with non-governmental organizations, donor agencies and the Disability Secretariat to reduce the dependency of disabled people. This guideline provides the technical specifications in developing structures with emphasis on accessibility for disabled persons. However, there is slow progress in implementing structural changes to improve accessibility for disabled individuals. The Sri Lanka Medical Association has installed a mechanical device for easy access for people with disabilities.

Disability rehabilitation and physiotherapy are included in the Essential Service Care Package developed for disability care in primary healthcare settings at the level of divisional and apex hospitals. Prioritised assistive products list for Sri Lanka was developed. Disability friendly wash basins were provided to all Base and above hospitals with the collaboration of World Health Organization during the pandemic situation. Community-Based Rehabilitation targeting both elderly and persons with disabilities are incorporated in to the service delivery at primary health care level.

Challenges

The National Elders Health Policy is comprehensive but implementation and monitoring and evaluation is a challenge. However, the policy needs to be revised taking into consideration the current country profile of elders including recent survey findings of e.g. STEPS (2021) and the Women's Wellbeing Survey (2019) and regional best practices. The policy should include the impact of climate change on elders and provision of care in humanitarian conditions.

The MoH has an enormous task in re-orientating the health system to accommodate the challenges faced by the emerging disease profiles of the elderly, their health and other health related needs including socio-economic necessities. The MoH has to work very closely with several other ministries and the coordinator of the Directorate of YED should have supporting staff for effective coordination. Obtaining the commitments of high officials of other non-health sector is a challenge. Reaching to childless elders, elders who are disabled, elders living alone, widowed elders, elders in marginalized groups, elders taking care of disabled children or other family members need better strategies. In the absence of adequate data, the Directorate of YED face difficulties in prioritizing interventions. A programme evaluation is needed to critically review the needs and the mechanisms to fulfil such needs. Integration of elderly and disability care to the primary healthcare system should be studied well to identify the strengths and weaknesses as it's the best opportunity to scale up services. Unlike, services provided for maternal care, there is no specific structure like the medical officer of health (MOH) or public health midwife (PHM) who is the first contact point in health services to facilitate access to basic care.

Recommendations

Strategic

1. A comprehensive programme evaluation should be done by an external expert. While identifying strengths which need amplification, the weakness and gaps should be identified, and recommendations made based on the gathered evidence to update the current policy and revise the National Strategic Plan for Healthcare of Elders and People with disabilities should be developed with a robust monitoring and evaluation plan. Similarly develop a Strategic plan for the long-term care (LTC). Evidence from the aanalysis of STEPS 2021 data for 55-60 and 60-69 year olds (the target group was 18-69 years) should be used for policy changes and programme improvement. The NSP should be costed and a public financing model for LTC should be developed and incorporated into the costed NSP.

2. The Ministry of Health should seek funds from international donors to fund the costed national strategic plan.

3. The National Technical Advisory Committee should be restructured with a strong TOR and have representatives who have the knowledge on the subject. The committee should ensure policy implementation and interventions of the NSP and report to the National Committee for care of Elders (described below).

4. The coordinator of the Directorate of YED should have a TOR and should be provided with a workforce.

5. A National Committee for care of Elders should be established at the President's Secretariat or Prime Minister's office to review policies, programme implementation and monitoring and evaluation of selected indicators of the results based framework.

6. High level discussions should be initiated to create an insurance scheme for elders.

7. High level discussions should be initiated under the auspices of H.E. the President to float the concept of "Elders Village" like in developed countries as a Board of Investment (BOI) project with tax relaxations.

8. The Government of Sri Lanka should strongly adopt policies to increase female participation in the labour force by removing barriers like violence and sexual harassment in workplace, lack of child care facilities in workplaces, long working hours and improve decent employment and decent workplace environment as a mechanism for women to increase their income as a mechanism to increase savings for active ageing.

Programmatic

1. Sectoral plans should be developed based on the NSP and focal points for the respective sectors should be identified.

2. Relevant health staff and the relevant staff in the respective non-health ministries, NGO/CBO and volunteers should be trained to perform the interventions identified in the NSP for the respective sectors to provide overall care for the elderly and PWD.

3. The Elder's Homes should be registered at the National Elder's Secretariat and the guidelines that were developed should be shared with them and the implementation should be monitored. Spot checks should be done as a monitoring measure.

4. A training module should be developed for LTC and capacity building training should be organised by the MoH, to be implemented by the vocational training authority and social services department with NVQ standards for identified different level groups.

5. Online free structured courses should be started by the MoH to provide knowledge for home-based care, as the majority of elderly care is provided by family caregivers, and domestic helpers. The Directorate of YED should collaborate with the National Cancer Control Programme, Association of Palliative Care, and the College of Psychiatrists in this endeavour.

6. Encourage public-private partnerships to establish Elders Care Homes, and Rehabilitation Centres and Hospice care.

7. Workplace programmes proposed by Directorate of NCD and other directorates should include healthy ageing and encourage young people to make investments and prepare for old age.

8. Draw a plan with Standard Operating Procedures to establish elderly-friendly wards and OPD health clinics and implement it in selected provinces and scale up to cover the whole country.
9. Integration of elderly care and disability care to the primary healthcare system should be strengthened and monitored. As an initiation, Elderly Health Clinics should be established according to the SOPs (above recommendation) in the "apex" hospitals.
10. A dedicated centre of excellence for geriatric care should be established.
11. A database for elders and people with disability should be developed at the divisional secretariat level and linked to the MOH office, so that healthcare needs could be addressed. Use the database to synthesize information on people who need financial support and healthcare support and ensure such needs are fulfilled.
12. Job descriptions for Elderly Rights Promotion Officers (ERPO) and the social services officers should be formulated, and their work should be monitored.
13. Explore the possibilities of introducing income generation programmes for elders and special bank savings schemes.
14. The impact of the COVID-19 pandemic on elders should be analysed and to be studied. Although the COVID-19 related mortality was highest among the elderly population, a comprehensive analysis of data has not been done.

Suggested Impact indicators - Elderly Care (Rehabilitation)

1. Healthy life expectancy
2. Disability rate among age > 60 years
3. Mortality rate of above 70 age categories due to Acute Myocardial Infarction

Sub strategy 1.17-: To improve the health status of Youth & Adolescents through special programmes on risk behavior

Sri Lankan youth (10-24-year age group) comprises one-fourth (4.7 million) of the total population of 21.4 million in Sri Lanka. Adolescents, 10–19-year group, accounts for 16% of the population. Out of adolescents, 71% are school going and 29% are non-school going. Youth identified as 15–24 the year group consists of 16% of the population. Adolescent and youth are considered as an apparently healthy group. Yet, it is a time period where they undergo rapid emotional, physical and intellectual transition from childhood to adolescence and to independent adulthood. Though they get physical maturation by early 10-16 years, maturation of the brain continues up to mid-twenties. They like to experiment new things, yet they are unable to perceive the consequences.

Despite adolescents and youth appearing to be apparently healthy, when considering latest compiled data of The Registrar General's Department, there is an adolescent mortality of 45 per 100 000 population, and the youth mortality of 75 per 100 000 population and leading cause of death was external causes. External causes accounted for 7.7 per 100 000 population, congenital anomalies & deformities, for 3.5 per 100 000 population. The main problem of morbidity is due to injury, poisoning and other external causes. Investing in young people is considered a high priority for developing a strong foundation for the future and it has higher benefit-cost ratios. Investing for young people brings a triple dividend effect. It includes reducing death and disability, promoting health and productivity across the life-course and providing the best possible start to life, and many governmental and non-governmental organizations carry out different level programmes by investing in youth programmes to reduce risk behaviors.

Policies and laws for youth health and development

The youth health programme is governed by the National Youth Policy 2014. The interventions in the policy have focused on reviewing and improving school health programmes and expanding and strengthening physical, mental, sexual, and reproductive health education in schools. This policy has also pointed out the importance of continuation of these services as appropriate to the higher education sector, which includes universities, technical and vocational training institutes. The National Policy and Strategy on Health of the Young Persons 2015 was developed by the Ministry of Health. Further to that, the Population and Reproductive Health Policy 1998, and a National Policy on Maternal and Child Health 2012 are complementing this, under which a further array of specific strategic plans for all programmatic areas, namely, The National Strategic Plan on Adolescent and Youth Health 2018 -2025, National Strategic Plan on Child Health 2018–2025 and, the were developed. In addition to that, the government has committed to achieving the universal health coverage according to the sustainable development goals with a vision of 'leaving no one behind', by making efforts to ensure equity in service distribution including the vulnerable youth.

Sri Lanka was able to develop a National Youth Policy in the year 2014, with the vision of 'developing young people to enable their active participation in national development for a just and equitable society'. Further to that, The MoH developed The National Policy and Strategic plan on Health of Young Persons which addresses promotion of psychosocial and mental wellbeing, nutrition and physical fitness, access to sexual and reproductive services, preventing of accidents and substance abuse, research, monitoring and services addressing special needs of young people. The youth health is further complemented by the Population and Reproductive Health Policy 1998. There are other sub-national policies which complement youth health directly and indirectly.

Laws needs to balance autonomy and protection of these groups. The country has allowed the minimum age of sexual consent to be 16 year by considering the evolution capacity of young people. The minimum age of marriage is 18 years which doesn't allow child marriages except among Muslims. Laws do not prevent access of SRH services by young people. But the society has an impression that there is a barrier. Sri Lanka has laws against rape, and sexual and domestic violence. But, there is no legal provision against marital rape. This affects the lives of young married girls who don't have autonomic capacity over their bodies.

The Children and Young Persons Ordinance protects the rights of young people who are victims of an offence. But young offenders who are at the prison correctional institute should stay for a full 3 years irrespective of their offense. There are no structured health programmes including SRH or psychological support available for young people who are in the prison correctional institute, other than HIV prevention services. Same goes for orphaned children. The authorities need to pay urgent attention to this. All these documents address and support the social and economic development of Sri Lanka by achieving the highest attainable health status through promotive, preventive, curative and rehabilitative services of high quality made available and accessible to people of Sri Lanka including young people.

Health care response to youth health needs

The burden and the determinants of important health issues among adolescent and youth population includes unhealthy behaviors: sexual and reproductive health issues, mental health issues, addiction, unhealthy food, and health care access for vulnerable youth due to social and cultural barriers.
The MoH has recognized the Family Health Bureau as the Focal point for Youth Health in Sri Lanka, and the Adolescent and Youth Health programme was incorporated into the programmes at The Family Health Bureau in the year 2015. The youth health services are delivered through the public health system to the grassroot level. A national level assessment among youth indicated that adolescents prefer to reach specialized centers with recreational facilities or MOHs for their health issues, rather than seeking

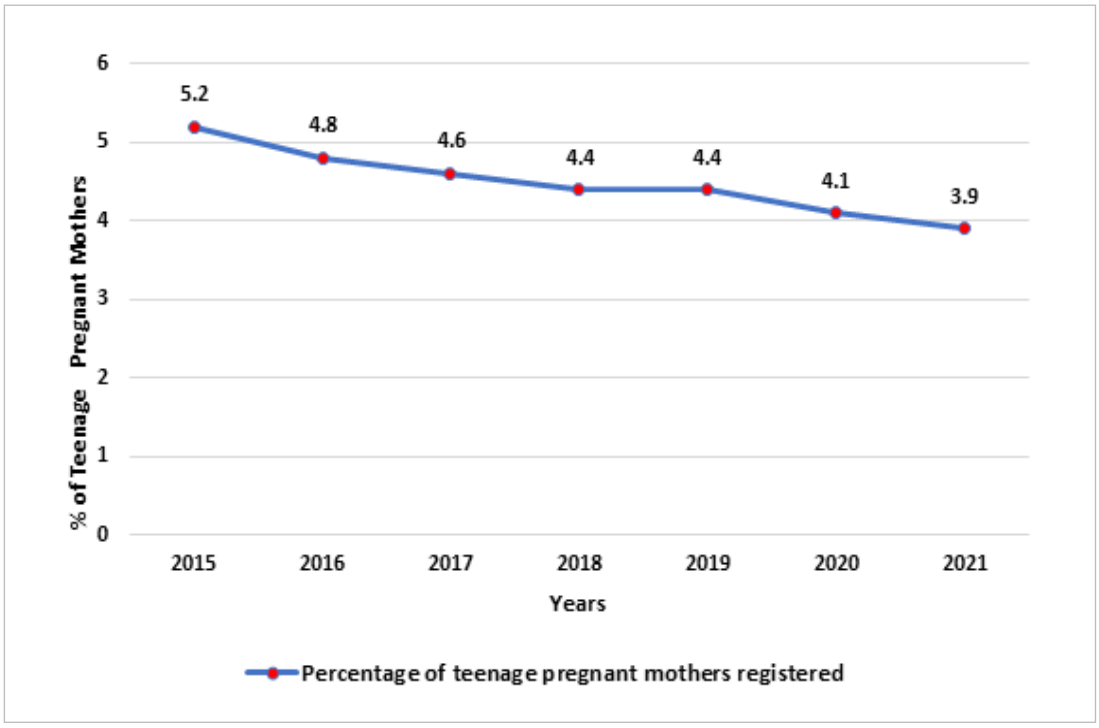
services from centers at hospitalsn A separate health programme of adolescent and youth friendly health services (AYFHS) in Sri Lanka was established in the year 2005. Currently, The Strategic Plan on Adolescent and Youth Health 2018-2025 is guiding the national youth health activities. The Technical Advisory Committee chaired by The Director General of Health Services provides technical guidance for the AYFHS programme and represents the youth participation.

However, due to constraints in funding and other logistics, there is a difficulty in establishing specialized AYFHS centers with recreational facilities away from healthcare facilities. Currently, Adolescent and Youth friendly health services in Sri Lanka are being carried out in 35 hospital-based AYFHS centers across the island, while all MOHs are supposed to conduct at least one AYFHS clinic per month. AYFHS centers and clinics were rebranded as "Yowun Piyasa" centers in 2016. The field health component of AYFHS is carried out by the MOH and the team. The Public Health Midwife provides AYFHS at domiciliary level by visiting eligible families where adolescents are registered. They assess these adolescents for risk factors and health concerns and provide necessary health services or do the referrals. Public Health Inspectors are conducting health promotion at youth training centers and workplaces. The Adolescent Health Module including the SRH component is incooperated into the curriculum of youth vocational trainees, and Youth Cope and teaching instructors are trained by the MoH on teaching the adolescent health module. Youth consultations and empowerment are happening at The national level.

The Family Health Bureau has developed several documents and guides to improve the quality of youth health programmes during the last few years. They are: Tools for Assessing the Standards and the Coverage of Quality Health Services for Adolescents and Youths in Sri Lanka-2018, Protocol for Yowun Piyasa: Adolescent & Youth-friendly Health Service Center-2018, Standards for Quality Health Services for Adolescents Youth in Sri Lanka-2018, and Supervisory Quality Checklist on adolescent and youth healthcare services. Further to that, the MoH has issued a circular on raising the age limit for provision of pediatric care up to 14 years (Circular Number 02-93/2014) for provision of more quality health services by identifying the need. The Ministry of Health has recognized barriers when providing SRH services for adolescents due to misunderstanding of law enforcement officers. After obtaining the clearance of the Attorney General, the Ministry of Health has issued circulars that direct to deliver SRH services, including contraceptive and HIV testing, for those who are below the age of 18 even without the permission of their legal guardians, considering the best interest of the adolescent (01-25/2015). Another circular has been issued that medical officers do not have a legal duty to report teenage pregnancies under 16 years (02-29/2011). Even despite training, problems arise from time to time due to the negative attitudes of some law enforcement officers, and it has decreased the with continuous training. interactive "Yowun Piyasa" website and the facebook with youth involvement have been developed by the FHB. In addition to that, the school curriculum includes life skill-based education and gap the have been identified, especially in the SRH component. The Youth Council and youth Corps carry out a lot of life skill-based programmes including the risk reduction programmes and these contribute for health of young people.

Sexual and reproductive health for young persons:

According to the national statistics in 2021, the percentage of teenage pregnancies was 3.9%. The DHS 2016 reported that the age-specific fertility rate was 30 per 1000 women of 15-19 years. More importantly, the prevalence of contraceptive use among currently married females in the 15-19 age group was reported as 43.5% (national figure for all age groups – 64.6%) and the percentage of currently married in the females in 15-19 age group with unmet need for family planning was 21.4% (national figure for all age groups – 7.5%). The differences in the values between the adolescent age group and the national figure clearly highlight the necessity of addressing sexual and reproductive health needs of the adolescents. The report submitted to the Minister of Justice by The Salim Musruf committee (2018) indicated that many Muslim child marriages below 18 years are reported in the Eastern and Western provinces, and it has recommended to change the existing Muslim Marriage law.



Source : FHB Data

Figure: 103: Percentage of teenage pregnant mothers registered from 2015 - 2021

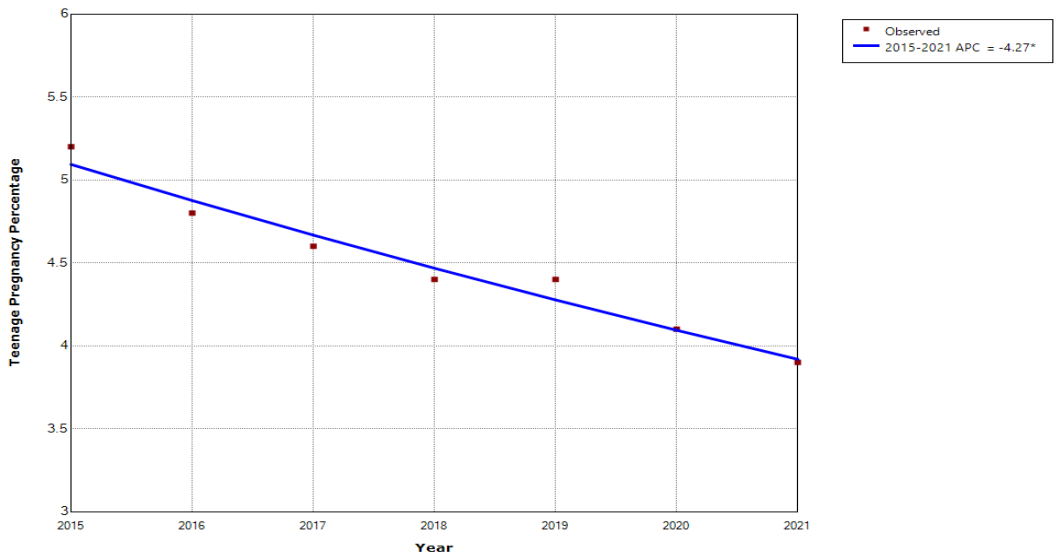


Figure 104: Trendline of the teenage pregnancy percentage from 2015-2021

The regression trend analysis shows a statistically significant decrease with a -4.27 annual percentage change of percentage of teenage pregnancies from 2015 to 2021 in Sri Lanka. the adolescent fertility rate has remained static over the period of 1975-2016, with the figures of 31 and 30 per 1,000 women of 15-19 years respectively, in 1975 and 2016. The median age at first marriage among women age 25-49 is 23.7 years.

Findings of the second Global School-Based Student Health Survey (GSHS) 2016, revealed that 77.0% of school children aged 13-17 years have ever heard about HIV/AIDS, and 67.1% have reported that they were taught about HIV/AIDS in the school. Furthermore, the National Youth Health Survey (NYHS) 2012/2013 revealed that the sexual and reproductive health related knowledge among 15-24 years age group was not satisfactory, as approximately 50% were unaware about most aspects of basic physiology and common sexual and reproductive health issues, and only 45% had heard of the emergency

contraceptive pills.In summary, these statistics highlight the need for having comprehensive sexual and reproductive health education in the country.

Abortions are a criminal offence under the Sri Lankan penal code except for therapeutic reasons. Therefore, the majority of female youth are exposed to unqualified private facilities where youth are put into life-threatening situations. Socio-cultural reasons and legal age of marriage direct them to illegal abortions. The Sri Lanka National Human Development Report 2014: Youth and Development, further revealed that half of the youth didn't know about contraception. Out of those who were aware of contraceptive methods, 73% knew about condoms, which indicated the vulnerability of youth for HIV/STI infection. Sexual education in the school is taught only for the Bioscience stream students, and none of the students from the other streams get the knowledge on sexual education at school. This evidence showed that youth are vulnerable to sexual and reproductive health challenges.

Gender stereotypes also interfere with the judgment of health workers, families and teachers concerning the sexual, reproductive and mental health among youth whose sexual orientation remains uncertain, and this ends up in early school dropout. These transgender youth tend to engage in illegal activities for day-to-day living and end up in prisons where discrimination, sexual coercion, exploitation and abuse are more common for transgender people. Educated youth are empowered in decision-making. The Sri Lanka National Human Development Report 2014: Youth and Development showed that 75.1 % and 80.2 % of Sri Lankan youth respectively, had taken their life decisions on education and employment by their own. The Mental health: The GSHS 2016 revealed that approximately 10% of 13–17-year-old students had reported suicidal ideation within the past 12 months, and alarmingly, 6.8% had reported attempting suicide in one or more times during the period. It is noteworthy to observe that there was no significant difference between male and female students in relation to suicidal ideation and attempts. According to the NYHS 2012/2013, 6.4% of 15–24-year-olds had seriously thought about committing suicide during the preceding 12 months, 4.0% had made plans and only 3.0% sought some help. Furthermore, the GSHS 2016 revealed that 38.5% of 13–17-year-old students were bullied on one or more days in the past 30 days. A significantly higher proportion of boys (48.6%) have reported being bullied than girls (28.7%).

Even though not conducted among nationally representative samples, recent school-based studies revealed a high prevalence of burnout, depression, anxiety and academic stress among late adolescents.

Nutrition, diet and physical activity

The National nutrition and micronutrient survey conducted among a sample of adolescents in the 10-18 yers age group in 2012 showed that 17.3% were stunted, 25.1% were thin, 4.6% were overweight and 1.4% were obese. However, a comprehensive nutrition survey among school going children and adolescents of 10-18 age group conducted in 2017 by the Medical Research Institute revealed that 26.9% were thin, 13.5% were stunted, 7.6% were overweight, 2.2% were obese and 8.2% were anaemic. According to the GSHS 2016, only 15.5% of students in the 13-17 years age group were physically active at least for 60 minutes a day on all seven days during the preceding week of the survey. Only 41.5% of the students attended physical education classes on three or more days each week during the school year. However, 37.3% have spent three or more hours per day watching television, playing computer games, or talking with friends, when not in school or doing homework during a usual day. According to the NYHS 2012-2013, nearly 50% of males and 75% of females of 15-24 years age group had sedentary lifestyles.

In the GSHS 2016, the percentage of students who usually consumed carbonated soft drinks one or more times per day during the 30 days before the survey was 26.2%. According to the NYHS 2012-2013, within the preceding week, 44% of the 15-24 years age group reported to have consumed carbonated drinks, and 20% had taken precooked food such as sausages and meatballs. This evidence generated based on nationally representative samples of adolescents calls for urgent actions to promote healthy behaviours in this vulnerable age group.

Tobacco, alcohol and substance use: According to the GSHS 2016, 15.3% of males and 3.1% of females among the students in the 13-17 age group, currently used some tobacco product (used any tobacco products on at least one day during the 30 days before the survey). Furthermore, 5.5 % of male and 1.0% of female students currently consumed alcohol (at least one drink of alcohol during the 30 days before the survey), while 4.6% of male and 0.8% of female students had ever used marijuana one or more times during their life. Similarly, the NYHS 2012/2013 reported the percentage of current smoking as 17.6% for males and 0.7% for females in 15-24 age group. It was interesting to note that, significantly more non-schooling males (23.9%) had smoked during the preceding week compared to schooling males (4.3%). In a similar vein, significantly more non-schooling males reported alcohol ever use (43.4%), as well as current use (13.8%), compared to schooling males (17.0% and 2.6%). Furthermore, a significantly higher fraction of rural youth reported of ever use and current use of alcohol. Current tobacco use within thirty days was 3.7% among 13-15 years old Sri Lankan adolescents according to the global youth tobacco survey (GYTS).

Substance abuse is a significant factor that affects all individuals and social systems. Irrespective of age, it impairs mental abilities and the physical skills of youth and enhances the long-run risk of developing cancers, lung diseases, ulcers, heart disease and liver diseases. Further, this contributes to accidents, suicides, violence, sexual abuse and poverty among youth. Peer pressure and stress can also result in substance abuse in youth, evidenced by the first use of a cigarette, or use of alcohol taking place during adolescence due to pressure from peers. Some youth continue to use them from then onwards. The STEPS survey carried out in 2015 shows the magnitude of the tobacco problem, where it is mentioned that nearly 45.7% of males of 15-69 years consume tobacco in either smoke or smokeless form. The Global Youth Tobacco Survey (GYTS), a cross sectional, nationally representative school-based survey of students of ages 13 to 15 years, recorded the prevalence of current use of any form of tobacco to be 3.7%, with 1.7% being current tobacco smokers and 2.4% being smokeless tobacco users in Sri Lanka.

Violence and injury: According to the morality data from the Registrar General's Department, the leading cause of morbidity and mortality among 10-24 years age group is external causes. Further, intentional self-harm accounted for the majority of deaths due to external causes among 15-19 years age group, and transport accident were the second prominent cause accounting for deaths due to external causes in this age group,

According to the GSHS 2016, 43.8% of 13-17 years age group students were engaged in a physical fight one or more times during the 12 months before the survey and 35.6% of students were seriously injured during that time period. A significantly higher proportion of males (43.5%) had been physically attacked, compared to females (26.5%).

The findings of the NYHS 2012/2013 had revealed that significantly more females in 15-24 years age group reported unpleasant experiences with gender-based harassment in public places, predominantly among the urban and rural strata and among the non-schooling group.

Care for differently abled Youth

Young people with special needs face challenges and their knowledge on health, accessing of healthcare services & health communication is minimum, and no sign language interpreters are there at the hospital setup except at the court level judicial system. At present, Sri Lankan youth are contributing more to national development compared to the regional countries, aided by national strategies. However, certain areas need improvements including health. Further, several challenges have emerged highlighting the urgent need for such improvements, including public health challenges. Though many services related to health and social services are made accessible and available to youth, services are not friendly due to cultural norms and societal attitudes of some communities. Overcoming these challenges will need the

provision of services in a youth-friendly manner, including recourses for preventing teenage pregnancy, contraception, HIV/STI prevention, testing for STI, counseling, treatment and care. The need for age-appropriate comprehensive sexual education in the school setup is highly important to overcome these negative cultural norms.

Recommendations

1. Conduct the National Youth Health Survey periodically to obtain latest evidence and trends on youth Health.

2. National level data should be analyzed for the youth separately from the existing available data ,and dissemination for evidence into practice.

3. Strengthen the terms of reference of the National Advisory Committee

4. Strengthen and expand the youth friendly health services covering all aspects of health needs of the adolescents and youth in the country.

5. Development of special programmes for vulnerable youth (such as prisons, orphanages and universities)

6. Strengthen the health services, including school mental health services, to promptly address emerging mental and psychological health needs of Sri Lankan adolescents and external review of the programmes in place to see how psychosocial support can be best strengthened.

7. Education reforms from the preschool level and throughout school that build competency for the child to self-assess risk and know how to mitigate.

8. Prevention of violence and injury among Sri Lankan adolescents, needs to be considered as a priority intervention, while addressing the variations in different adolescent groups.

9. Innovative strategies need to be developed to address different vulnerable adolescent groups, in order to prevent tobacco, alcohol and substance use in Sri Lanka

Sub strategy 1.18-: To ensure good health and safety of the working population through occupational health services

A healthy workforce is the biggest asset a country can have, and Sri Lanka is no exception. The Ministry of Health provides health services free of charge to all citizens of Sri Lanka, leaving no one behind. Occupational health addresses the physical, mental and social wellbeing of a person in relation to his or her occupation. In this context, occupational health or workers' health has been identified as a priority area in the National Health Policy of the Ministry of Health. The National Policy on Occupational Safety and Health formulated by the Ministry of Labour with relevant stakeholders in 2014, too, has identified the Ministry of Health as a key stakeholder in the provision of occupational health services in Sri Lanka. The Ministry of Health is bound to provide health services to all workers in all occupations in the formal and informal sectors in Sri Lanka. The aim of the National Occupational Health Programme is to build a healthy workforce contributing to increased productivity, economic growth and eventually sustainable development of this country. Provision of occupational health services by the Ministry of Health, is aimed at creating a win-win situation for workers, employers and the government. Therefore, promotion

of the highest degree of health, empowering them to lead healthy lifestyles, preventing adverse health outcomes due to work hazards, protecting workers from work related health risks and provision of services to improve the overall health, and safety of workers, becomes very important. Provision of curative and rehabilitative healthcare services to workers, with occupational injuries and diseases, too, is an important component of the programme.

The National Occupational Health Programme of the Ministry of Health has three main components. Namely: 1. Preventive and Promotive health services, 2.Curative health services and 3.Rehabilitative health services

The objectives of the National Occupational Health and Safety Programme are

- To promote and maintain the highest degree of health among workers in all occupations.
- To prevent adverse health outcomes caused by the working environment and work conditions
- To protect workers in their employment from work risks
- To adapt the work environment to workers
- To improve health and wellbeing of workers
- To provide curative services for workers with occupational injuries and diseases
- To provide rehabilitative health services for workers needing rehabilitation due to work related injuries and diseases.
- To establish a monitoring and evaluation mechanism to assess the effectiveness of the National Occupational Health and Safety Programme of the Ministry of Health, Nutrition, and Indigenous Medicine

At the national level, the Occupational Health Unit of the Directorate of Environmental and Occupational Health is the central organization of the Ministry of Health responsible for planning, coordination, monitoring and evaluation of the National Occupational Health Programme of the Ministry of Health.
Treatment of occupational diseases and injuries is integrated into the existing curative health system. Occupational medical problems are taken care of by the general and specialized medical units, while occupational surgical problems are taken care of by the general and specialized surgical units in government healthcare institutions. Rehabilitation services are provided by the physiotherapy and rehabilitation units in government healthcare institutions. Occupational accidents affecting significant numbers of workers and surrounding communities are considered as disasters and the curative sector response is carried out immediately.

The implementation of preventive and promotive health services is done through the provincial, district and divisional level public health system. Officers responsible for this at the provincial and the district level are the Provincial Directors of Health Services and Regional Directors of Health Services respectively. At the district level, RDHS is supported by a team of technical officers such as the Medical Officer (Environmental and Occupational Health) and Regional Epidemiologist (RE). Medical Officers of Health (MOH) are the focal points at the divisional level in implementing the programme. Under their supervision, Public Health Inspectors (PHII) are responsible for conducting the National Occupational Health and Safety Programme. The District Supervising Public Health Inspector and the Supervising Public Health Inspector should support the activities of the National Occupational Health and Safety Programme in their respective MOH areas.

The Public Health Inspector (PHI) is the “front line” health worker providing preventive and promotive occupational health services to workers in all occupations within his range. The PHI is given a well-demarcated area having a population ranging from about 10000 to 15000.

The preventive and promotive occupational health package consists of the following major areas of work.

- Environmental monitoring to identify hazards in the work environment including waste disposal issues at workplaces.
- Improving welfare facilities at workplaces
- Improving workers' health
- Health promotion at workplaces/work settings

Provision of occupational health and safety requires multi stakeholder engagement at all levels of service delivery. Divisional and district level staff are advised to work with the District Factory Inspecting Engineer in providing occupational health services.

Strengths of this strategy

Availability of a focal point for this subject area in the Ministry of Health, namely, the Directorate of Environmental and Occupational Health, is a main strength. Availability of a Policy on Occupational Safety and Health and establishment of a steering committee on environmental and occupational health can be identified as strengths in implementing this strategy. Availability of a Medical Officer (Environmental and Occupational Health) at the district level and staff to implement this programme at the divisional level (Medical Officers of Health and Public Health Inspectors) too, can be considered as strengths.

Challenges

Due to the over burden of work of Medical Officers of Health and Public Health Inspectors, provision of occupational health services has become a competing priority, which leads to inadequate monitoring by the health sector. Inadequate engagement of District Factory Inspecting Engineers and health staff is a challenge for providing occupational health services. Inadequacies in the understanding of the role of the Medical Officer of Health and the Public Health Inspectors on Occupational Health & Safety have been challenging in getting them to work in this subject area. Lack of interest of the non-health sector on occupational injuries and diseases is also a challenge.

Recommendations

1. Strengthen the district level Environmental and Occupational Health Units. This will facilitate the national and divisional level coordination.

2. Revise the monthly return and improve occupational health data flow to the national, provincial and district levels.

3. Strengthen the occupational sector in the national injury surveillance system.

4. Revise the list of notifiable occupational diseases and strengthen the occupational disease surveillance system in Sri Lanka.

5. Improve the occupational health services for informal economy and small-scale workplaces by the health sector.

6. Improve the screening and biological monitoring facilities to identify occupational adverse health outcomes at an early stage.

Sub strategy 1.19-: To promote the Healthy Settings approach to safeguard the natural environment and prevent environment-related health hazards

Environmental health addresses all human health related aspects of both the natural environment and the built environment. There are several environment health concerns which need different strategies to prevent environment related health hazards, and one such strategy is promoting the "healthy settings" approach.

Healthy Settings, the settings-based approaches to health promotion, involve a holistic and multi-disciplinary method which integrate actions across risk factors. The goal is to maximize disease prevention via a "whole system" approach. The settings approach has roots in the WHO Health for All strategy, and, more specifically, the Ottawa Charter for Health Promotion. The key principles of healthy settings include community participation, partnership, empowerment and equity.

"The place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing" is known as a setting. Healthy setting approaches have been implemented in many different ways in multiple areas. A list of the different Healthy Settings are as follows: Healthy cities, Healthy villages, Healthy municipalities and communities, Health promoting schools, Healthy workplaces, Healthy markets, Healthy homes, Healthy islands, Healthy hospitals, Healthy prisons, Healthy universities.

The National policies, strategic and action plans

The National Environmental Health policy aimed at creating and maintaining a conducive environment that promotes good public health and covers all elements of environmental health such as land, the quality of air, water, food supply and habitation and the maintenance of a safe environment. However, at the same time, steps need to be taken to ensure a balance between economic development, sustainability and a healthy environment.

Sri Lanka has taken several initiatives to promote healthy settings at different level, with emphasis on the natural environment. The happy village initiative of the Health Promotion Bureau is an example for this. Safe hospital initiative which has been implemented by the Disaster Preparedness Unit of the Ministry of Health aims to prevent the disaster risk and building resilience in the hospitals in Sri Lanka. The Environmental and Occupational Health Directorate is in the process of developing green and healthy hospital guidelines incorporating environment sustainability concepts. It will address measures to diminish greenhouse gas emissions, water and food wastage, healthcare waste management, increasing green cover, energy efficiency, green procurement and sustainable consumption practices. Establishment of green and healthy hospitals will certainly pave the way for environmental sustainability and safeguarding of the natural environment.

Establishment of healthy settings needs the collaboration of within health sector and outside health sector stakeholders. Stakeholders will include government, private, NGOs and CBOs and most importantly civil society. Recognition of green settings at the national level needs to be implemented to encourage institutions to take up this initiative. The Central Environmental Authority awards National Green Awards annually to institutions in Sri Lanka. Several hospitals under the Ministry of Health have won these awards over the years.

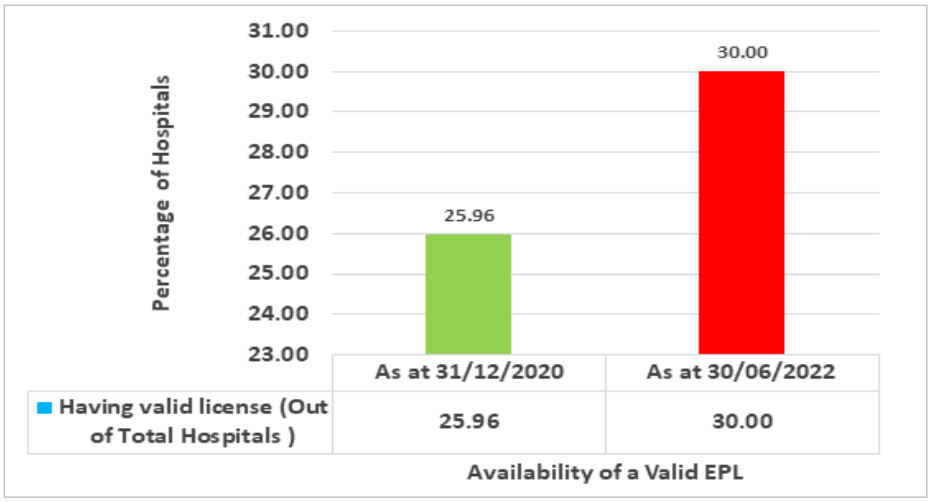
The Directorate of Environmental and Occupational Health addresses air, water and soil pollution, chemical safety, biodiversity issues, waste management including healthcare waste, Water, Sanitation and Hygiene (WASH) in healthcare settings and climate change. It has the following vision, mission and objectives.

The vision is healthy Sri Lanka free from environmental health risks, with a mission to improve the health status of all Sri Lankans by creating an environment free from environmental health risks through provision of environmental health services by advocating, collaborating, and partnering with stakeholders, promoting and supporting health staff and empowering people to be leaders in their communities. The objectives aim to improve the institutional capacity for rendering environmental health services through various strategies.

The main functions of the Directorate of Environmental and Occupational Health are given below:

1. Develop strategic plans to achieve the strategic objectives of the programmes under environmental health.
2. Provide expert advice on developing national policies, strategic plans and national plans related to environmental health of relevant ministries and organizations.
3. Advocate the policy makers and stakeholders at central & provincial level on the importance of improving environmental health
4. Intra and inter sectoral coordination on multidisciplinary issues related to environmental health.
5. Conduct operational research on environmental health issues.
6. Capacity building of health and non-health officers on environmental health
7. Provide technical expertise on environmental health in matters related to intra and inter sectoral planning, implementation, monitoring and evaluating of various programs/ activities at different levels.
8. Monitoring and evaluation of programmes and activities under environmental health carried out by the Ministry of Health
9. Develop communication material pertaining to environmental health and awareness creation.

The experts in the Environmental and Occupational Health Directorate liaise with the Ministry of Environment, Central Environmental Authority and all other stakeholders in improving environmental health in Sri Lanka at large. The implementation of Environmental Health activities in the preventive health sector are conducted mainly through the Provincial and District Level Health Services via the MOH unit system. The Medical Officers of Health and the Public Health Inspectors (PHII) carry out Environmental Health activities at the grassroot level. Effective implementation of the "Healthy setting approach" needs multi stakeholder engagement. Most importantly, it needs the support of all Sri Lankan citizens.



Source : Environmental Unit

Figure 105: Percentage of hospitals having a valid environment protection license

Currently less than one third of hospitals have a valid environment protection license.

Recommendations

1. To implement the green and healthy hospital initiatives in Base Hospitals and above hospitals with proper guidance and supervision from the national level, with multi-sectoral involvement and active community participation.

2. To encourage healthcare institutions to apply for the programme of National Green Awards and identify financial allocations for such programmes.

3. To develop/identify standards related to Water, Sanitation, Health Care Waste Management, and Hand Hygiene (WASH), and implement them in healthcare institutions in Sri Lanka.

4. To develop regular monitoring & evaluation of WASH standards and implement them in healthcare institutions in Sri Lanka through regular reviews.

5. To strengthen the public private partnership and community engagement in management of environment-related issues in healthcare institutions in Sri Lanka.

Sub strategy 1.20-: To improve the health status of the plantation community by reducing health disparities between the plantation areas and the other regions of the country

Sub strategy 7.1-: To collaborate with plantation companies in the delivery of Healthcare for the estate workers

Sub strategies 1.20 and 7.1 amalgamated

Introduction

The population distribution in urban, rural and plantation sectors in Sri Lanka are approximately 18.3%, 77.3% and 4.4%, respectively. The estate population in Sri Lanka has a history of about 200 years of existence in the country. Nearly one million (1 Mn) population residing in the estate sector are now citizens of Sri Lanka. From the early period of the British era, tea became the major export crop in Sri Lanka after the destruction of coffee due to a fungal disease. Large amounts of labor were needed for the tea plantations. To meet the labor demands, plantation companies recruited many workers from India, beginning in the 1830s. As they came from Tamil-speaking regions, the migrant workers became known as Indian Tamils. These estate workers contributed immensely to the country's economy. Out of the nearly 1 million estate population, only about three hundred and twenty thousand (320,000) people are employed in the plantation sector at present.

The estate sector is defined as, plantation areas that have land of 20 acres or more in extent and having not less than 10 residential labourers (Department of Census & Statistics.,2009). In 1974, the estates were nationalized under a land reform bill (Land Reform Commission Act No.1 of 1972 and the State Agricultural Corporation Act No. 11 of 1975) and transferred the lands of private owners to two state corporations, namely, Janatha Estate Development Board (JEDB) and Sri Lanka State Plantations Corporation (SLSPC). In the 1990s, the government owned corporations managing the estates experienced financial difficulties due to a multitude of causes, and the government restructured the plantation management system by establishing "Regional Plantation Companies" (RPCs) under the Act of No. 17 of 1992. As a result, 23 RPCs were established in the regions with estates for improving efficiency and productivity to make profits (Weerasinghe & Bandara, 2015).

Vulnerability of the estate community

Although the plantation sector in Sri Lanka has been playing an extremely important role in the country's economy, the estate community are still vulnerable to many socio-economic and health hazards, residing in remote locations with inaccessible terrain under poor living in “line rooms”. As plantation companies understandably are more profit oriented, they increase productivity while maintaining low production costs. The unsatisfactory living conditions, poor cash management, lack of safe water and sanitary facilities, low level of education, poor transport facilities with poor access to healthcare services and language barriers are some of the major factors affecting the economic and social wellbeing of the estate community. According to the Demographic and Health Survey (DHS) 2006, 57.9% of them lived in the “line rooms” with poor ventilation. However, according to the Department of Census and Statistics 2012, the percentage population living in “line rooms” is 3.6%. Although basic health indicators had been extremely poor during the early period, they had improved significantly as shown by comparing the data in 2006 and 2016 DHS.

Table 21: Comparison of some health indicators of DHS 2006 and 2016

Indicator	2006 (%)	2016 (%)
Sanitary facilities	66.3	78.7
“Improved” source of drinking water	11.0	43.0
Electricity to households	68.0	95.3
Women with low BMI <18.5	33.3	22.0
Stunting among below 5 year olds	40.2	31.7
Under-weight of below 5 year olds	30.1	29.7
Low birth weight	31.0	25.4
Infant mortality rate	29.0	13.0
Neonatal mortality rate	18.0	8.0
Number of married females (15-49 years) with no education	18.3	8.4

Source DHS 2006 & DHS 2016

At the time of writing this report, the 2021 DHS survey results carried out after 5 years from the last survey, were not available. Therefore, it is not possible to show further improvement of the above ndicators with recent data. However, nutrition month data presented district-wise by the Family Health Bureau showed promising results of improvement.

As mentioned earlier, since the estate sector is in difficult terrains, the population, especially women and pregnant mothers, find it difficult to access clinics held at the MOH. Furthermore, difficulty in obtaining specific information and services pertaining to sexual and reproductive health, mental health services, cancer control services, tuberculosis and leprosy prevention etc., create adverse effects on health and wellbeing of particularly women, children and youth, violating some of their basic human rights.

Preventive health services to the estate sector

In the year 2007, preventive health in the estate sector was brought under the Provincial health authority with a Cabinet Memorandum. Estates are divided into subdivisions, and the population in each housing cluster attend the area MOH for public health care services. All estate community are provided with public healthcare services delivered by the MOH, without any discrimination. Earlier, there was a challenge of obtaining the required antenatal care by these mothers due to losing their daily wages. However, at present, plantation companies allow the mothers to attend antenatal clinics without compromising the daily wage when they present relevant evidence. Poor support provided for antenatal mothers had earlier given rise to a high incidence of home deliveries. According to the DHS 2006, home deliveries had

been 2.2 % (it was 0.0% & 0.5% in the urban and rural sectors, respectively) compared to 0.7% in the DHS 2016 (0.2% and 0.1% in the urban and rural sectors, respectively).

Most MOHs working for the estate sector population find it difficult to conduct clinics in the estate clinic centers due to difficult terrain issues and lack of appropriate transport. Improving health-related infrastructure facilities and logistics, as well as the improvement of the road network, transport system and good inter-sectoral collaboration, would contribute to the improvement of the status of the estate population positively.

Curative health services to the estate sector

During the colonial times, the responsibility of providing basic health needs was vested with the individual The Estate management. The Estate dispensary system evolved during this time period, within the confines of the estates, to provide treatment facilities closer to the residence of the estate workers. The Medical Wants Ordinance enacted in 1912, looked after the curative needs of the community in the estate sector, and it identified The District Medical Officer to take care of the health needs of the estate community. However, in contrast to most other parts of the country, health indices in the estate areas were lagging behind, due to the non-improvement of quality of care and service coverage. After the privatization in 1973, provision of health services continued under the estate management and was provided through estate medical assistants (EMA). EMAs were paid by the estate management but the medicines were supplied by the Ministry of Health through the Plantation Human Development Trust (PHDT). However, at present, medicines are provided via the Regional Medical Supplies Divisions, under the prescription standards and guidelines of the country. The poor quality of health services provided to these vulnerable people within a well-established health system, continued to draw attention.

Therefore, to improve this situation, the government took a policy decision to take over all estate health institutions in 1997. Initially, forty-four (44) estate hospitals were officially taken over by the government under the provincial health authority. The rest of the health institutions (around three hundred and twenty five/ 325) currently under the estate management are also planned to be taken over in a phased-out manner. Cabinet approval to take over 59 estate health institutions out of the 325, was received in January 2022. The plan is laid to take over all the estate health institutions under three main categories, namely, Type C Divisional Hospitals (4), Primary Medical Care Units (58) and Estate Community Healthcare Centers (263). ECHC is a new service entity, where it is planned to establish the office of Public Health Midwife (with quarters), in addition to conduct optional other facilities such as, outreach clinics, mobile specimen collection center, thriposha storage facility, ambulance parking bay etc. ECHC does not need any additional staff for the district, but it will facilitate the healthcare service delivery to the estate community.

The Ministry of Health is facing a huge challenge in providing the required human resource for the 62 hospitals planned to be taken over. Although, at present, Plantation Company owned estate health institutions are available for the estate community to access, the Ministry of Health expects these populations also to attend the government healthcare facilities to obtain quality and reliable healthcare services. Integration of the health services to the national health has been identified to reduce the inequalities of health and to achieve universal health coverage.

Empanelment and process of taking over of estate health institutions

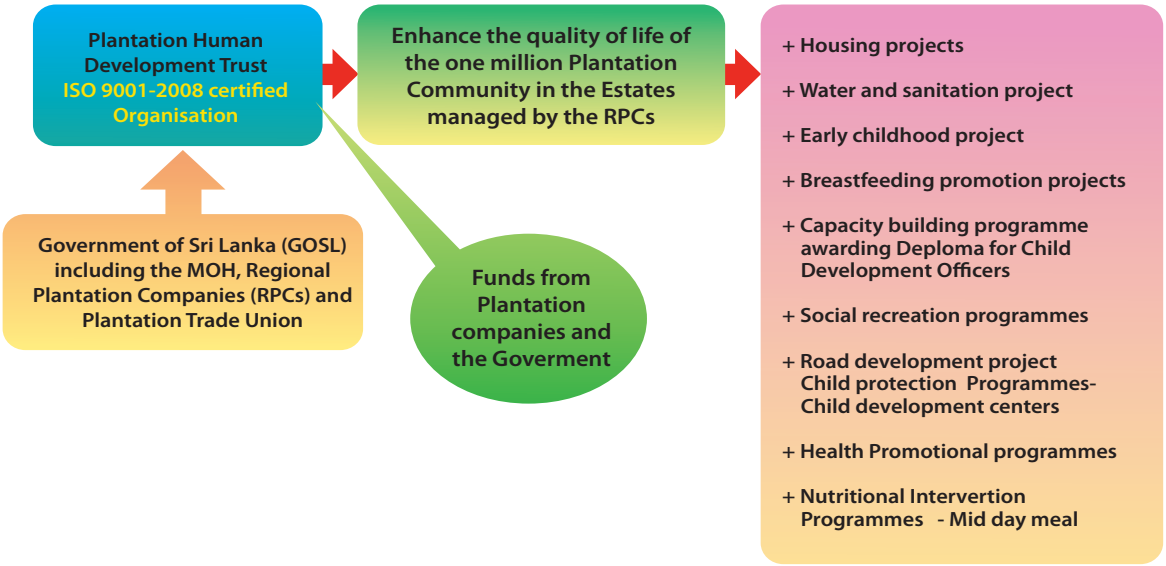
The estate community can obtain all services provided by the government curative healthcare system without any discrimination. Estate populations are also empaneled, according to the Grama Niladhari division, to the nearest existing cluster hospital, similar to communities in the other two sectors. Re-arrangement of empanelment will take place once the sixty-two (62) estate health institutions are taken over under the Ministry of Health. At the moment, there is a delay of the taking over process due to logistic issues.

The estate management has allowed the use of these estate health institutions for outreach clinic services for the MOH at some places. The dilapidated state of these institutions is not suitable to conduct regular clinics at most of the sites. Government funds cannot be spent for renovation as the ownership is yet to be taken over by the government. At the same time, the Estate Management at some places are reluctant to spend money on repairs as they are in the process of handing over. Inter-sectoral collaboration with Estate Management and Ministry of Health regional and divisional level healthcare staff at certain places, had taken place to overcome these barriers, for the betterment of the estate community.

Not only health integration, but there are also many other factors that need to be considered in parallel with this integration process, such as empowering the society with equal educational opportunities, providing adequate transport facilities, improving living conditions, water and sanitary facilities, and creating opportunities for them to receive services in the language of their preference. Improvement of road network and public transport is essential to improve the accessibility to health institutions in the estate sector.

The Focal point for estate health in the Ministry of Health and main stakeholders

The Directorate of Estate & Urban Health (E&UH) is the focal point for estate health in the Ministry of Health for mainly the preventive healthcare provision for the estate sector community in Sri Lanka. The Directorate of Estate and Urban Health collaborates with plantation companies mainly through the Plantation Human Development Trust (PHDT). The PHDT functions under a Board of Directors, and the Ministry of Health is a Board Member of the PHDT. The Director of the E&UH represents the Ministry



Source PHDT

Figure 106 : Health and health related welfare activities carried out by the PHDT

All the Plantation Companies adhere to the labour laws in the country to ensure the rights and conditions at work. These includes breastfeeding policies, maternity leave, early childhood immunization, etc. Although the above health and related welfare activities are carried out by the PHDT with plantation companies, they further contribute for welfare activities at individual company level, as well. The plantation companies contribute for estate schools and provide for health expenses for staff attached to the plantation sector.

Recommendations

1. The policy decision on taking over plantation owned hospitals and providing health care, needs to be revisited under the current context – explore on partnership and premises to be maintained by the plantation sector, while we support with human resources and essential medicines.

2. Re-demarcation of PHM/ PHI areas for better preventive health service provision for the estate community and filling of the estate sector vacancies

3. Promote EHV communication platform development between the MOH staff and the estate management that was initiated by the E&UH unit to rectify the communication gap. Encourage low cost or no cost incurring arrangements with the mutual agreement between the two parties.

4. Strengthen regular Steering Committee meetings at regional level to regularize health promotion activities carried out in the estate sector.

5. National level Estate Health Steering Committee meetings should be implemented, and it will be a communication platform for all relevant stakeholders.

6. National advisory committee should identify the relevant stakeholders (e.g.: non-health stakeholders such as the Ministry of Agriculture, Plantation companies, Plantation Human Development Trust, Estate Housing, National Child Protection Authority, Central Bank of Sri Lanka, Local and international NGOs etc., in addition to health) and develop ToRs and time targets of improving health status of the estate population.

7. Health indicators for the Estate health sector should be published yearly by the MOH

8. Expedite the acquisition process and re-orientation of primary healthcare services for the Estate sector.

9. Encourage research and surveys regularly for evidence-based planning.

Recommended indicators

1. The impact indicators relevant to mainly maternal & child health, communicable diseases, and non-communicable diseases relevant to the estate sector should be collected separately to identify the problems distinctively. The disparities identified need to be addressed to improve the health status of these vulnerable communities.

2. Indicators relevant to health service provision in the estate sector - Percentage of estate community with accessible curative and preventive healthcare services (distance and time taken to travel; 5km radius within half an hour), Percentage of estate health institutions acquired under the Ministry of Health to provide healthcare services, Percentage of health institutions with human resource cadre according to the approved cadre requirement, Percentage of active communication platforms in MOH areas and RDHS level

Sub strategy 1.21-: To address health issues related to urbanization through Health Promotion and Healthy Settings concepts.

Overview of Urban Health Component - Estate & Urban Health Unit

The Estate & Urban Health unit is the national focal point in the Ministry of Health for improving health status in Estate and Urban sectors in Sri Lanka. Estate and urban under-settled populations are both vulnerable segments of the Sri Lankan population, that warrant focused interventions and service coverage to achieve national health targets. Low socio-economic factors, poor housing & sanitation with poor health seeking behaviors and practices among these communities make them a vulnerable group. In order to improve the health status of these communities and reduce health disparities faced in comparison to other sectors in the country, the unit functions mainly under two components: Estate health and Urban health. The urban health component of the unit has taken measures to re-structure the objectives and develop plan of actions considering the current context related to urbanization and its effects on public health. Therefore, the review of the National Health Policy focused on the updated objectives of urban health.

Urbanization in Sri Lanka and its effects on public health

Sri Lanka is increasingly facing the challenge of urbanization. The urban sector is defined in Sri Lanka as areas administered by the 23 Municipal and 41 Urban councils. According to this definition, approximately 4-7 million (18.7%-30%) population live in the urban sector, of which nearly 50% live in urban under-settlements. The number and locations of such settlements are mapped by the Urban Development Authority (UDA) and by the respective urban local authorities. The Estate and Urban Health unit (E&UHU), as the national focal point for improving health of the urban sector, mainly focuses on urban under -settlements for optimal utilization of resources.

Due to the rapid urbanization and growth of urban population, urbanization related unique factors such as congested living, poor quality of air, water & sanitation, and busy lifestyles are seen in urban areas. These factors have led to a range of health outcomes, namely, high prevalence of communicable diseases such as tuberculosis, dengue fever, diarrhoeal diseases; and non-communicable diseases such as chronic respiratory disorders, diabetes, hypertension, mental disorders, cancers and injuries including road traffic accidents. Also, high prevalence of risk factors like overweight, obesity, substance misuse, tobacco and alcohol use, risky sexual exposures and domestic violence are observed among urban people, particularly among the under-settled communities. In addition to that, health status of mothers and children are low compared to the other areas. Further, the urban sector was severely affected by the recent COVID 19 pandemic due to overcrowding and associated inability of maintaining physical distancing, personal hygiene measures such as hand washing in these communities, which is similar for spread of any respiratory infection in the urban areas. In addition, the urban sector is most affected by the current economic downturn. Therefore, current economic, nutritional and psychological conditions need to be considered for targeted interventions in the urban sector.

Health outcomes are assessed by the respective vertical programmes of Ministry of Health regularly. However, data are not disaggregated into urban, estate and rural sectors, which hinders proper evaluation of urban health status in the country or comparison with other sectors. Moreover, there is a lack of health data sharing mechanisms between urban local authorities and district level health sector, which has prevented identification of disparities in urban health indicators in district level, as well. The Table below shows the comparison of urban health outcomes according to DHS, 2006/2007 and 2016 data in Sri Lanka. Several new variables such as domestic violence from intimate partner and NCDs with their risk factors are included in the most recent survey; hence a trend cannot be analyzed over the years, but distinctive variations across sectors are seen below.

Table 22 : Comparison of selected health indicators relevant for urban sector with those of National level (DHS 2006/2007 and 2016/2017)

Health Indicators with distinctive relevance to urban sector	Urban sector				National		
	2006		2016		2006	2016	
Maternal Health % of teenage pregnancy	4.6		-		4.3	2.0	
% of women visited by field worker to discuss about family planning	18.9		14.8		23.7	14.2	
Unmet need for family planning (spacing)	4.5	9.5	4.9	10.9	3.5	3.1	7.5
Unmet need for family planning (limiting)	5.0		6.1		3.8	4.4	
Heard of Well Women clinics	-		61.2		-	70.7	
Participation in Well Women Clinics	-		29.1		-	33.0	
Prevalence of aneamia among 15-49 yr females (<10g/dl)	15.5		15.5		13.0		
Child Health							
NNMR	6		7		-	-	
IMR	10		10		-	-	
<5 MR	19		11		-	-	
Birth weight <2.5kg newborns	12.8		12.7		16.6	15.7	
<5-year children, with stunting (ht/age)	13.8		14.7		13.8	17.3	
<5-year children, with wasting (wt/ht)	14.7		12.9		14.7	15.1	
<5-year children, overweight (>+2SD)	0.8		2.9		0.7	2.0	
Children <5yrs with diarrhoea	3.2		3.0		3.3	2.7	
Stools thrown to garbage	2.4		3.4		2.7	2.4	
Children 2-5 years with development delay	-		26.6		-	22.8	
Children 2-5 years visual impairment	-		1.1		-	0.6	
Children 2-5 years who don't have books for developmental stimulation	-		20.4		-	19.4	
Children who did not play during last 2 weeks prior to survey	-		8.5		-	7.7	
School attendance ratio-Primary school	-		97.7		-	97.9	
School attendance ratio-Secondary school	-		83.8		-	83.1	
NCD and risk factors							
Total women with BMI>25kg/m^2	47.3		55.8		31.2	45.3	
Women with BMI 25-29.9	33.1		35.8		24.0	31.9	
Women with BMI >30	14.2		20.1		7.2	13.3	
Women 15-49 years' experience intimate partner violence daily	-		8.4		-	12.6	
Hypertension	-		10.3		-	8.2	
Diabetes Mellitus	-		8.2		-	5.7	
Hyperlipidemia	-		7.5		-	5.4	
Heart Disease	-		2.6		-	2.2	
Wheezing	-		5.2		-	5.0	
Cancer	-		0.3		-	0.3	
Road Traffic Accidents	-		1.1		-	1.0	

Health Indicators with distinctive relevance to urban sector	Urban sector		National	
	2006	2016	2006	2016
Mental Illness	-	0.8	-	0.7
Out of mental illnesses -Depression	-	39.1	-	36.5
Out of mental illnesses -Psychosis	-	24.5	-	16.6
% households where at least one member drinks alcohol	-	34.6	-	37.3
Smokes tobacco	-	31.6	-	33.9

Root cause analysis for the observed health indicator disparities

Gaps in urban legislature and need for necessary amendments

Health services in the urban sector are mainly provided by the Ministry of Health, while urban local authorities also contribute in many ways. Safe drinking water supply and sanitary facilities in the urban sector have improved remarkably during the 2006 to 2016 period. However, due to the outdated Municipal (1948) and Urban (1937) Council Ordinances and certain other urban legislature, the Medical Officers of Health serving in urban areas face the challenge of poor collaborative support from the respective urban local authorities, and the health workers attached to the urban local authorities, when providing public health services in the urban sector. As the area public health manager, the Medical Officer of Health is not assisted to carry out direct supervision and monitoring of the health human resource attached to the urban local authorities. The gaps in outdated urban legislature have been identified as a key issue for poor coordination between the urban local authorities and the health sector. Due to the power imbalance created by these gaps in the relevant sections of urban legislature, remarkable differences in health indicators in the urban sector have been identified at the district level. Therefore, relevant sections of the Municipal Council Ordinance and Urban Council Ordinance need to be revised to ensure that the urban health services are in line with the National Health Policy. Currently, the urban health component of the Estate & Urban Health Unit is proceeding discussions on necessary amendments to legislature, regulations and human resource models in providing public health services in the sector. In addition, the unit plans to develop a monitoring and evaluation platform between urban local authorities and the health sector at the provincial level to ensure health disparities, are being drafted.

Need for intersectoral coordination for optimal urban health and development

Public health of the urban sector is determined by coordinated functions of multiple stakeholders. A large proportion of the urban population still live in under-settlements (e.g. shanties, slums and dilapidated houses). The Urban Regeneration Programme of Sri Lanka aims to re-settle 68,000 such under-settled families in re-settlement flat complexes by year 2030. In this process, health promoting concepts need to be incorporated to ensure national level urban development and planning in the country, focusing on health promotion and adhering to the health settings concept.

Furthermore, the elderly and disabled populations are higher in urban areas, and an increasing trend is observed. Therefore, urban development and infrastructure should incorporate elderly and disable friendly concepts. Urban areas are facing recurrent disasters, warranting urban specific disaster preparedness and resilience plans across relevant sectors. In this backdrop, it is evident that, to improve health outcomes of the urban population, there should be a strong inter-sectorial coordination and collaboration between the relevant stakeholders and a robust monitoring and evaluation system. Considering these multidimensional urban health needs, the Estate and Urban Health Unit has established a National Urban Health Steering Committee in year 2022 with multiple stakeholders, to ensure much

needed inter-sectoral collaboration. In addition, the E & UH Unit is in the process of developing Urban Health Indicator guides and tools to assess the urban health status across urban areas in Sri Lanka, giving special attention to urban development and spaces. These tools will help for periodical assessments that will bridge the data gaps observed in the urban sector.

Mobilizing and empowering urban communities and re-orientation of health services for improved health seeking and healthy lifestyles

Relatively easy access to both private and public tertiary care services by the urban people has led to underutilization of urban primary healthcare settings and overcrowding of tertiary care institutions. However, the health seeking behaviors particularly of the under-settled population are relatively poor. This needs to be understood and addressed by mobilizing and empowering these communities and developing mechanisms to provide care for them in order to reduce disparities of health outcomes in the sector. Strengthening the Mother-Support Groups, Community Based Organizations and the Urban Health Champion groups established in the urban re-settlement flat complexes in the Colombo district by the E&UH Unit in year 2021, can be used to mobilize these communities for health promotion.

The DHS 2016/2017 data show that the urban sector is burdened by NCDs and risk factors. Hence, double burden of diseases is observed in the urban sector. Considering these disease trends and sector specific population characteristics, special area specific and people centered interventions should be arranged addressing poor health seeking behaviours and unhealthy lifestyles of the urban populations, particularly the under-settled communities. As a response, model urban wellness centers were established in selected settings in the Colombo district by the E&UH Unit in 2021, with the objective to screen NCD risk factors at the community level and increase the reach to Healthy Lifestyle Centers in empaneled Primary Healthcare institutions in the respective areas.

Up to now, 26 wellness centers are established out of the 30 planned, in CMC, Kolonnawa, Sri Jayawardenepura Kotte, Dehiwala, Moratuwa, Kesbewa, Maharagama and Seethawakapura areas. Different strategies should be used to improve screening of urban populations for most prevalent health issues in the urban sector, to ensure that the health indicators are improved with adequate involvement and engagement of people in this process.

Capacity building of human resource and settings for improved health outcomes

Urban health improvement involves multiple partners with different capacities. In order to ensure that all relevant health and non-health stakeholders are empowered adequately, focused empowerment is a necessity. The Estate & Urban Health Unit carries out several stakeholder empowerment projects such as cash management, management for better health and wellbeing, disaster preparedness and resilience, tuberculosis prevention, physical activity promotion and healthy lifestyle promotion for health and non-health officers and community groups.

Monitoring and Evaluation of urban Health indicators

The results framework of the Urban Health Programme of the E&UH has 6 prioritized result areas. The prioritization has been done scientifically using published results, stakeholder consultations and routine health information. However, these selected outcome indicators are measured and monitored by other parallel vertical programmes such as NCD Bureau, FHB, Epidemiology Unit, National Programme for Tuberculosis Control & Chest Diseases (NPTCCD), Dengue Control Unit & Mental Health Unit. Therefore, the programme indicators of the urban health sub-programme should be monitored in collaboration with the respective vertical health programmes in the Ministry of Health, and district level health sector. Data sharing across vertical programmes will determine the effectiveness of programme evaluation.

Recommendations

1. Urban Health Policy and a National Strategic Plan for urban sector should be developed.

2. Municipal (1948) and Urban (1937) Council Ordinances should be amended to suit the current needs, and the health sector should be identified as a strong stakeholder.

3. National Urban Health Steering Committee meetings should be implemented at the national level quarterly, which will be a communication platform for all relevant stakeholders for collaborative urban health improvement.

4. Establishment of an urban health performance review mechanism at the provincial level between the urban local authority and the public health sector in each urban area.

5. Health information collected by the vertical programmes to be categorized according to sectors and shared, enabling comparison of urban health indicators with the national level and other sectors.

6. Based on the characteristic health needs of the urban sector, the implementation package for healthcare delivery strategies in the urban sector should be prepared and re-oriented, adhering to national health guidelines. In addition, further services addressing humanitarian and emergency situations in the urban sector need to be considered and included.

Based on the contextual changes observed in the urban sector, the experts' view is that the urban health programme should move forward with the following vision mission, and objectives, to ensure urban health indicators are comparable to those of the national level in the next 5 years.

Vision: Sri Lanka with healthy and productive urban population

Mission: To plan and implement a comprehensive health programme, improving health and nutrition indicators among urban population, particularly urban under-settled population to optimal levels through engaged and empowered communities and service providers, strengthened inter-sectoral collaboration and partnership with governance and health promoting infrastructure for equitable service delivery.

Objectives

1. To streamline the legislature relevant to urban health for strong urban health governance.

2. To develop and strengthen collaborative partnership between Municipal (MC) and Urban Councils (UC), and health sector for coordinated primary healthcare provision and health promotion in urban sector at provincial level.

3. To develop and strengthen collaborative partnership with key stakeholders in health and non-health sectors relevant for urban planning and development to ensure "Health in all policies".

4. To empower and engage urban communities and key stakeholders for health promotion and prevention of prioritized health outcomes in urban sector.

5. To monitor & evaluate realizing of prioritized health targets in the urban sector regularly.

Sub strategy 1.22-: To ensure Universal Health Coverage for Migrants and Families left behind

The International Organization for Migrants (IOM) defines a migrant as any person who is moving or has moved across an international border or within a state away from his/her habitual place of residence, regardless of the person's legal status; whether the movement is voluntary or involuntary; what the causes for the movement are; or what the length of the stay is.

Sri Lankan migrants are categorized into three types: outbound migrants, internal migrants, and inbound migrants. The fourth dimension of these migrant categories is the families left behind by migrants. Recent estimates suggest that over two million migrants work abroad, while pre- COVID pandemic annual outflows have averaged around 200,000 persons (211,992-203,087 from 2017-2019 (Sri Lanka Bureau of Foreign Employment., 2023). Over the years, foreign employment has generated substantial inflows of remittances and acted as a safety valve for local unemployment. Foreign remittances have accounted for 8.0% of GDP from 2001-2020.

The right to health is a basic human right and is signatory to many international frameworks and conventions which ensure human rights especially of the migrants: Universal Declaration of Human Rights (UDHR), International Covenant on Economic, Social and Cultural Rights (ICESCR), International Convention on the Protection of All Rights of Migrant Workers and their Families (ICRMW) and European Convention on Human Rights (ECHR).

The National Labour Migration Policy (NLMP) for Sri Lanka was developed in 2008 by the Ministry of Foreign Employment Promotion and Welfare, through a tripartite consultative framework of the International Labour Organization (ILO), and has three main policy components: governance of the migration process, protection and empowerment of migrant workers and their families, and linking migration and development process. The NLMP gives direction to the holistic and comprehensive management of migration in Sri Lanka and emphasizes the necessity of a comprehensive return and re-integration plan to cover all processes and areas of re-integration of returnee migrants.

The Government of Sri Lanka has ratified all core conventions of the International Labour Organization (ILO), and also endorsed the ILO Multilateral Framework on Labour Migration as a solid foundation for elaboration of the national policy. The Government's Ten-Year Horizon Development Framework (2006-2016) and the National Plan of Action for Decent Work have recognized the importance of labour migration for the economy. Sri Lanka has also joined global initiatives for promoting migration and development linkages.

The National Labour Migration Policy was strengthened by the Sri Lanka National Migration Health Policy (2014), as well as the Sub- Policy and National Action Plan on Return and Reintegration of Migrant Workers, Sri Lanka.

The National Migration Health Policy was launched in 2014, and it harmonizes with the World Health Assembly Resolution on "Health of Migrants" adopted in 2008 and complements the National Labour Migration Policy. The policy ensures the universal health approach and sets out to protect the health and well -being of migrant populations and their families. This policy was developed to provide healthy living for migrant workers and their families, as the migrant workers' remittances have been a key pillar of Sri Lanka's foreign currency earnings, providing a substantial cushion against the widening trade deficit and thereby enhancing the external sector resilience of the country (Central Bank of Sri Lanka., 2020).
The National Migration Health Policy addresses communicable diseases, non-communicable diseases and occupational health of migrants at pre-departure, in service and at reintegration stages of the migration continuum. Some of the measures included in the policy are: bilateral agreements which address health

protection, increased access to pre-departure health related information, voluntary health assessments upon return with referral, and coordinated services at the local level to assist migrants and their families left behind to address physical and mental health issues, as well as provide social welfare (MoH., 2011 ; Caram Asia., 2018).

The Sustainable Development Goal (SDG 10.c) related to migration is to reduce remittance cost to 3 percent of remittance amount by 2030 and eliminate remittance corridors with costs higher than 5 per cent. The Sri Lanka Bureau of Foreign Employment (SLBFE) is the primary regulatory body for overseas employment. The SLBFE is responsible for governance & regulation of the industry of foreign employment for Sri Lankans and protection & welfare of the migrant workers throughout the migration cycle and their family members that are left behind.

Outbound migrants

Outbound migrants are defined as people who move out of a country's international borders to other destinations, temporarily for employment, education, or leisure.

Sri Lankan citizens engaged in employment overseas provide a significant contribution to the national economy through foreign exchange remittances. According to the SLBFE reports during the past few years, the annual turnover for employment is around 210,000 -250,000. But this was reduced to 53,000 in 2020 due to the COVID 19 pandemic. However, these figures should be higher than that, due to the re-migrants or subsequent migrants as well as professionals who are not registering with the SLBFE. According to the reports of the United Nations and SLBFE, around two million Sri Lankans are working overseas at a given time. Most Sri Lankan migrant workers are living in the Middle East countries, and the number is around a million. In addition, a considerable number of migrant workers are living in South Korea and Italy. During the last decade, the profile of Sri Lanka's labor migrants shows that the majority (>50%) is in the low skilled category, including house maids and males (60%).

Training for outgoing migrant workers

Migrant workers who register with the SLBFE are provided with a pre-departure training at 18 training centers of the SLBFE around Sri Lanka, as a residential training for different categories of work. The type of training and the duration depends on the type of job they are meant to engage in and the country of destination. This training period ranges from 3-6 weeks, and in addition to job-oriented training, it includes adjustment to foreign culture & social environment, remittance transferring & family economy and knowledge update on personal health, sexual & reproductive health including STI/HIV/AIDS.

The National Labour Migration Policy emphasizes on HIV vulnerability faced by migrants as an important issue, even though Sri Lanka is listed among the countries with a low HIV prevalence. While migration is not a direct risk factor for the HIV infection, there are economic, socio-cultural and political factors in the migration process that make migrant workers vulnerable. Thus, in the pre-departure training for first-time migrants, awareness on HIV/ STIs and prevention is included, and the instructors of the SLBFE were trained by the National STD/AIDS Control Programme. Since this activity has been internalized, it should function as a routine activity in the pre-departure training programmes and is included in training manuals for Migration Development Officers of the Ministry of Foreign Employment deployed at the Divisional Level. However, since 2018, this component is not covered as planned during the training course, and migrants are not receiving proper awareness on prevention of HIV/ STI. National Guidelines on Pre-Departure Migration Health Assessment (PDHA) Services were developed in 2017 with the support of the IOM.

Services for migrant workers

Following registration with the SLBFE, migrant workers are awarded with an insurance coverage. Welfare

services for left behind families of migrant workers are provided by the Development Officers under the Ministry of Foreign Employment who are attached to divisional secretariat offices all over the country. The SLBFE annually awards scholarships to the children of Sri Lankan workers who have been successful at the Grade 5 scholarship examination, and for passing of O/L and A/L examinations, and arranges loans for the migrant worker community at low interest in collaboration with state banks, for migrants who are not in a position to produce documents in support of the income. The "Sahana" Housing Project has been initiated for permanently disabled migrant workers who lose more than 65% of their earning capacity if injured while at work.

The SLBFE has organized a "Daru Diriya" programme to give due recognition to the migrant population and to develop skills of their school going children in the fields of singing, dancing, essay writing, oratorical contents and drawing of art. The Welfare Division of the SLBFE conducts this programme at the district level, provincial level, and national level. As welfare assistance for the needy migrant workers, the SLBFE pays compensation on humanitarian grounds to migrant workers who are not entitled to claim under the insurance scheme for conditions such as critical illness, death, disability, etc. After returning to the country, there are some "on demand services" available for migrant workers, such as transport facilities and obtaining insurance claims through the 'Sahana Piyasa' located in the vicinity of the Bandaranaike International Airport. Complaints of migrant workers are received and attended by the SLBFE, and compensation is provided on a case-by-case basis.

Health issues related to migrant workers

The health issues of migrant workers are found at all stages of the migration process: at the pre-departure stage, in service and on return and reintegration of their families left behind. Gulf bound migrants have to undergo a mandatory health assessment, as a requirement by the destination country recognised and conducted by the Gulf Approved Medical Centers Association (GAMCA). Evidence shows that a proportion of migrant workers suffer from non-communicable diseases such as diabetes mellitus and hypertension, but there is no referral system. They need to consult a physician at the private or government sector. They are allowed to travel on being medically cleared with a prescribed treatment regimen. Although they take a stock of medication when leaving, regular medical follow up is not available to them at the receiving country. Inadequate insurance cover for some migrant workers is a major constraint. This results in the reluctance of employers to pay for health expenses of workers including hospitalization, and the cost of treatment has to be bourne by the migrant worker. Further, migrant workers are reluctant to report medical conditions due to fear of repatriation.

Health related data of migrant workers (e.g., NCD, HIV testing) are not received by the Ministry of Health, and unavailability of medical records or a tracking system on returnee migrant workers is a big challenge for the health system. Therefore, it is difficult to follow them up even for their welfare activities. The Sri Lanka National Migration Health Policy has emphasized the importance of development of a comprehensive health service package within the primary healthcare system for migrant returnee workers and their families, which addresses both communicable and non-communicable diseases including mental health. However, this important area has not yet been addressed.

Health of external migrants during Covid 19 epidemic

Migrant workers from all over the world became one of the most vulnerable communities during the COVID 19 pandemic, and Sri Lankan external migrants who were in the Middle Eastern countries and Italy faced may difficulties with lack of access to adequate health facilities including vaccination not being able to get foods & other essentials and losing jobs and residences. This discrimination was higher compared to the host population.

Inbound migrants

The health assessment for inbound migrants who apply for resident visa includes testing for four diseases by the "Inbound health assessment center", a venture of the Ministry of Health operated by the International Organization for Migration (IOM) since mid-2019. Health assessment is conducted for resident visa applicants who will be residing in Sri Lanka for more than six months, and for annual renewal. On behalf of the Ministry of Health, the Immigration Health Unit of the Directorate of Quarantine coordinates this activity and refers those who need treatment to the relevant National Programme of the Ministry of Health for further management and follow up. Resident visa applicants should be screened for:

- Tuberculosis (Chest X-ray, if any changes are detected, go for gene Xpert test (rapid PCR))
- HIV rapid Screening test- if it is, positive send for the confirmation test to the National STD/AIDS Control Programme
- Filaria – Filaria antigen test to detect *Wuchereria bancrofti* and Brugia Rapid Test to detect *Brugia malayi (*Currently, Brugia Rapid Test kits are not available)
- Malaria – 1st response rapid test, if positive send thin and thick blood to the Anti Malaria Campaign. When positives are detected, they're referred to the relevant National Programme for treatment and follow-up.

Annually, 10,000- 15,000 inbound migrants are assessed by this facility, and majority of inbound migrants are from India and China. This center has detected considerable numbers of positives for filaria, TB, and HIV and they have been referred for management.

Table 23: Total number of Inbound migrants screened and screened positives from 2019-2021

	2019	2020	2021
Total Number Screened	14016	13550	10318
No. of Malaria Positive	0	0	0
No. of TB Positive	9	10	0
No. of Filarial test Positive	218	405	246
No. of HIV screening Positives	21	11	15

Source: IOM

For this service, USD 75 is payable, and the applicants are entitled to a health protection plan offered free of charge to obtain treatment from government hospitals. Out of that amount, 13 USD is paid to the Ministry of Health. Treatments are confined to outpatient departments, emergency and primary health care. Health assessment is valid for a period of one year and should be repeated annually.

Recommendations

1. Migrant Health should be allocated to a Directorate within the Ministry of Health for better streamlining of related activities.
2. A comprehensive evaluation of the implementation policies and strategies should be carried out to inform strengthening of national policies and strategies.
3. A system should be in place to identify the out bound migrants, who do subsequent migrations to be registered in SLBFE.
4. A Monitoring and evaluation system for migration related health interventions should be developed.
5. A social and health service package for migrants throughout the migration cycle and their families should be developed, and roles and responsibilities of each stakeholder should be clearly

identified. Families left behind should linked to the Family Health Worker Development Officer at the Divisional Secretariat.

6. A health cover to be built into the employment contract, especially for unskilled workers.

7. Pre departure training, which addresses the health and the psychosocial aspect, should be streamlined in collaboration with the Sri Lanka Bureau of Foreign Employment (SLBFE) and should be made mandatory for all workers, including those being placed by private recruitment agencies. Awareness on HIV / STIs' sexual and reproductive health should be mandatory.

8. Health aspect of returnee migrant workers should be addressed by reintegrating them into the national health system (Well Woman Clinics). Thereby, screening of returnee migrant workers for communicable and non-communicable diseases should be implemented using the existing primary healthcare services in the country. A Family-Care Social and Health Plan should be developed, and the MOH and the relevant officer of the Social Services Department should be identified as the main stakeholders.

9. The database of migrant workers should be updated with outbound migrants who go on subsequent visits including professionals, with the collaboration of SLBFE. This database should be compiled according to the GN divisions and shared with the respective District/Divisional Secretariat /MOH office. The data should inform policy development and implementation of interventions.

10. The Ministry of Health should conduct regular review meetings with the Ministry of Foreign Affairs, SLBFE, IOM, NSACP, NCD Directorate, Private Health Sector Regulatory Council (PHSRC) and relevant stakeholders, to holistically streamline the activities related to migrant workers.

11. Regulation of outbound health assessment performing agencies should be done through a process of annual registration with the PHSRC.

12. Periodic surveillance of internal migrants and awareness campaigns for target groups should be conducted in a systematic way.

13. A higher demand is generated in advanced economies for specialized services such as nursing and elderly care, with the changes in demographics including population ageing and increased female labour force participation rates (*Central Bank of Sri Lanka., 2020*). These jobs have a relatively high earning potential than in the case of housemaids. However, Sri Lanka has limited training institutions with international accreditation, recognized by foreign employers, to provide job-oriented training for these specialties, and the Ministry of Health should give priority for training these categories of workers to serve in the international market.

Sub strategy 1.23-: To prevent the possible entry of pandemic diseases

A pandemic is defined as “an epidemic occurring over a very wide area, crossing international boundaries, and usually affecting a large number of people”. Pandemics are, therefore, identified by their geographic scale rather than the severity of illness.

Cholera, plague and yellow fever are diseases of days gone, and avian influenza, severe acute respiratory syndrome (SARS -1), Influenza and COVID-19 are the recently experienced disease outbreaks which have reached pandemic proportions. Increased travel and trade, rapid urbanization, limited access to healthcare, as well as environmental degradation, have created the conditions for epidemics to thrive and grow.

Sri Lanka, throughout history, has taken steps to protect its people from disease threats of international concern, mainly by the implementation of the Quarantine and Prevention of Diseases Ordinance (1897) and the International Health Regulations (IHR) of 2005 which came into enforcement in the country in 2007 to prevent and control communicable diseases. International Health Regulations focus "to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, specially the Public Health Emergency of International Concern (PHEIC), and which avoid unnecessary interference with international traffic and trade." Because the IHR are not limited to specific diseases, but are applicable to health risks, irrespective of their origin or source, they will follow the evolution of diseases and the factors affecting their emergence and transmission. The IHR-2005 is a monitoring process involving assessment of the development and implementation of capacities at points of entry and for IHR-related hazards in WHO member countries. These hazards may be biological (zoonotic, food safety and other infectious hazards), chemical, radiological or nuclear. A PHEIC is defined in the IHR (2005) as, “an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response”.

The Quarantine Unit and the Epidemiology Unit of Ministry of Health (MoH) are nominated as the Co-National Focal Points the (NFP) of IHR-2005 in Sri Lanka. The NFP should be accessible at all times 24/7 and coordinate with WHO IHR focal points. Activities related to implementation of IHR- 2005 in Sri Lanka are being carried out in collaboration by both units. The Disaster Preparedness and Response Division of the Ministry of Health also contributes to the activities relevant to the IHR 2005.

The Quarantine Unit is one of the main responsible agencies who involves in maintaining border health security in Sri Lanka. The main responsibility of the Quarantine Unit of Ministry of Health is to maintain border health security and respond to the international spread of diseases and other public health threats while avoiding unnecessary interference with international traffic and trade. Protection measures seek to prevent harm to human health, including the health and wellbeing of international travelers, aircraft and ship crew, and the general public. These activities are implemented with the involvement of several stakeholders including the Sri Lanka Customs Department, and ministries involved in maritime, aviation, transport, animal health, environment protection, agriculture, tourism, policing, legal, immigration and national security.

Preventive and control activities at Points of Entry (PoEs) are coordinated through the Port Health Offices and Airport Health Offices of the Quarantine Unit of the Ministry of Health. Port Health Offices are situated at: Colombo, Galle, Hambantota, Norochcholai Ports, and Airport Health Offices are situated at: Bandaranaike International Airport (BIA), Katunayake, Rajapaksha International Airport (MRIA), Mattala, Jaffna International Airport and Colombo International Airport, Rathmalana. In Sri Lanka, Colombo Port and Bandaranaike International Airport (BIA), Katunayake are the designated Points of Entry. Designated PoEs should have the capacities to act during all times and during PHEIC situations. Port and Airport

Health Offices are responsible for prevention of communicable diseases, maintaining communicable disease surveillance system, dead body clearance, monitoring of disinfection and disinfection of aircrafts/ ships, routine monitoring and supervision of premises for sanitation, inspection of food establishments, and public health emergency management. In addition to these, Port Health Officers grant pratique to ships.

The Ministry of Health, with the International Organization for Migration (IOM), conducts Inbound Health Assessment for resident visa applicants and screens them for Malaria, Filariasis, Tuberculosis and HIV. Immigration Health Unit of the Quarantine Unit is the Ministry of Health counterpart of this task and refers the positive resident visa applicants to relevant Public Health Campaigns of The Ministry of Health for treatment and follow up.

The Assistant Port Health Office of the Quarantine Unit at the Medical Research Institute is involved with vaccination of outgoing travelers against yellow fever, meningococcal meningitis and polio, depending on the destination, and issues the international vaccine cards. Travelers visiting malaria endemic countries are referred to the Anti Malaria Campaign for malaria prophylaxis. This will prevent introduction of these infections into Sri Lanka following their return.

There is a stringent surveillance system with well-established public health infrastructure covering the whole island. The surveillance system is capable to detect the spread of diseases including diseases with pandemic risk, with the involvement of several stakeholders and lab networks. The Epidemiology Unit of the Ministry of Health is responsible for surveillance and control activities in the country, liaising with relevant stakeholders including the provincial, district and divisional health authorities. Different responsible stakeholders of the Ministry of Health collect routine and surveillance data and share with responsible agents on time for prevention and necessary action. Currently, the IHR Steering Committee and the Pandemic Influenza National Technical Committee work together to discuss about pandemic potential diseases and information sharing between relevant stakeholders.

Monitoring of International Health Regulations-2005

Monitoring of the IHR implementation status is done by a Joint External Evaluation (JEE), State party annual reporting, Simulation Exercises and After-Action Reviews. Out of these, State Party Annual reporting is a compulsory task and the others are voluntary.

At the invitation of the Ministry of Health, JEE was conducted by the WHO in June 2017 involving stakeholders in Sri Lanka, to assess the baseline situation for health security in Sri Lanka. Main stakeholders and other relevant stakeholders were identified for 19 capacity areas to fill the JEE tool and present to the WHO team. During the JEE, scores were given for each indicator, ranging from 1 to 5, and a report was published. This external evaluation was an opportunity for Sri Lanka to identify strengths and shortcomings in the existing health security system. By undergoing a JEE, relevant stakeholders in Sri Lanka were committed to develop a National Action Plan for Health Security 2019-2023 (NAPHS), to improve capacities of relevant institutions to maintain health security and accelerate implementation of the IHR. The operationalization of NAPHS is affected by priorities of different sectors, inter-sectoral cooperation, changing of staff in units, governance, political commitment and sustainable financing.

State Party Annual Reporting (SPAR) scores to WHO is carried out through a State Party Self-Assessment Tool and is a compulsory requirement. This tool has been revised in 2021, and the 2nd Edition of this tool has 15 capacities and 35 indicators, compared to 13 capacities and 24 indicators in the 1st Edition which was used from 2018-2020.

Table 24 : SPAR 2021 of SEAR Member States

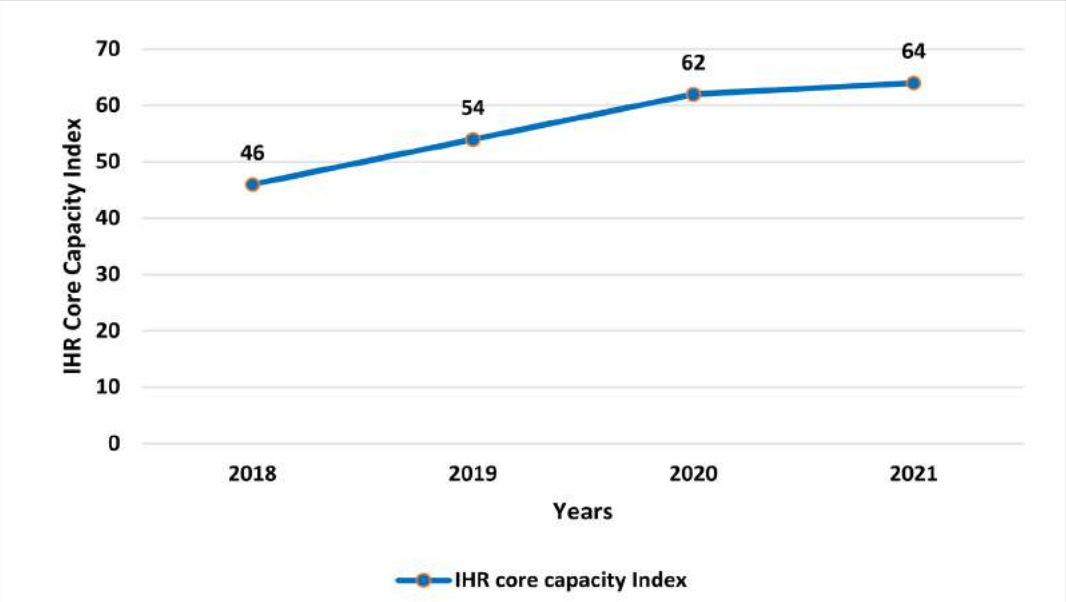
	Policy legal & normative instruments	Coordination NFP function	Financing	Laboratory	Surveillance	Human resources	Health Emergency Mx	Health service provisions	Infection prevention & Control	Risk communication	Point of entry	Zoonotic diseases	Food safety	Chemical events	Radiation emergencies
Bangladesh	60	80	70	76	80	50	73	80	53	67	67	80	60	60	60
Bhutan	30	47	70	56	80	30	53	67	47	73	67	60	60	20	20
Democratic People	80	93	80	72	90	80	80	87	80	80	87	80	40	60	60
India	40	87	100	80	100	100	100	87	47	100	100	80	60	80	100
Indonesia	40	60	70	72	90	60	73	80	60	80	73	60	40	40	60
Maldives	40	73	40	76	80	60	80	60	47	60	53	20	20	20	20
Myanmar	30	67	60	64	70	50	67	47	53	80	40	60	60	60	40
Nepal	20	53	60	64	60	30	53	53	27	53	47	60	40	20	20
Sri Lanka	40	80	50	40	100	90	80	80	47	80	73	20	60	40	80
Thailand	100	87	80	88	100	80	93	100	80	93	80	100	80	80	80
Timor -Leste	70	67	60	60	100	90	67	67	40	80	40	60	40	40	20
Regional	50	72	67	68	86	65	74	73	53	77	66	62	51	47	51

Colour coding is given below

0-20	21-40	41-60	61-80	81-100

As per the 2021 State Party Annual Reporting (SPAR) scores, five Member States in the region reported an average score of 41- 60% for 15 capacities, four Member States had an average score of 61-80% and two Member States had an average score above 80%. The lowest score was reported for chemical events policy followed by legal and normative instruments, food safety and radiation emergencies. The highest average score was observed for surveillance capacity, followed by risk communication and health emergency management which have been benefitted by their augmentation for COVID-19 response.

The International Health Regulations (IHR) core capacity index is used in the Sustainable Development Goal 3 under the Target 3.d.1 Achieve universal health coverage. The IHR core capacity index is the average percentage of attributes of capacities that have been attained through SPAR.



Source: Quarantine Unit

Figure 107: IHR core capacity index in Sri Lanka from 2018-2021

IHR capacity Index is an SGD indicator, and Sri Lanka has given the target of achieving 70% at the end of 2030.

Table 25: Total no. of capacities identified in State Party Annual Reporting from 2018-2021

Year	2018	2019	2020	2021
Total no. of capacities in SPAR	13	13	13	15

Table 26 : Comparison of 2021 IHR co capacities of Sri Lanka by global and SEARO averages

Capacities	AVG Global Capacity	SEARO	Sri Lanka
C.1 Policy, Legal and normative instruments to implement IHR	52	50	40
C.2 IHR Coordination, National IHR Focal Point functions and advocacy	66	72	80
C.3 Financing	62	67	50
C.4 Laboratory	72	68	40
C.5 Surveillance	80	86	100
C.6 Human resources	59	66	90
C.7 Health emergency management	70	75	80
C.8 Health services provision	72	74	80
C.9 Infection prevention and control (IPC)	60	53	47
C.10 Risk communication and community engagement (RCCE)	67	77	80
C.11 Points of entry (PoEs) and border health	61	66	73
C.12 Zoonotic diseases	66	62	20
C.13 Food safety	63	51	60
C.14 Chemical events	55	47	40
C.15 Radiation emergencies	57	51	80
Total Average	64	64	64

National Level Simulation exercises are carried out by the Disaster Preparedness Unit periodically, and recently it was conducted in 2021 following the chemical event in Beirut, Lebanon, where a table top simulation was done with the relevant stakeholders for a similar situation for the Port in Sri Lanka. After Action Reviews (AAR) are also carried out by the Disaster Preparedness Unit as a part of monitoring and evaluation of health regulations (2015). The recent AAR was in relation to the Easter Sunday Attack that took place in several cities in Sri Lanka.

Recommendations

1. Relevant stakeholders should take measures to further strengthen the IHR Capacities with special emphasis on capacity areas with lower scores.

2. Health measures and health security measures for inbound migration and disease surveillance of inbound migrants should be further strengthened.

3. Simulation exercises and After-Action Reviews should be carried out regularly according to a systematic plan to strengthen the prevention of entering pandemic diseases to the country.

Sub strategy 1.24-: To promote involvement of community in healthcare through Health Education and Publicity

Health Promotion Bureau (HPB) is the focal point of the Ministry of Health for health education, health promotion, prevention and publicity of health information. In addition, disease specific programmes also implement health promotion as well as health education programmes to achieve good health of people. The Health Promotion Policy (2010) was prepared as the Government of Sri Lanka recognizes health promotion as a highly cost-effective strategy to foster a healthy nation and make health promotion central to the national development agenda, and a core responsibility of all sectors of government, private and non-government organizations, civil societies and communities to promote healthy living and improve the quality of life of people.

The vision identified in the policy is that all Sri Lankans are empowered and motivated to achieve best possible health and wellbeing while living happy, healthy and productive lives in harmony with each other and the nature. The eight objectives of the National Health Promotion Policy are: strengthened leadership for health promotion, community mobilization, life course approach for health promotion, multi-sectoral setting approach, system for health promotion activities, capacity building for health promotion, finance and resource allocation for sustainable health promotion and health promotion information management system.

The policy identifies advocacy as one of the main communication strategies for health promotion. The HPB has conducted advocacy programmes for policy changes for tobacco, and alcohol and substance use marketing of salt sugar and beverages, and awareness programmes through mass media for the general population and risk and vulnerable groups to promote behavior changes among communities for healthy lifestyles, as several risky behaviors related to unhealthy diet, sexual behaviors, and use of tobacco, alcohol and substance abuse are prevalent in the country. The HPB conducts these activities in partnership with other sectors, such as the Nutrition Division, National STD/AIDS Control Programme, NCD Directorate, National Cancer Control Programme and Family Health Bureau. The HPB plays a main role through integrated multidisciplinary approaches to address socio-health issues such as child abuse, gender-based violence, injuries, disaster situations, suicide, psychological issues, health of differently abled groups, environment health, occupational health and safety and spiritual wellbeing, etc. The HPB regularly conducts media advocacy seminars for media personnel on current health issues, also focusing on specific days identified for particular health issues.

The National Health Promotion Policy emphasizes developing partnerships with different stakeholders at different levels for health promotion management and coordination. Mother Support Groups (MSG) have been established since 2015. Mother Support Groups (MSG) are groups of women, approximately 5-20 per group, who come together to learn about and discuss issues of health and nutrition relevant to their communities and promote good practices. These people support each other to improve awareness and practices in uplifting their communities' nutritional and health status. A functioning MSG is considered as an MSG which has met (physically/ virtually) at least once a month for six consecutive months. Around one thousand such groups have been established island wide. Their activities were disrupted during the COVID pandemic.

As stated in the policy, to promote healthy living in major settings, in 2018, HPB initiated the “Happy Village” concept to reach the grassroot level for health promotion. Happy Villages are developed as a platform for health promotion that will enable the public health sector or the curative health sector to utilize this platform to empower people and mobilize communities to identify the determinants of their health and demand for better health. Therefore, the final outcome will be to develop a process that is culturally acceptable and owned by the community. In 2018, at least one functioning Happy Village was established in 47.8% of MOH divisions, while this percentage increased to, 60.9% in 2019, 71.2% in 2020 and 81.1% in 2021.

In keeping with the policy of incorporating new technologies with changing times, HPB has responded to the rapid expansion of internet coverage and increasing use of smart mobile devices, social media use in Sri Lanka to capture a large audience to disseminate health messages. The HPB has a wide range of social media platforms including Facebook, Viber, Twitter, YouTube and Instagram. Currently, nearly eight million Sri Lankans use social media platforms regularly. The most prominent among those, Facebook, is used by over seven million Sri Lankans regularly. This is close to 50% of the country's adult population. With such expansion, social media is now recognized to be a key medium and a setting for health promotion.

The Health Promotion Bureau has gained a modest presence in the Facebook platform with nearly 50000 followers at the beginning of the COVID pandemic. However, right at the onset of the pandemic, seeing the potential for growth on social media and given the heightened need for health information, the HPB decided to push for a rapid growth of its presence on the platform. Currently the HPB is present on a wide range of social media platforms including Facebook (with over 600,000 followers), Viber (with nearly 500,000 followers), Twitter, YouTube and Instagram. Facebook monthly users who saw at least one post published on the page at least once during the month had the median value of 44% (3,080,372) in 2020, which increased in 2021 to 61% (4,588,578).

Developing a mechanism to monitor health related information and advertisements in media has been identified under the health promotion activity plan in the policy document. Activities identified in the policy document are: to establish an expert panel to monitor health related information and advertisements in media, develop guidelines for a monitoring mechanism and identifying a reporting official/ authority to forward recommendations. This monitoring has been done during the COVID-19 pandemic, and in addition to that, such an expert panel has not been seen in other subject areas.

Establishing digital signage platforms is another strategy to reach out to the general public and other groups to improve knowledge on health-related subjects. The HPB is in the process of introducing signage platforms in hospital settings to educate not only the patients, but also the hospital staff on current health issues, developing positive attitudes towards patients and on the consequences of stigma and discrimination associated with certain diseases and groups of people such as LGBTQI+ groups and people living with HIV.

There is an urgent need to incorporate age-appropriate comprehensive sexual education (CSE) into the school curriculum and removing punitive laws in the legal system which affect the populations at risk of developing sexually transmitted infections including HIV, and address the escalating substance abuse in the country. The HPB, as the key organization, was not given a major role in advocacy for policy makers and reaching out to the wider community on the purpose of these interventions.

Although the policy was to create a 'Health Promotion National Steering Committee', and National Health Promotion Forums, and provincial, district and divisional level health promotion committees, and the HPB has not been successful in this endeavor.

Recommendations

1. Conduct a Programme Review by an external consultant.
2. Update the National Health Policy to meet current health issues, focusing on strengthening communication methods to eliminate selected communicable diseases, prevent and control NCDs and cancer, and hazards of substance abuse and services available for youth and women, such as "Youvun Piyasa" "Mithuru Piyasa".
3. Establish a system to support for social marketing of good health and wellbeing.

4. Develop e-learning, e-surveillance, and telemedicine i.e., m-health (mobile health) initiatives , and involving social media for health communication.

5. Develop and establish a behavior surveillance system to verify actual healthy practices and a health promotion information management system.

6. Establish a health promotion National Steering Committee with private public partnership and strengthen intersectoral collaboration to achieve mutual goals.

7. Develop a mechanism to monitor and regulate health related information and advertisements in media which mislead the public and is factually incorrect, by an expert panel, and direct them for necessary authorities.

8. Facilitate healthy living through expanding the health settings approach and enabling environments emphasizing mainstreaming health promotion into the municipal and urban councils, private and plantation sectors.

9. Enhance skills in advocacy, mediation and enabling to strengthen health promotion.

10. Optimize linkage between health promotion and social development programmes.

11. Identify the minimum components of a "happy village" including areas to improve environment health in keeping with the vision of the policy and scale-up the happy village programme to establish at least one happy village per MOH area.

Recommended indicators

1. Health literacy rate among 18-64 years in Sri Lanka using the HLS-EU-Q16 tool.

2. Percentage of MOH areas with at least one functioning happy village

3. Percentage of PHM areas in the district with at least one functioning MSG

Sub strategy 1.25-: To develop mechanisms to minimize the health impact of climate change and climate anomalies

Background

Climate change and its effects have been identified as an important issue globally, and Sri Lanka is no exception. It is considered the greatest challenge of the 21st century, threatening human health and development. Climate change, threatens access to clean air, safe drinking water, nutritious food supply and safe shelter. Human health is known to be significantly affected due to climate change, and it has the potential to undermine decades of progress in global health. It is already causing rising sea levels, more frequent and extreme weather events, heat waves, prolonged droughts, species endangerment and extinction, loss of biodiversity and adverse health outcomes significantly. Developing countries and island nations are more vulnerable to the negative impacts of climate change, and Sri Lanka has been identified as a country highly vulnerable to the adverse impacts of climate change. Responding to climate change involves a two-pronged approach. Reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere (mitigation) and adapting to the climate change are already happening (adaptation).

National Policy and Strategies and alignment with international frameworks

The National Climate Change Policy of Sri Lanka (2012) provides guidance and directions for all stakeholders to address the adverse impacts of climate change efficiently and effectively. The National Climate Change Policy focus is on environmentally friendly economic development, and contains a vision, mission, goal, and a set of guiding principles followed by broad policy statements under vulnerability, adaptation, mitigation, sustainable consumption and production, knowledge management and general statements. Health is included under the component of vulnerability. Collaborative action at all levels is necessary to transform this policy into a meaningful set of actions to meet the challenges of climate change. The policy is being currently revised (2022).

In 2016, Sri Lanka has ratified the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC). Initially, Intended Nationally Determined Contributions (INDC) and subsequently Nationally Determined Contributions (NDC) were developed as a requirement of the Paris agreement. This document outlines the country's commitment to addressing its vulnerability to climate change and includes mitigation, adaptation of NDCs, loss and damage and means of implementation areas. NDCs revision of took place in 2021 and an updated plan for 2021-2030 has been developed. Implementation of the NDC plan has commenced.

The Climate Change, Secretariat (CCS) under the Ministry of Environment is the designated focal point which coordinates climate change activities in Sri Lanka with all other stakeholders. The National Climate Change Adaptation Strategy for Sri Lanka 2011-2016, the National Adaptation Plan (NAP) for Climate Change Impacts in Sri Lanka (2016 - 2025), Technology Needs Assessment and Technology Action Plans for Climate Change Adaptation and Mitigation (2014), Nationally Appropriate Mitigation Actions (NAMA) for Energy, and Climate Change Sector Vulnerability Profiles (2010) have been developed. The National Adaptation Plan for Climate Change Impacts in Sri Lanka 2016-2025 is being implemented. Nine vulnerable sectors including health sector are included in this plan. The health component includes climate altering pollutants, spread and outbreaks of diseases, hazardous events – health impacts, and heat-thermal stress.

As an obligation to the UNFCCC, Sri Lanka is required to prepare National Communications on Climate Change (NCCC) periodically. Accordingly, the initial NCCC (2000) and the second NCCC (2010) were developed and submitted. The Third National Communication is in the draft level at present. Sri Lanka is expected to experience more intense and frequent natural disasters and many climate-related adverse health impacts due to climate change. These will have a significant negative impact to human health, ranging from injury, disability, illness and death. Additionally, it will adversely affect the mental and social well-being of people of our country. Increased burden of climate sensitive vector borne diseases such as dengue, food shortages leading to macro and micro nutrition deficiency disorders, heat related morbidity and mortality, mental health issues, emerging and re-emerging diseases and climate sensitive respiratory diseases have been identified as major adverse health consequences resulting from climate change.

The sector vulnerability profiles developed for Sri Lanka in 2010 have identified the health sector as one of the most critical sectors for climate change vulnerability. It is identified as a key adaptation sector in terms of climate change. The health sector has a very important and a leading role to play in adapting and building resilience to climate change. The National Health Environment Policy developed by the Ministry of Health addresses the need to adopt technologies to reduce fossil fuel use to minimize harmful emissions, conduct research on health impacts of climate change and promote healthy urbanization to promote environment friendly housing and transportation options.

SDG Goal 13 address on urgent action to combat climate change and its impacts, and Sri Lanka is on track to achieve it in 2021.

Focal Point at Ministry of Health

The Directorate of Environmental and Occupational Health is the focal point in the Ministry of Health for climate change. The experts in the Directorate liaise with the Climate Change Secretariat and other government, non-government, civil society and UN agencies in addressing and planning climate action in the health sector. In keeping with the National Health Policy, Health Sector National Adaptation Plan, nationally determined contributions for adaptation in the health sector and a draft Heat Health Action Plan have been developed. The Directorate supports the CCS in developing climate change documents/ action plans related to health, participates in National Advisory Meetings on climate change and conducts advocacy, and awareness programmes and capacity building of health staff on climate change related health risks. The Directorate works with intra-sectoral stakeholders such as Disaster Preparedness and Response Unit of the Ministry of Health, Epidemiology Unit, Dengue Control Unit, Family Health Bureau, Nutrition Division, and other relevant units/divisions, in implementing actions addressing climate change. The implementation of health action on climate change at the grassroot level takes place through the Medical Officer of Health and Public Health Inspectors.

Strengths of the health strategy

Availability of a focal point for climate change at the Ministry of Health, namely, the Directorate of Environmental and Occupational Health and the availability of policies and strategic plans to guide the national response to climate change are strengths, Multi-sectoral involvement, and strong partnership with the Climate Change Secretariat are strengths available to implement the identified interventions.

Challenges

Integrating climate change to the sectoral plans of the Ministry of Health is a challenge due to inadequate evidence on health risks and consequences of climate change related to Sri Lanka. Steps should be taken to gather data on health impacts due to climate change. Budgetary allocations need to be secured for health sector response for climate change.

Recommendations

1. Develop a National Strategy on Health and Climate Change. The NSP should identify mechanisms to incorporate climate change aspects into the climate sensitive programme areas of the health sector.

2. Census and Statistics surveys should explore the health impact of climate change to inform policy changes and actions to be taken.

3. Strengthen partnerships within the health sector between the Disaster Preparedness and Response Unit, Dengue control unit, Nutrition unit, Anti Malaria control unit, Epidemiology Unit, and the Family Health Bureau, and between sectors such as the Meteorology Department, National Building Research Organization and the Disaster Management Center.

4. Generate evidence on climate change and health in Sri Lanka

5. Use the safe hospital initiative and develop standards for “Green Productivity” hospitals.

Suggested indicators

1. Mortality and disability rates related to natural disasters.
2. Proxy indicators such as the number of dengue and malaria patients per year (incidence of dengue and malaria cases),
3. Percentage of health policies, plans, strategies and programmes that have included climate change aspects in a given year.
4. Number/Percentage of hospitals certified as 'Green and healthy' by district/province/country.

Sub strategy 1.26-: To establish systems to promote environmental sustainability when providing healthcare (safe disposal of wastewater from hospital settings, safe disposal of clinical waste, sustainable solar energy, ensuring a green environment from air and chemical pollution)

The sub-strategy of the National Health Policy focuses on providing healthcare ensuring environmental sustainability. The health sector has a mandate to prevent and cure diseases. Yet, the delivery of health care services, most notably in hospitals, threatens environmental sustainability. Hospitals generate significant environmental health impacts, both upstream and downstream from service delivery, through the consumption of significant amounts of natural resources, energy, chemicals as well as through waste generation. Environment is considered to be a significant determinant of health. The environment risks accounted for 12.6 million global deaths in 2016, and the numbers are on the rise. The health sector itself is paradoxically contributing to these very environmental health problems, even as it attempts to address their impacts. It has been shown world over, that the contribution of the health sector in threatening environmental sustainability is significant. Therefore, environmental sustainability should be ensured while providing quality healthcare.

Healthcare waste management has been included and addressed in detail in the "National Waste Management Policy" developed by the Ministry of Environment in 2020. This national waste policy was developed with relevant stakeholders including health.
Healthcare settings should promote public health by continuously reducing its environmental impact and ultimately eliminating its contribution to the burden of disease. Connecting local needs with environmental action and practicing primary prevention by actively engaging in efforts to foster community environmental health, health equity and a green economy should be aimed at.

The Directorate of Environmental and Occupational Health of the Ministry of Health is entrusted with the responsibility of providing technical guidance in ensuring environmental sustainability when providing healthcare.

The Environmental Health Unit of the Directorate has taken several measures under the "National healthcare waste management programme" to strengthen healthcare waste management, promoting sustainable consumption practices, green procurement and improving occupational health, safety and wellbeing of healthcare workers. A national steering committee on healthcare waste management chaired by the Secretary Health has been established to provide guidance in strengthening healthcare waste management. It is held bi-annually. Both intra and inter sectoral stakeholders are included in the committee.

The National Action Plan on healthcare waste management for the Ministry of Health was finalized in 2022. Provincial healthcare waste management action plans will be based on the national action plan. A cluster approach will be used in treating infectious and sharps waste generated in healthcare settings.

Since healthcare settings generate both hazardous and non-hazardous waste, and the programme aims to manage them in an environmentally sustainable manner. These wastes can be in solid, liquid, or gaseous forms. Non-hazardous waste includes food waste, garden waste, clean plastics, glass, cardboard and paper waste and general waste. Infectious waste, sharps waste, pathological or anatomical waste, pharmaceutical waste, cytotoxic waste, chemical waste, e-waste, mercury waste, bottom ash due to incineration and radioactive waste generated in healthcare facilities are classified as hazardous waste. Air, water and soil pollution and the contribution to increased green-house gas emissions due to mismanagement of waste have been identified as serious environmental issues within healthcare settings. Improper management of healthcare waste poses a significant risk to the patients, healthcare workers, the community and the environment at large. Interventions are implemented by the Line Ministry as well as the provincial sector.

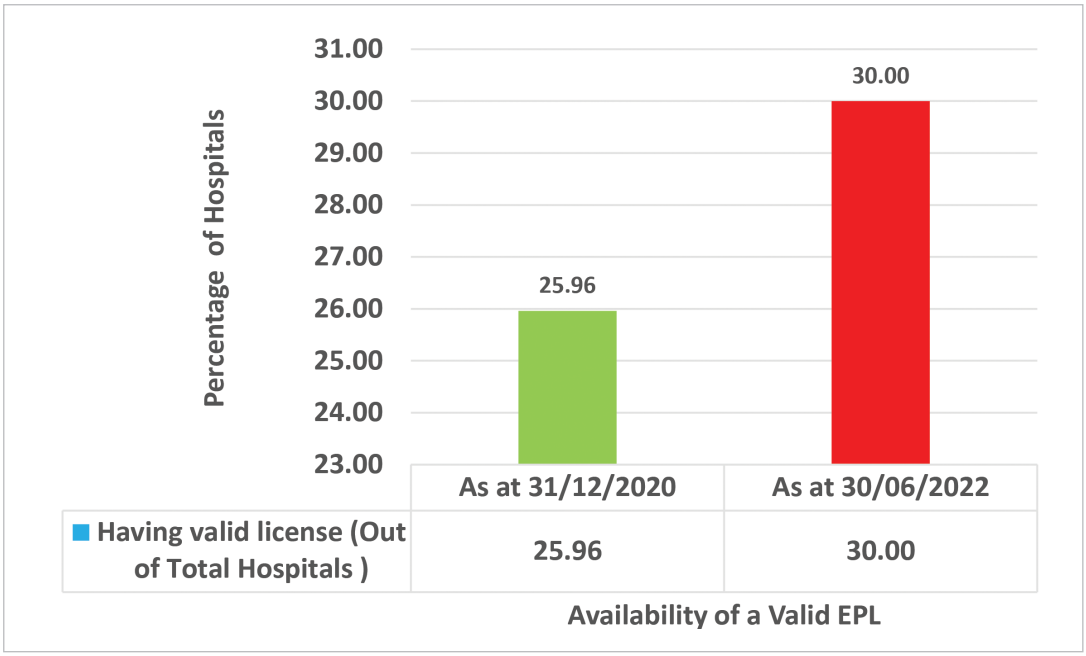
The Environmental and Occupational Health Directorate provides technical guidance for waste avoidance, minimization, segregation, collection, storage, proper treatment and final disposal of healthcare waste (HCW), capacity building, logistic support, training of trainers and developing training manuals and a management information system (pilot). Seven "R" concept is being used and promoted in providing guidance to managing HCW. Most hospitals practice recycling of clean plastics, bottles and paper including cardboard, by selling those to registered recyclers. Certain hospitals have taken measures to minimize the usage of polythene by patients, visitors, and staff. Some have imposed a ban on polythene use. Several hospitals have bio-gas generators, and this generated energy is used for boiling water or cooking food. Several hospitals do composting of bio-degradable waste and use the compost for gardening, and fruit and vegetable cultivation in the hospital premises. Guidance have been given to hospitals regarding food waste minimization. Several hospitals have addressed reducing food wastage by rearranging the menus, awareness creation to patients and staff and improving methods of serving food.

Streamlining the final disposal of infectious and sharps wastes too, has been carried out by providing non incineration modalities (metaMizers) and high-end incinerators to selected hospitals. The government healthcare settings have been recommended to employ several methods for the final treatment of infectious and sharps waste. Those include outsourcing to licensed private HCWM parties, and on site treatment with metaMizers and incinerators. There are around 60 incinerators and 20 metaMizers placed in the country in government health institutions to manage infectious and sharps waste.

Recommendations have been given to manage wastewater including sewerage plants. However, there are significant gaps in wastewater management in many hospitals. Several proposals have been developed for wastewater management in healthcare institutions, but due to funding problems they have not been set up. All healthcare institutions have been requested to obtain the Environment Protection License (EPL) and the Scheduled Waste Management License (SWML), as per the regulations under the National Environment Act No 47 of 1980 in Sri Lanka.

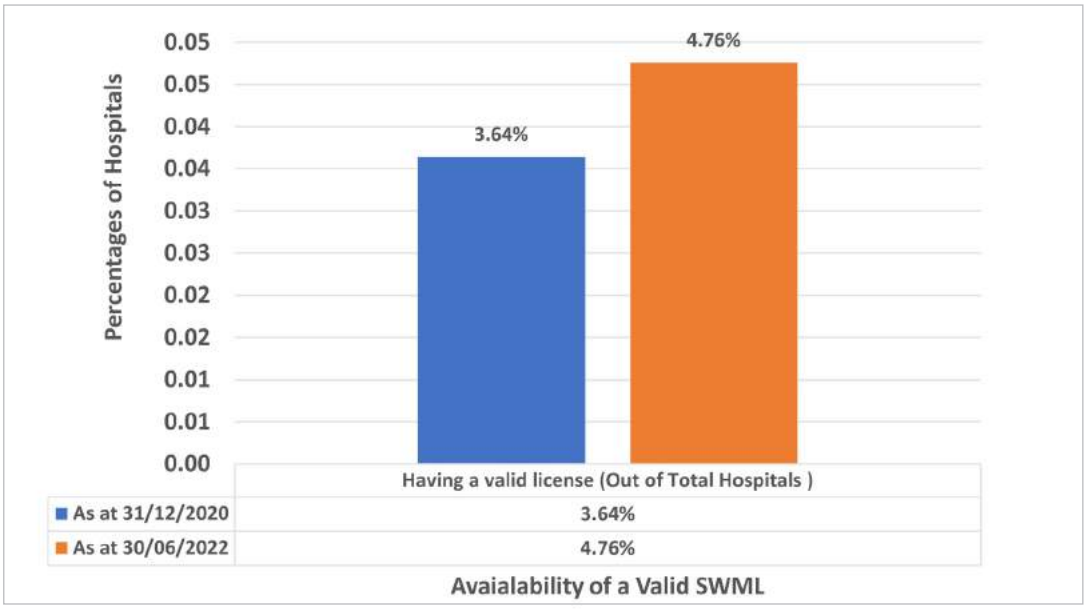
Sustainable consumption practices have been recommended to be practiced by the hospitals. These include reduction of water and energy usage. Some hospitals do practice rainwater harvesting and use the water for gardening. A few hospitals have switched on to solar to reduce the carbon footprint. Cleaner production principles too, have been introduced by the Environmental and Occupational Health Directorate. A few hospitals have developed environmental policies for their institutions. Sustainable procurement too, is practiced in certain hospitals. However, there is room for much improvement in those areas. Measures have been taken to improve occupational health safety and wellbeing of healthcare workers and cleaning staff. Provision of Hepatitis B vaccination, Personal Protective Equipment, and welfare facilities such as washing facilities and infection prevention items are some of them. It is planned to develop a programme on occupational health, safety and wellbeing for healthcare workers of the Ministry of Health. Initial discussions on this have been initiated.

Certain hospitals have won green awards from the Central Environmental Authority and other organizations for their dedication in ensuring environment sustainability, which needs to be commended.



Source: Environmental Health Unit

Figure 108 : Environmental Protection License (EPL) status of all healthcare institutions as of 31st June 2022



Source: Environmental Health Unit

Figure 109 : Scheduled Waste Management License (SWML) status of all healthcare institutions as at 31st December 2020/30th June 2022

Strengths of the strategy

Availability of a focal point for this subject area in the Ministry of Health, namely, the Directorate of Environmental and Occupational Health is a main strength. Availability of a Policy on Waste Management for Sri Lanka, establishment of a national steering committee on healthcare waste management and another steering committee on environmental and occupational health, can be identified as strengths in implementing this strategy. Several hospitals have implemented interventions for waste management.

Challenges

There are many challenges in ensuring environmental sustainability while providing healthcare in healthcare settings. Ensuring environmental sustainability while providing health services is a competing

priority in most healthcare settings. Inadequacies in financial and human resources are significant challenges for proper healthcare waste management. Inadequate annual financial allocations, both to the line ministry and provincial setups, hinder the provision of essential logistic and infrastructure facilities and maintenance. Inadequacies in suitable healthcare waste transport vehicles to implement the cluster operations is a serious challenge. Expertise required to operate incinerators is lacking in the health sector. The bottom ash produced following incineration is highly hazardous, and there are no hazardous waste landfill sites in Sri Lanka. Building ash pits inside the hospitals too, is challenging due to financial and space constraints. Disposing of bottom ash in an unhealthy manner threatens environmental sustainability, needing urgent attention.

Even though the metaMizers employ non incineration techniques and are more environmentally friendly, there are serious challenges in disposing of the final metamized product. Final Metamized product is similar to municipal solid waste and can be disposed by the local authorities. However, many local authorities do not accept this waste, and it has become a serious issue to many hospitals having metaMizers. Certain non-hazardous waste items such as clean glass (ampoules, vials and colored medicine bottles) and certain plastic items are not taken by recyclers. Lack of final disposal modalities for disposing of mercury waste too is a serious problem faced by the health sector. Healthcare waste management in a healthcare setting is the responsibility of all the staff members, patients and visitors. Poor knowledge as well as attitudes of some of them regarding proper waste management is identified as a challenge.

Even though all healthcare settings need to obtain EPL and SWML annually, majority of the healthcare institutions do not possess these licenses. Gaps in wastewater management in hospitals contribute significantly to rejection of licenses, which is a serious concern. The cost involved in switching to clean energy, such as solar, is a challenge. Attitudes of some staff in saving water and electricity too, is an issue. Culture, attitudes and practices of staff, patients and visitors is a challenge in reducing food wastage.

Recommendations

1. Ensure support from all government, nongovernment and civil society stakeholders. Strong multi stakeholder collaboration from all the relevant sectors, especially local authorities in handling healthcare waste, should be obtained. It has to be agreed upon at all levels including national and provincial.

2. Healthcare waste management should be identified at the highest levels of administration and prioritization should be given for the activities at all levels.

3. Provide adequate financial allocations to manage healthcare waste to the Ministry of Health and Provincial Ministries of Health considering its importance.
4. Healthcare waste management should be a prioritized activity at all levels.

5. External donor funding needs to be considered, and the National Budget Department and External Resource Department should assist the Ministry of Health in this regard.

6. Health Supportive Assistants in healthcare units should be given an additional training in fields such as carpentry, plumbing, masonry, welding, metamizer/incinerator, etc. with the view of contributing to maintenance of institute infrastructure.

7. Cadre for engineers and technical officers needs to be identified, so that there is proper monitoring in terms of the machine operations and maintenance.

8. Advocate for disease prevention and environmental health as core components of future health strategies.

9. Develop green and healthy hospital guidelines with the relevant stakeholders to ensure environmental sustainability in providing healthcare by the Environmental and Occupational Health Directorate. It should address improving leadership, reduction of the carbon, water and food footprints, implementing energy efficiency and clean, renewable energy generation, proper healthcare waste management, green building designs and green spaces, green procurement, pollution control and chemicals management.

10. Encourage the green and healthy hospital concept.

Suggested indicators

1. Percentage of government healthcare institutions with a valid EPL as at 30th of June and 31st of December each year
   a. Out of the total healthcare settings
   b. Provincial and district wise percentages
   c. Category wise percentages

2. Percentage of government healthcare institutions with a valid SWML as at 30th of June and 31st of December each year
   a. Out of the total healthcare settings
   b. Provincial and district wise percentages
   c. Category wise percentages

3. Percentage of government healthcare institutions with a valid EPL and SWML as at 30th of June and 31st of December each year
   a. Out of the total healthcare settings
   b. Provincial and district wise percentages
   c. Category wise percentages

4. Number of government healthcare settings certified as green and healthy per annum.

STRATEGY 2

APPROPRIATE AND ACCESSIBLE HIGH QUALITY CURATIVE CARE FOR ALL SRI LANKAN CITIZENS

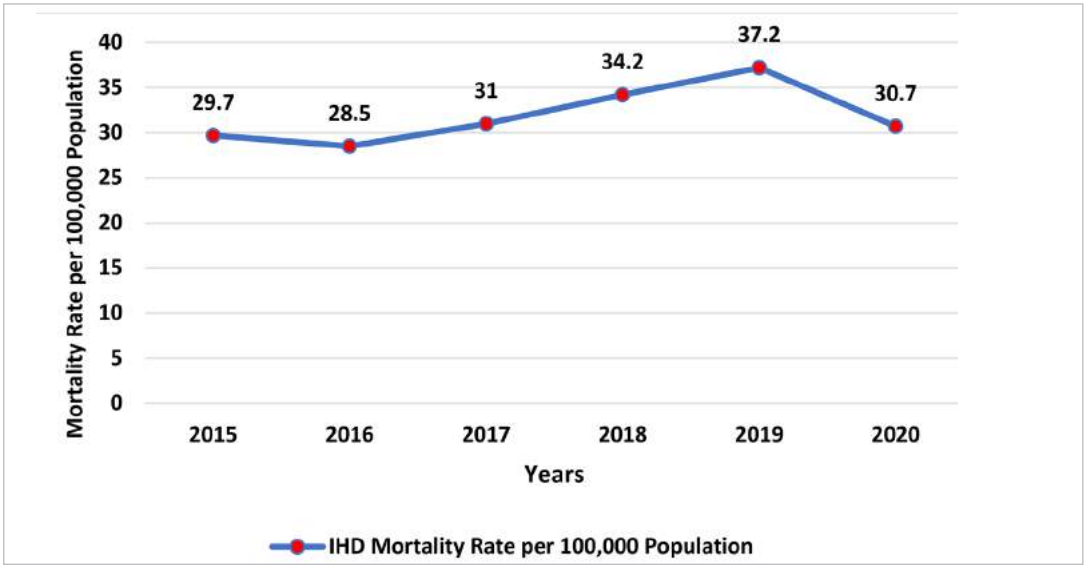
PROMOTION OF EQUITABLE ACCESS TO QUALITY REHABILITATION CARE

Sub strategy 2.1-: To provide comprehensive cardiac care services in an equitable manner

Cardiac care services can be broadly categorized into preventive and curative services. Primordial and primary prevention activities have a high impact at a low-cost value. Adult cardiology, pediatric cardiology, cardiothoracic surgery and cardiac electrophysiology are main subspecialties of this field.

Disease burden

Ischemic heart disease (ICD 120-125) accounted as a top leading cause of hospital deaths in 2019 in Sri Lanka and accounted for 15.1% out of all deaths. It is rising from 27.6 to 37.2 per 100,000 population from 2012 to 2019 respectively. In 2019, the number of public hospital admissions were 667 per 100,000 population, and a total of 137,354 live discharges were reported. The case fatality rate of ischemic heart disease was 5.58 per 100 cases. According to the "Global Health Observatory" of the WHO, ischemic heart diseases disability adjusted life years accounted to 2554 DALYs per 100,000 Population in 2019 in.



Source : AHB 2015-2020

Figure 110: Ischemic heart disease (ICD 120-125) mortality rates per 10,0000 population in Sri Lanka from 2015-2020

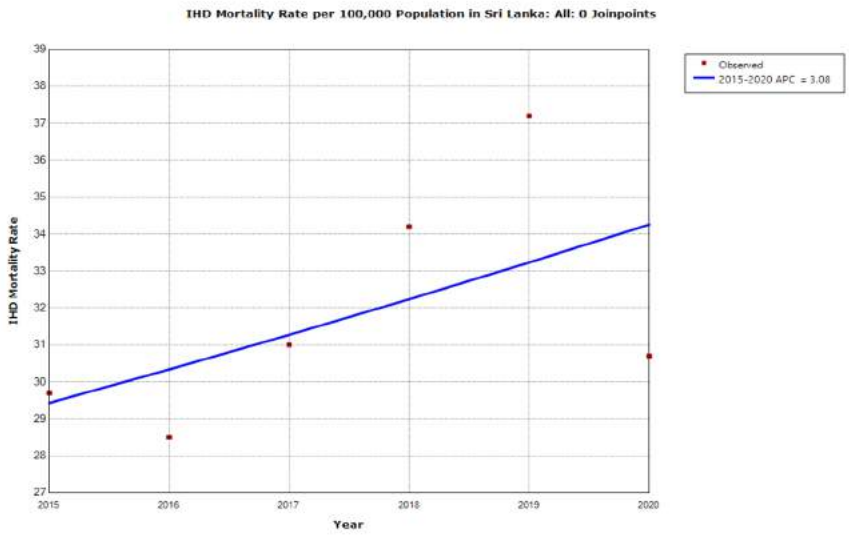


Figure 111 : Trend analysis of ischemic heart disease (ICD 120-125) mortality rates in Sri Lanka from 2015-2020

Although an increasing trend for ischemic heart disease is observed from 2015-2020, it is not statistically significant.

Cardiology services

Cardiology units were increased in the country from 31 units to 59 units during the 2015 to 2021 period (32 numbers in PGHs, THs and specialized hospitals, 19 in DGHs & 8 in BHs). The number of cardiac catheter labs has also been increased from 11 units to 17 units during the same time period (3 in BH, 2 in DGHs, 12 in PGHs and above). The private sector provides cardiac services through six cardiac care units.

Adult cardiology mainly focuses on Atherosclerotic Coronary Artery Diseases, Cardiac Failure and Valvular Heart Diseases. Currently, programmes for prevention of coronary heart diseases are conducted through different preventive health platforms using cardio-vascular risk assessment scores e.g., at the primary healthcare level hospitals and at Healthy Lifestyle Centers of the NCD Bureau. (Described in strategy 7-sub strategies 2-4).

Adult cardiology services can be subdivided to interventional and non-interventional work. Most of the non-interventional Ischemic Heart Disease Management including thrombolysis is done at medical wards as inward care and subsequently followed up at out-patient clinic facilities of Base and above hospitals. The specific services regarding interventional work are available at coronary care units with advanced facilities including cardiac catheterization, cardiac imaging and cardiac electrophysiology. Currently, there are 90 adult cardiologists in Sri Lanka. The rate for cardiologists was 0.36 per 100,000 population. Only a limited number of cardiac electrophysiologists are (nine in numbers) in the country. There are around 24 cardiothoracic surgeons serving the country. Epidemiological data related to cardiac care at the national level is unavailable, apart from mortality and morbidity of cardiovascular diseases.

After 2015, the MoH has established new catheterization laboratories (cath lab) in DGH Kalutara, DGH Polonnaruwa and DGH Vavuniya. The cath lab project was completed at North Colombo Teaching Hospital Ragama, and services will be commenced very soon. Currently, under the JAICA funded project for cardiology, catheter labs have been identified in NH Kandy, PGH Badulla, TH Kurunegala, TH Anuradhapura and DGH Trincomale based on a situational analysis in 2014.

Table 27 : Estimated cardiac catheterization facility projected service provision in 2025

Hospital	2014 base line value	2025 Target
NH Kandy	2982	5371 after establishing 2 Cath lab
PGH Badulla	0	2660 after establishing 1 Cath lab
TH Kurunegala	1362	4951 after establishing 1 Cath lab
TH Anuradhapura	212	1803 after establishing 1 Cath lab
DGH Trincomalee	0	3252 after establishing 1 Cath lab

Through this initiative, it was estimated that the workload of the NH Colombo can be reduced from 21840 per year cardiac catheterizations to 16140, from 2014 to 2025. However, it was observed that the JAICA loan process has been halted due to the current economic crisis of Sri Lanka, and the outcome of the total project is unpredictable at this stage.

The door to needle time (DNT) is defined as, the time between the entrance of a patient to the emergency room who is then diagnosed as having a ST Elevation Myocardial Infarction (STEMI), and the receipt of fibrinolytic therapy. The international standard for DNT in < 30 min is 90 %. In 2015, the achievement in Sri Lanka for DNT in < 30 minutes was only 37% according to the Acute Coronary Syndrome Sri Lanka Audit Project (2015). The MoH has set the target to 70%, and a “quality indicator” is included in the General Medicine indicators Indicator definition from 2022: Number of hospitals with =>70% of patients given a fibrinolytic in <30 minutes of arrival for patients diagnosed with STEMI, as per all the hospitals (BH upwards).

In 2019 and 2020, the value of the above indicator was 40% and 39%, respectively, with low data gathering. Therefore, a mechanism should be adopted to gather comprehensive data on DNT routinely by clinical audits or from patient discharge sheets or introduction of Thrombolysis Checklists.

Cardiothoracic Surgical Care

There are 23 cardiothoracic and thoracic surgeons for the 21.8 million population of Sri Lanka. They are distributed in 17 institutions: eight government hospitals, one semi-government hospital and eight private hospitals. Cardio thoracic surgery facilities are available in NHSL, NH- Kandy, TH Jaffna, TH Karapitiya, LRH, served by nine cardiothoracic surgeons in the country. PGIM trains cardiothoracic surgeons with an intensive 7-year course. Mainly, they are performing coronary artery bypass grafting surgeries, valvular surgeries, extra corporal membrane oxygenation, cardiothoracic trauma care, cardiac tumor surgeries and aortic operations. It was observed that there is an average 1-4 year long waiting list for surgeries, depending on the unit. However, based on the patient's therapeutic requirement, prioritization is done at the hospital level. Sri Lanka is the highest performer in cardiothoracic surgeries (with 265 cardiac operations/million population), compared to other South Asian countries. However, the service coverage is low compared to High-Income Countries such as USA (2100 surgeries /million population).

Although Sri Lanka does not have data on a comprehensive analysis of the mortality rate for elective cardiac surgeries, a study conducted in 2020, in a single surgeon led unit, revealed the mortality rate as 2.4% for coronary artery bypass grafting, while for other cardiac elective surgeries, it was 3.3%. These figures were within the acceptable level of international standards. The recent death rate while waiting for surgery was 5.7%, and it is very much higher than in the developed country setup. However, the long waiting time is a common situation around the globe.

The NCD Unit, Ministry of Health in 2018 developed the national treatment guidelines for Hypertension, Diabetes, Dyslipidemia, Obesity and Cardiovascular risk management for primary healthcare physicians, with the collaboration of the College of Cardiologists, College of Endocrinologists, Ceylon College of Physicians and other relevant stakeholders. In addition to that, reference guides were developed for the same documents for secondary care physicians. The primary care physicians training is ongoing for implementation of the guidelines.

Further to that, professional colleges have developed several guidelines for common cardiovascular conditions, including a guideline for cardiac care during the covid-19 pandemic that was released in 2021 by the College of Cardiologists.

Recommendations

1. Given the fact that IHD is the leading cause of death in Sri Lanka, a comprehensive assessment of cardiac- thoracic services should be carried out by an external evaluator, and reorganize the cardiothoracic surgical services to match the demand in the country and establish a better referral and back referral system, taking into consideration the primary healthcare system.

2. Upgrade the NHSL Cardiology Unit as the National Heart Center of excellence by providing Electro Physiology Labs, a Pacing Lab and a Hybrid theatre.

3. Establish a patient friendly separate admission pathway via triage from a rapid chest pain assessment unit, to increase survival rates.

4. Strengthen the coordination between adult cardiologists with pediatric cardiologists, cardiac electrophysiologists, and cardiothoracic surgeons.

5. Conduct a rapid assessment of cardiac catheterization labs and take measures to optimize the utilization.

6. Identify the strategies to increase human resources of supportive staff, specially radiographers, to avoid underutilization and to provide 24-hour services as in the NHSL.

7. Conduct a consultation with cardiologists and develop a strategy and a protocol to reduce the waiting time for DNT interventions and other cardiothoracic surgeries.

8. Establish an electronic epidemiological data system for cardiac care units covering all and identify appropriate indicators.

9. Develop a National Cardiac Care Policy.

Recommended indicators

1. Percentage of STEMI Patients who were subjected to primary PCI within 90 minutes (Door to balloon time) (Source of Data- Patient discharge sheets/ Cath lab records) - Target 90%

2. Percentage of STEMI Patients who were subjected to early coronary angiogram within 24h. (Source of Data- Patient discharge sheets/ Cath lab records)

3. Readmission rate within 5 years of Non- Fatal Myocardial Infarction. (Source of Data- BHTs)

4. % patients in each cardiology unit referred and managed at a PHC facility as per the cardiologist's recommendation

Sub strategy 2.2-: To establish comprehensive and adequate ICU facilities and pain management clinics at appropriate centres

Critical care medicine has evolved on the principle that patients with serious illness are better managed when grouped into a separate area and treated by a dedicated team of on-site healthcare providers. Critical care covers potentially recoverable acute life-threatening complications from trauma, surgical, obstetric, communicable and non-communicable disease conditions. In Sri Lanka, the National Hospital of Sri Lanka had the first Intensive Care Unit (ICU) in Sri Lanka. The Recovery Unit for post-surgical patients was established in the late 1960s and was soon followed by the Medical ICU.

The Sri Lanka Society of Critical Care and Emergency Medicine was formed in 2002. The Post Graduate Institute of Medicine introduced the Post Graduate Diploma in Critical Care Medicine, in 2008, which was the first formal attempt to establish critical care training in the country. The Postgraduate MD critical care medicine programme, leading to board certification in critical care medicine, was established in 2014, and the first board certified consultant intensivist (Critical Care Specialist) was appointed in 2017. Since then, the number of consultant intensivists is increasing with time and currently there are 11 consultants in the country. The first professional organization dedicated to critical care medicine was established in 2021, which is the Ceylon College of Critical Care Specialists. However, due to lack of critical care specialists, currently most ICUs are managed by Consultant Anesthetists, and the health system is in a transitional period to replace the vacancies.

There was a total of 99 ICUs available in the country, at the end of 2021, It had almost doubled from 2012 (51 ICUs). Intensive Care Unit (ICU) availability in Sri Lanka is close to 0.04 per 10,000 population in 2021. This ranges from 1 to 3 per 10,000 population in developed countries. Intensive Care Unit bed availability in Sri Lanka is about 0.26 per 10,000 population in 2021. The aim is to increase the ICU bed availability at least up to 0.5 per 10,000 population without compromising the funds allocated for other effective health interests.

Table 28 : Number of ICUs in each province at the end of 2021

Province	Estimated Population	Midyear Number of ICUs	Ratio of ICUs per 10,000 population
Western	6,219,000	36	0.06
Central	2,811,000	14	0.05
Southern	2,696,000	11	0.04
Sabaragamuwa	2,088,000	4	0.02
Northern	1,165,000	9	0.08
North Central	1,402,000	5	0.04
Northwestern	2,592,000	8	0.03
Eastern	1,783,000	7	0.04
Uva	1,400,000	5	0.04
Total	22,156,000	99	0.04

Source: Medical Statistics Unit

The above table gives the availability of ICUs in each province. There are six types of ICUs available in Sri Lanka: General (43%), Surgical (13%), Medical (14%), Maternal (5%), Accident & Emergency (5%) and Specialized (20%).

Several guidelines have been developed by the Critical Care Faculty of the College of Anesthesiologists including; The protocol for Magnesium Therapy in Tetanus (2019), Guidelines on Nutritional Support in ICU, Guidelines for Transport of Adult Critical Care Patients in Sri Lanka (2019), Guidelines for the Management of Potassium Imbalance in Adults (2019), Guidelines for the Care of a Patient with Tracheostomy (2019) and ICU Design Guidelines (2020). Furthermore, the End of Life Care Policy was developed with the partnership of the Sri Lanka Medical Association.

One of the major new achievements was the establishment of the outreach team concept. The outreach team should consist of a doctor, ideally having experience in critical care medicine, and an ICU nurse, supervised, and guided by a consultant intensivist. This outreach team will assess the patients at the community level and recommend referrals for admissions to ICU and acute management procedures of the patients within the hospital. They will also assess the patients following ICU discharge and observe them in the ward, for at least 24 hours, and will follow them up further if needed. This process has the potential to identify deteriorating patients early and provide appropriate management strategies, in the ward itself, which will help to prevent re-admission to the ICU.

Post ICU clinics will detect long term sequalae of critical illness e.g.: Post ICU Syndromes including psychological sequalae and other critical illness related complications. Expansion of the use of Extra Corporeal Membrane Oxygenation (ECMO) is a new development in the field of intensive care within the period of 2015-2021. General use of ECMO is around 0.42 per 100,000 population worldwide. During COVID 19, the usage has gone up to 14.89 per 100,000 population and with a rate of 1.2% per mechanically ventilated patients. Considering the Sri Lankan experience so far, 20 out of 41 patients have survived before the COVID-19 pandemic (48%) by using ECMO. The total number of referrals for ECMO during the COVID-19 period was 150, and 2 out of 6 patients have survived on ECMO due to COVID pneumonia (33%). At the moment, there are three (03) ECMO machines functioning in the country in two (02) hospitals.

The level of complexity and advanced nature of the specialty require ECMO centers to be located in tertiary care units, with onsite facilities for cardiothoracic surgery, availability of perfusionists, 24/7 cover by intensivists and access to cardiologists and respiratory physicians. At least 20 cases per annum, with

a minimum of 12 respiratory cases, are required to maintain standards of care. Kandy, Colombo and Karapitiya are the proposed centers for ECMO in the future. Another new development in the field was the expansion of the use of Continuous Renal Replacement Therapy (CRRT) within the ICU settings. Currently, NHSL, NHK, and TH Karapitiya & Jaffna have functioning CRRT services in the country.

The following table depicts the requirements to fullfill the ICU grading.

Table 29 : Requirements to fulfill the ICU grading

	HDU	Grade 1	Grade 2	Grade 3
Hospital type	All	BH (A & B)	GH (PGH & DGH)	TH & NH
ICU model	Open	Open	Semi-closed	Closed
In charge	Anesthetist / physician	Anesthetist or physician	Intensivist or anes-thetist	Intensivists (full time)- min 3 up to 10 beds
ICU/Hospital beds	3-5 %	3-5 %	3-5 %	5-8 %
Size (bed strength)	8-10	6-10	8-12	10- 20
Monitoring	Non-invasive	Non-invasive	Minimally invasive	Invasive
Purpose	Step down	Short period RS, VS support	Able to escalate organ supports	Complex organs support
Organ supports	NIV, HFNO	+Ventilators	+ CRRT/HD	+ECMO
Isolation rooms	40 % of beds	40% of beds	50% of beds	60% of beds
ICU Subtypes	General	General	General, paediatric, CCU, trauma	Cardiothoracic, trauma, paed, neurosurgery

Challenges faced during 2016-2021 in the field of intensive care are: increasing demand for Critical Care Specialists, non recognition of minimum requirements of Critical Care Specialists per Unit, increasing demand for Critical Care Medical Officers (MO ICU-Critical Care Diploma trainees) and mal-distribution of manpower and equipment required for sustaining therapy.

Recommendations

1. With the expansion of the speciality, explore the possibility of converting the open and semi closed ICUs to closed ICU units, and grading of ICUs should be adapted to the requirement of the institution/region with adequate human resources.

2. Recommend allocation of Critical Care diploma holders to ICUs for a pre-defined number of years before releasing to other specialties.

3. Development of a real time responsive ICU surveillance system with regular monitoring and evaluation of performance indicators at the central level.

Pain management via pain clinics

In addition to being an extremely unpleasant experience, pain can have a profoundly detrimental impact on almost every other element of life, including the ability to perform daily tasks. According to a study by the World Health Organization, people who have chronic pain are four times more likely to experience depression or anxiety than people who don't, and they are more than twice as likely to have trouble working. Both to the healthcare system and the society as a whole, the expenses associated with pain are very substantial. People who experience pain, not only use the hospital system more frequently, but their productivity is also greatly reduced. Globally, over 4 billion workdays are thought to be missed each year due to pain. Even though these expenditures are significant, one of the largest costs of pain is the

threat to quality of life. Pain can be managed in the following conditions, such as acute/chronic/ cancer/ palliative care/end of care or managed in special conditions (obstetric or trauma) or special groups (drug addicts) It is done by a multidisciplinary team with multimodal methods (non-pharmacological/ pharmacological/ interventional).

Although it was planned to establish Pain Clinics in all provinces in Sri Lanka, there were only two functioning standard Pain Clinics (at the NHSL and National Cancer Institute Maharagama) up to 2016. However, after 2016, it was extended to TH Karapitiya, TH Kandy, Colombo North (CNTH), Colombo South (CSTH) and DH Theldeniya. There are two consultants on transferable posts at NHSL / NCIM and in other hospitals, and the 3rd Consultant Anesthetist manages the Pain Clinic for a maximum of 3 days per week. There are no existing cadre positions. A proposal was drafted to identify and designate a MO Anesthesia in pain with training in pain management, as there are no MOA available for pain clinics. The third batch of Pain Management Nurses completed their training recently and so far, 100 nurses have been trained with 40 in each batch. However, as there is no dedicated consultant supervision, most pain clinics have become nonfunctional.

At present, pain management teaching and training takes place for Registrars and Senior Registrars in Anesthesia and MO/Anesthesia for 2 weeks. Pain Management assessments are carried out in CCA / MD selection exam in Anesthesia, and Essential Pain Management (EPM) is a compulsory training for the final exit exam in anesthesia which is an internationally validated training programme which the Ministry of Health has funded until last year. EPM workshops are being conducted in each province by the Pain Medicine Faculty, College of Anesthesiologists and Intensivist Sri Lanka (COAISL). It is a compulsory training for all PG trainees and any doctor can participate. As a new initiative, pain teaching was incorporated into Good Interns Programme too. Further, an Interventional Pain Management Training is currently carried out by Specialists from the UK and India. Pain Management Protocol development is in progress, and in addition, various teaching and training programmes are frequently and regularly done under the College of Anesthesiologists & Intensivists of Sri Lanka (COAISL). Pain sessions are conducted annually by the Pain Medicine Faculty of COASL to publish Pain Audits.

Recommendations

1. Consultant Anesthetists post in District and above hospitals should be identified and filled.
2. A designated Anesthetist for Pain Management should be appointed with a job description.
3. Include posts of Medical Officer in Pain Management in the post-intern list
4. Pain management guidelines (management of chronic pain conditions, fluoroscopic procedures) should be developed by the MoH with partnership of professional colleges
5. Clinical audits should be conducted for pain management by a team of experts.
6. Explore the possibilities of training of anesthetists with special interest of in pain management by the PGIM.
7. Establish an Acute Pain Management Team in each hospital and promotion of multidisciplinary approach in pain management including implementation of non-pharmacological methods of pain management with the multidisciplinary team.
8. Explore the feasibility of using epidurals in intra-partum care in all obstetric units and ensure that Senior Registrars, Registrars, and Labour room nurses are adequately trained

Sub Strategy 2.3 -: To establish an antimicrobial stewardship programme in all hospitals

Background

Antimicrobial resistance (AMR) is a global health and development threat and is considered as one of the top 10 global public health threats faced by humanity. Antimicrobials include antibiotics, antivirals, antifungals and antiparasitic agents. The cost of AMR to the economy is significant. In addition to death and disability, prolonged illness results in longer hospital stays, the need for more expensive medicines and higher level of care, such as intensive care, and financial challenges would occur.

The main drivers in the development of drug-resistant pathogens have been identified as misuse and overuse of antimicrobials. Hence, antimicrobial stewardship and the optimal use of antibiotics would be a key strategy for combating antimicrobial resistance. Policy direction and implementation of antimicrobial stewardship programmes are essential in this regard.

National Strategic Plan for Combating Antimicrobial Resistance in Sri Lanka

In par with the Global Action Plan for combating antimicrobial resistance, the National Strategic Plan for Combating Antimicrobial Resistance in Sri Lanka (2017 – 2022) was launched in 2017, and antimicrobial stewardship is identified as one of the five main strategies for combating AMR in this plan. Antimicrobial stewardship refers to coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy and route of administration, etc. However, a well-designed antimicrobial stewardship programme is not in place.

Strategic interventions include ensuring un-interrupted access to quality assured antimicrobials through strengthening the pharmaceutical supply chain, establishment of a quality management system for the supply, storage and transport of medicines, and strengthening the elimination of the use of unregistered antimicrobials. Most of these interventions are not met at the central level and at the hospital level. In the absence of a stewardship programme, strategies related to antimicrobial stewardship are implemented at varying degrees across the hospital setup.

In 2021, prescriber awareness programmes on antimicrobial stewardship were conducted annually as onsite physical programmes and also via written and electronic media, by experts in the field for General Practitioners, hospital doctors, pharmacists, medical and pharmacy students and school children during the World Antimicrobial Awareness Week.

The National Antibiotic Guideline for empirical and precise use of antibiotics was launched in 2016 by the Ministry of Health, in collaboration with the Sri Lanka College of Microbiologists. A circular (01-56/2016) was issued by the Ministry of Health on authorization of prescribing “Red Light Antimicrobials” for the public sector which is also applicable to the private sector. “Red Light Antimicrobials” are identified as antimicrobials which need authorization by the Consultant Microbiologist of the relevant hospital prior to prescribing.

The “Essential Medicines List” (EML) was published in 2014, and it contains 29 antibiotics including 65 dosage forms. According to the formulary revision of 2021, the second revision of EML is to be published in 2022 with demarcation of levels, and it is required to classify antibiotics as per the “AWaRe” classification (Access, Watch and Reserve) and create awareness among the different levels of prescribers in the public and private sector on these developments.

Challenges

It is a challenge to improve and measure appropriate use of antimicrobial agents in human healthcare. It was observed that some of the circulars on antimicrobial stewardship have not reached the end users. Continuation of uninterrupted drug supply was a challenge due to quality failure of some products, including the failures in timely procurement according to accurate estimates. In view of achieving positive outcomes for implementation of the strategies and objectives of the National Strategic Plan for AMR, a further systematic and well streamlined approach is required. Although the majority of the individual hospitals have formulated Drug and Therapeutic committees, they do not function regularly and lack terms and reference (TOR).

Recommendations

1. Develop a national policy of AMR and establish a well-designed antimicrobial stewardship programme to implement the components of the programme including a monitoring and evaluation mechanism.

2. Ensure guidelines are available for different levels of hospitals (tertiary, secondary, primary)

3. Knowledge improvement of medical professionals regarding the rational use of antimicrobials, and public awareness should be carried out to improve the awareness on AMR among the public.

4. Strengthen implementation of legislations related to registration of healthcare products and devices and prescribing and registration of healthcare facilities in the private sector

Sub strategy 2.4-: To improve the specialized care facilities for the patients with hematological disorders

Background

Hematology encompasses the disorders of the blood and bone marrow, and involves both direct clinical care and diagnostic work in the laboratory. This includes diagnosis and management of a wide range of benign and malignant disorders of the red and white blood cells, platelets and the coagulation system in adults and children, including life- threatening malignancies such as leukemia, lymphoma or myeloma, diseases affecting the blood coagulation system such as haemophilia and disorders of hemoglobin such as thalassemia & sickle cell disease. It also involves all types of anemia (iron deficiency anaemia, Vitamin B12 and Folate deficiency, anaemia of chronic disease), autoimmune hemolytic anemia (an immune-mediated disease causing a low red blood cell count), idiopathic thrombocytopenic purpura (ITP) (an immune mediated disease causing a low platelet count), iron metabolism disorders such as haemochromatosis and iatrogenic iron overload and reactions involving blood and blood product transfusions.

Hematologists work very closely with other health professionals including General Physicians, Paediatricians, Oncologists, Surgeons, and Anesthetists & Intensivists. They also perform a wide range of laboratory tests to produce and interpret results assisting clinicians in their diagnosis and treatment of diseases, whilst supporting hospital departments including A&E, intensive care, operating theatres, special care baby units and oncology. Currently, There are 67 Consultant Hematologists serving in Base and above hospitals in the country with 13 in universities, while there are 4 Consultant Haemato-oncologists serving in the Cancer Institute Maharagama and the Cancer Unit Kandy.

Patients with haematological disordered are managed by consultant hematologists at haematology clinics, day units, haematology wards or shared ward facilities. Patients from the outpatient department, clinics,

and wards of Base and above hospitals and other draining hospitals are referred to the haematology clinics for specialized haematological assessments and management. Where there are haematology wards, the focus is on inward management of congenital bleeding disorders such as haemophilia, thrombotic events, bone marrow failure syndrome and haematological malignancies. In hospitals without separate haematology wards, patients are managed in general medical wards, and hematologists provide advice and follow-up.

Haematology laboratory diagnostic facilities and haematology clinic facilities are available at Base hospital A and above levels. There are 13 established but 10 functioning haemophilia centers with treatment facilities in Sri Lanka. Majority of them have daycare facilities. Day treatment centers provide patient services by administration of factor viii, ix, vii, FEIBA, Vwf and factor viii on a day patient basis. A registry of haemophilia patients is maintained at each haemophilia center. Haemophilia new case finding is done by opportunistic screening of siblings in these centers. These centers form partnerships with the Haemophilia Association.

Apart from that, there are 12 haematology day units in Sri Lanka: PGH Badulla, CSTH, NHSL, BH Wathupitiwala, TH Peradeniya, DGH Kegalle, DGH Vavuniya, DGH Trincomalee, BH Elpitiya, Regional Thalassemia prevention and treatment center-TH Anuradhapura, DGH Ampara and BH Tangalle. Haematology ward facilities are available in NH Kandy, Colombo South Teaching Hospital and DGH Badulla. Development of a ward facility at NHSL is being planned. A bone marrow transplant unit at LRH was commenced in September 2020. Specific Haematology laboratory diagnostic facilities available at Base hospital A and above are, PT INR, APTT, Factor assay viii, ix, vwf assay, Fibrinogen, Ricof activity, inhibitor screening, inhibitor (Bethesda) assay, and Mixing studies. Haematology clinics also offer home care advice, physiotherapy, psychological support and dental care and other referral.

Patient information booklets on hematological diseases such as, Myeloid leukemia, myelofibrosis, lymphoma, myelodysplastic syndrome, cancer & diet, neutrophils, multiple myeloma, polycythemia, aplastic anemia essential thrombocythemia have been published jointly by the College of Hematologists and the National Cancer Control Programme in 2020. These booklets are distributed among the patients who are attending to public health sector.

Challenges

Challenges for Haematology service provision are inadequate medical officers and other staff categories including medical laboratory technologists for hematology laboratories, interrupted supply of reagents for haematology diagnostics, unavailability of genetic testing facility for hematological disorders in the government sector –especially for haematological malignancies, and Inadequate facilities/ funds for uninterrupted bone marrow transplantations. Statistics pertaining to patients receiving haematology clinical care were incomplete in 2015, and to establish a comprehensive data collecting and analyzing system for Haematological Morbidities and Mortalities. Currently, all 13 centers have a well-established computerized data system for hemophilia patients, but sadly it is not collected from the central level.

Recommendations

The National Health Master Plan 2016-2025 has identified two main haematology services to be improved in the country, which are service provisions for hemophilia and thalassemia.

Hematological malignancies

More than 2000 patients with hematological malignancies are reported every year in Sri Lanka. These patients were provided care by the general clinical oncologists through a wide network covering all the main hospitals in each district. In 2015, Haemato-Oncology was established as a new sub-specialty with the intention of producing appropriately selected, properly trained, exquisitely competent and holistically

caring Haemato-Oncologists who would be able to satisfy the needs of the country in providing the best possible state-of-the-art care and follow up for patients with haematological malignancies who need expert attention. In 2016, two Haemato-Oncology units were established at Apeksha Hospital, Maharagama, dedicating to patients with haematological malignancies, and two Clinical Oncologists with special interest in Haemato-Oncology were appointed to these units. One consultant Haemato-Oncologist is attached to the National Hospital, Kandy (NHK) in a transferrable post since March 2019.

While the Haemato-Oncologists provide care for the in-ward patients and out-patients directly referred to them, they also extend their duties to look after the Stem Cell Transplant patients at the Bone Marrow Transplant Unit (BMTU) of the Apeksha Hospital Maharagama, the only stem cell transplant facility in the public sector for adult patients. Currently, this unit vastly provides Autologous Stem Cell Transplantation for a limited number of haematological malignancies, and the facility has been expanded from 2 to 8 rooms with generous donations from well-wishers and expatriates. The first fully matched sibling allogeneic stem cell transplantation was successfully offered at the BMTU of the Apeksha hospital recently, expanding the variety of diseases for which stem cell transplantation is offered. A plan is underway to establish a new stem cell transplant unit at the NHK. Due to the unavailability of ward facilities, none of these Haemato-Oncologists are in a position to contribute to a casualty roster to take over any urgent transfers from peripheries or other hospitals with the diagnosis of an acute haematological malignancy or an emergency related to the diagnosis of a haematological malignancy.

The outcome of acute leukaemic patients in Sri Lanka is poor due to the unavailability of necessary infrastructure and resources, which has not seen a timely expansion over the years. A considerable number of patients with haematological malignancies have to seek medical attention from centres abroad each year due to the unavailability of proper allogeneic stem cell transplantation facilities in Sri Lanka by trained specialists. Although we as a country have achieved many healthcare indices in the scale of developed countries, unfortunately, we lag behind the rest of the world as well as South Asia by several decades as far as the haemato-oncology care and stem cell transplant facilities are concerned.

Recommendations

1. Establish a cluster / referral system for special investigations at district and above hospitals.
2. Speed up the process of establishing genetic laboratories at the NHSL and National Cancer Institute for optimizing care for patients with haematological malignancies with necessary investigations.
3. Accurate estimate and continuous supply of all the reagents for diagnosing hematological disorders and assure availability of drugs needed for management of hematological disorders at the government sector. The number of samples per machine rate should be assessed for high end machines and monitor at the hospital and central level.
4. Develop a proper mechanism to provide medications which are currently not available in care for patients with haematological malignancies on a named patient basis.
5. Explore the possibility of increasing the number of hematology day units – at least one unit for a district, and the number of hematology wards –at least one ward for a province.
6. Establish a bone marrow transplant unit at the NH Kandy as planned, strengthen the Haemato-Oncology units at the National Cancer Institute & NH Kandy as Centers of excellence for Haemato-oncology services and expand the supportive care facilities to facilitate stem cell transplantation including ICU facilities.

7. Identify isolation facilities at each hospital (including rooms with High Efficiency Particulate Absorbing filtered positive pressure air circulation facilities) to cater neutropenic patients who have the highest risk of neutropenic sepsis and death due to sepsis.

8. Uninterrupted coverage by consultant hematologists for all hospitals Base A and above.

Sub strategy 2.5 To improve accessibility to oral and maxillofacial treatment care services

Sub strategy 3.15 To ensure the delivery of quality, equtible and effective oral healthcare services to the community

Sub Strategies 2.5 and 3.15 are amalgamated

Background

Oral health is an important part of general health of an individual which can significantly affect the quality of life. In 2015, 30.4% of 12-year-old children had dental caries and 47% had dental calculus disease, and only 50.1% brushed teeth at least twice a day. Among 35–44 year old adults, 25.3% had periodontal pockets >4mm. Although a gradual improvement of oral health is observed during the past few decades, the high prevalence of oral disease combined with limited availability of oral health services has led to a significant socio-economic burden. The disease burden is higher among the rural population, and their treatment seeking behavior is low compared to the urban population which hinders early diagnosis.

There is sufficient scientific evidence that chewing betel quid with or without tobacco, and chewing tobacco and areca nut mixed products, are the major risk factors for oral cancer. The Oral Health Survey 2015 recorded that chewing betel quid which contains tobacco & areca-nut was higher among males than among females. According to the Global Adult Tobacco Survey (GATS), the prevalence of smokeless tobacco was 13.4% among males and 4.9% in females.

According to a prospective study in 1989 (Amaratunga et al.) among 51,542 live births and 5,263 still births in central Sri Lanka, cleft lip with or without cleft palate was found to have an incidence of 0.83 per 1,000 births, and isolated cleft palate (CP) had an incidence of 0.19 per 1,000 births. Currently, the probability of a baby born with cleft lip is around 1 in 800.

The incidence of oral cancer in Sri Lanka has shown an increasing trend with a greater proportional rise in males. It showed a higher incidence in males than in females in all three subtypes. Oral cancer was the second leading cause of death among males with cancer over the last few decades, and Sri Lanka was ranked 2nd as the country with disease burden. Structured prevention, screening and early detection programmes have to be planned to reduce the burden of oral cancer in Sri Lanka.

The last National Oral Health Survey done in 2015-2016 identified that there was a reduction in the oral disease burden, improvement in oral health habits and the use of oral healthcare services, when compared with the previous National Oral Health Surveys, probably owing to the island wide coverage of dental services via hospitals, a well-established school dental services structure and the availability of all dental specialties in main hospitals. However, the prevalence of untreated oral disease was still substantially high among all age groups. It was also evident that dental service utilization was mainly for obtaining emergency care rather than for preventive care.

Policy background

The National Health Policy 2016 – 2025 identified the need of provision of quality oral healthcare services to the community in an equitable manner. The National Strategic Plan for Prevention and Control of Cancers in Sri Lanka addresses prevention and treatment of cancer in a comprehensive manner.

Services

Oral healthcare services provided by the Ministry of Health can be broadly categorized to curative and preventive services. In the curative sector, general oral healthcare services are available through Dental Clinics in Divisional and above hospitals, Adolescent Dental Clinics, Community Dental Clinics and Primary Medical Care Units. The specialized services are provided through the Oral and Maxillofacial (OMF) Surgery Units, Restorative Dentistry Units, Orthodontic Units, Oral Pathology Units, Preventive Oral Health Units and Oral Health Units in some Public Health Institutions in the country. The OMF services in Sri Lanka are described in subsection 2.5.

Human resources

There were 84 Dental Consultants working under the public sector and consisted of consultant numbers of 34 in Oral and Maxillofacial Surgery, 15 in Restorative Dentistry, 23 in Orthodontics, 9 in Community Dentistry and 3 in Oral Pathology, attached to the secondary & tertiary level institutions at the end of 2019. Furthermore, 7 consultants served in the Ministry of Defense and another 27 were in the Faculty of Dental Sciences - University of Peradeniya, counting to a total of 128 dental consultants in the country. Altogether, there were 1,570 dental surgeons who are attached to divisional and above hospitals at the end of 2019. The number of dental surgeons per 100,000 population was 7.8 in the same year.

Preventive oral health services are available through regional dental Surgeons at the RDHS level who conduct preventive as well as screening programmes and special campaigns through the NCCP, FHB, HPB and community dental clinics. Currently, there are no guidelines or specifications introduced for the arrangement of physical space of dental clinics.

There are around 365 School Dental Therapists (SDT) who are attached to the school dental clinics under the MOHs. The SDTs provide preventive and curative oral healthcare for children aged between 3-13 years including the target group of children for treatment who are in grade 1, grade 4 and grade 7 classes in schools. These School Dental Clinics, and Adolescent/ Community Dental Clinics provide preventive, promotive & curative care for the target groups such as school children and antenatal mothers, etc. The specialized centers that manage birth defects are only at Peradeniya Dental Faculty, Lady Ridgway Hospital, Karapitiya Teaching Hospital and a recently opened unit in DGH Nuwaraeliya.

There are several other centers of the Ministry of Health which provide services in order to achieve quality and effective oral healthcare services. The Health Promotion Bureau is tasked with addressing of oral health inequalities and social determinants of oral health, and the Oral Health Unit - Family Health Bureau promotes oral health of mothers and children (0-18years), thereby promoting oral health of the family through the existing Maternal and Child Health (MCH) programme, thus achieving sustainable oral health improvements and quality of life of the Sri Lankan population. The oral cancer Prevention and Control Unit of the National Cancer Control Programme (NCCP) is providing services for oral cancer prevention, early detection and improving diagnostic services in Sri Lanka.

Challenges

Challenges are faced with the availability of limited cadre and lack of capital cost to develop infrastructure for specialist units, and the lack of school dental therapists to render services in some areas of the country. The socio-economic and demographic challenges encountered during the past decade highlight the need of oral health policy development with regard to future oral health needs of the country. Moreover, the incorporation of digital technologies for dental services such as for imaging is not adequate in the country, and the intraoral scanning facility is only available in the Peradeniya Dental Faculty and the Computer-Aided Design and Manufacturing technology for dental prosthesis is also limited. The Development of an Oral Health Policy is currently underway, and a plan is proposed for the production of the adequate

number of specialists in all fields to match the increasing demand and the expansion of coverage from specialist clinics for a more effective and more equitable provision of oral health services. Establishment of satellite OMF clinics for oral cancer control activities mentioned in the circular DDG/DS/30/2012 dated 02/10/2021 is also underway.

Recommendations

1. Establish Orthodontic and Restorative units in DGH and above hospitals and establish oral Pathology Units for each province of the country.
2. Strengthen oral health promotion and education among the community, develop a Social Behavior Change Communication (SBCC) system to counteract lifestyles leading to oral health problems and include Oral Health into the school curriculum & establish oral health promotive settings in workplaces, schools, preschools, etc.
3. Develop guidelines identifying the dental surgeon's role in preventive and curative services and improve the existing dental auxiliary programme to focus on prevention.
4. Initiate interventions for dental caries and periodontal diseases from the formative years of teeth in childhood as young as 1 ½ years to reduce the high cost to the patient and the health system for sophisticated dental treatment.
5. Strengthen and expand Community Adolescent School Dental Clinics assigned to MOH areas in the country manned by dental surgeons to care for the community and establish fluoride treatment centers targeting young adults affected by fluorosis in the North-Western, North-Central and Southern Provinces.
6. Special attention should be given to pregnant mothers, elderly and people with non-communicable diseases when providing oral healthcare.
7. Strengthen the oral health management system and promote oral health research for evidence-based dentistry.
8. Develop a sustainable screening system for early detection of oral cancer with a public education and solid referral system.

Oral & Maxillofacial (OMF) services are associated with diseases affecting the mouth and the soft and hard tissues of the maxillofacial structures. The services provided in Sri Lanka include minor oral surgeries, diagnosis and treatment of oral mucosal diseases, non-malignant lesions & precancerous lesions of the OMF regions, ablative and reconstruction surgery of the OMF regions, cutaneous lesions of the face, congenital oro-facial disorders, salivary gland diseases, chronic facial pain, temporomandibular disorders, jaw deformities including orthognathic surgery and hard and soft tissue trauma. In addition, the services also include diagnosis and treatment of sleep apnoea related to OMF problems and cosmetic surgeries of the head and neck.

There are 45 OMF surgeons currently providing services in the government sector, and public sector provides services related to oral cancer, birth deformities and maxillofacial trauma. Mostly private sector services are related to aesthetic services and dental surgeries. The most advanced types of surgeries are done in the public sector. As of end 2021, there were 39 oral and maxillofacial surgical units in various hospitals (17 Provincial, Teaching and Specialized Hospitals, 15 District General Hospitals & 7 Base Hospitals) under the Ministry of Health in Sri Lanka.

The oral and maxillofacial surgical team consists of a consultant and 4-5 dental surgeons who are designated as Dental House Officers and Senior House Officers, who work under the guidance of the Consultant. The OMF surgical team is involved in on-call duties, attending to emergencies mainly for assessment and management of facial trauma which cause damage to the facial soft tissue and jaw bones, and they also have clinics on specific days of the week where they attend to referrals from various drainage areas of the working hospital. Further, the team is involved in minor oral surgeries under local anesthesia and routine surgeries under general anesthesia with the specified theater sessions allocated to them.

The public sector OMF services are almost in par with the global standards in many areas expect in the 3D reconstruction and 3D processing facility and endoscopic surgeries (for example, like treatment for salivary gland calculi) and lack of surgical consumable items like bone plates, fixatives for facial bone surgeries and reabsorbable bone plates used in craniofacial surgeries in children.

The special microscope for microvascular surgeries that help in better reconstruction is only available at the Peradeniya Teaching Hospital, and it's also used for training of both local and foreign Dental Surgeons. There are no subspecialties or special interest board certifications in Sri Lanka. The Bachelor of Dental Surgery programme is conducted at the Faculty of Dentistry, University of Peradeniya. A Dental Faculty at the Jayewardenepura was commenced in December 2021.

No epidemiological data on surgeries carried out in the OMF field are available at the moment.

Recommendations

1. Develop specialized multidisciplinary OMF unis for each province to provide long-term care for the needed.
2. Strengthen and expand the services of the current OMF units and establish a sustainable system to provide necessary surgical items.
3. Expand infrastructure requirements for Micro Vascular and Reconstructive Surgery and increase training programmes in facial trauma and reconstructive aspects.
4. Develop a centrally led surveillance system for OMF services with monitoring and evaluation of performance indicators.

Sub strategy 2.6-: To ensure equitable distribution of comprehensive neurosurgical care throughout the country.

Background

Sri Lanka has just over 20 consultant neurosurgeons for over 21 million people. The country produces its own neurosurgeons through a seven-year rigorous training process including mandatory training in neurosurgery in a center of excellence in a developed country. Neurosurgical care is provided mainly in the public sector and a limited number in the private sector in Colombo.

The government neurosurgical centers are situated in Colombo, Sri Jayewardenepura, Kandy, Karapitiya (Galle), Jaffna, Batticaloa, Kurunegala, Anuradhapura and Badulla. Out of all these hospitals, 'Neurostimulators' are available at NHSL- Colombo, Kurunegala and Karapitiya, while 'Neuronavigators' are available in two hospitals, NHSL and Kurunegala. Therefore, it is not possible to carry out advanced surgeries in other neurosurgical units except in NHSL-Colombo and Kurunegala. This leads to referral of patients from other centers to the NHSL. Except for NHSL, all other neurosurgical units in other hospitals have to be improved with ICU, HDU and post-surgical management facilities.

The public sector surgeries are in par with the international level neuro surgeries. There are five neuro anesthetists and five neurosurgeons in NHSL, while two interventional neuro radiologists are supporting the team. There are only two neuro radiologists available in the country. The multi-disciplinary team includes separate occupational therapists, speech therapists and physiotherapists to improve the quality of care for patients.

The NHSL established a separate new Neuro-trauma unit in 2016 to provide care for the patients who need acute neuro-trauma treatment. There are 48 neuro ICU beds at the NHSL. Pediatric neurosurgery care is provided at LRH, but advanced theater facilities are not available in the LRH. Therefore, the facilities of the NHSL have to be shared

There is no epidemiological neurosurgery database in Sri Lanka.

Recommendations

1. Services of the existing neuro units have to be strengthened instead of establishing new units. Infrastructure facilities, equipment and human resources should be improved.
2. Currently, a Mechanical Thrombectomy Center is only available in the NHSL, and new centers are suggested to be developed in Central, Southern and North Central provinces after a need assessment.
3. Prosthetics, shunts and relevant expensive devices should be issued according to patient-based criteria, and an E- based – monitoring system should be developed for these devices.
4. Establish a centrally led surveillance system to collect neurosurgery epidemiological data for central level planning.

Sub strategy 2.7: To improve the accessibility to comprehensive Eye Care at all levels

Sub Strategy 3.14:To promote equitable access to a national programme of Preventable Blindness and Visual Impairment

Sub strategies 2.7 and 3.14 are amalgamated.

Background

Ophthalmology servicers had been a focus area in the healthcare system for a long time in this country. Over the years, the services have expanded and covers a range of diseases and conditions, preventive services, and programmes, and infrastructure needs. Cataract is still the leading cause of blindness in Sri Lanka. The National Blindness Survey revealed that the prevalence of blindness is 1.7% and visual impairment is at 17% among the over 40-year population in Sri Lanka, in year 2014-2015. These data indicate that Sri Lanka has the highest rate of blindness in Southeast Asia, only second to Myanmar.

The major cause of blindness and visual impairment in Sri Lanka is due to Cataract which is 66.7%,while post cataract uncorrected refractive errors account for 12.5% and visual impairment due to uncorrected refractive errors is at 81%.The cataract surgical coverage if the presenting vision in the better eye is better than 3/60 is 85.4%. If the presenting vision is less than 6/60, it is 79.1%, and if it's better than 6/18, it is 54.4%. Although the data about cataract surgical rate for a million population is not available in Sri Lanka, several unpublished data indicated that lack of awareness and knowledge, socioeconomic factors and misconceptions are the main barriers for cataract treatment which also contribute to a lower cataract surgical rate in Sri Lanka. According to the indoor morbidity and mortality data of the Ministry of Health in 2019, the morbidity of Eye and Adnexa (HOO-H59) had increased from 786 to 865 per 100,000 population from 2015 to 2019.

National policies and strategic plans

The NCD unit of The Ministry of Health is responsible for the overall prevention and control of Eye Health. Eye health has been included into the Multi-Sectoral Action Plan of NCD.

Human resources

There are a total of 107 ophthalmologists currently in active service in Sri Lanka. Out of this group, 62 are working for the Ministry of Health. There are 25 subspecialists in active service within this group of 107. The subspecialities currently available are Vitreoretinal (VR) Surgery, Pediatric Ophthalmology, Corneal Surgery, and Orbit and Oculoplastic surgery. These surgeons are board certified in the relevant fields. Currently, there are 14 Vitreoretinal, 5 Corneal, 5 Pediatric Ophthalmology and 2 Orbit and Oculoplastic Surgeons in active service. All the surgeons working for the MOH are working in hospitals above the Base hospital level. All the basic ophthalmic surgeries including cataract surgeries are carried out in Base hospital and above levels. A few hospitals function as satellite centers, covering the work of the hospitals where ophthalmologists are not available.

Subspecialty training in Ophthalmology was initiated by the PGIM in year 2012. Under this programme, specialists in Vitreoretinal Surgery, Pediatric eye surgery, Orbit and Oculoplastic surgery and Cornea and external eye diseases were trained and board certified. These new sub-specialties commenced functioning from 2016. All these sub-specialties are available both in the state sector and the private sector hospitals.

Service provision

The main hospital that provides national eye care in Sri Lanka is the National Eye Hospital Colombo (NEHC). This hospital has employed 7 General Ophthalmologists, 3 Vitreoretinal Surgeons, one Corneal

Surgeon and one Orbit and Oculoplastic Surgeon. Currently, this is the only hospital that carries out major oculoplastic surgeries in Sri Lanka. In nine major provincial hospitals, namely, TH Kandy, Batticaloa, Karapitiya, Colombo South, Kurunegala, Rathnapura, Jaffna, Badulla and Anuradhapura, VR surgeries are carried out. Pediatric eye surgeries are carried out in LRH Colombo and Sirimavo Bandaranayake hospital in Peradeniya.

In Sri Lanka, the cataract surgical rate is still not documented. The number of surgeries carried out in each hospital is available on record. The highest number is carried out at the National Eye Hospital,which is approximately 15,000 annually. In addition to this annual cataract surgery count in the MoH, the private sector hospitals and hospitals run by charity organizations like "Help Age" and "Lions" also perform a considerable number of cataract surgeries for the lower socioeconomic groups.

The Vision 2020 programme

The Vision 2020 programme is a global initiative where Sri Lanka became a signatory in year 2000, with a wide range of eye health challenges, with an aim of improving eye health and the quality of life of people in Sri Lanka. The Vision 2020 programme in Sri Lanka is a collaborative effort of the Ministry of Health and the College of Ophthalmologists of Sri Lanka. Infrastructure development, human resource development and control of blinding eye diseases were target areas of the programme.

The Ministry of Health supports this programme by allocating adequate staff, establishing and maintaining well equipped eye units at the government hospitals across the island and providing necessary drugs and consumables. All other necessary funding were done by donor organizations. Cataract, Glaucoma, Diabetic Retinopathy, Low Vision, Childhood Blindness and Primary Eye care programmes were the principal disease areas addressed in the Vision 2020 programme.

The programme is based on a 5-year plan formulated according to the global strategies for the eye care. Activities include infrastructure development, procurement of equipment and health products and consumables, maximum community participation, human resource development and cost-effective control and interventions for eye diseases causing preventable blindness. Further, under this programme, primary eye care screenings were carried out in some districts. Outreach eye camps and provision of free custom-made spectacles, supply of necessary instruments and equipment for investigative and therapeutic requirements and for screening were some of the activities carried out under this programme. The screening programmes for major eye diseases responsible for preventable blindness were conducted island-wide through screening camps, training of volunteers and public education programmes, and supported by cataract surgical camps.

Achievements from 2015 to 2021 under the Vision 2020 programme

Under this programme screening of school children was done, and 23,181 custom-made spectacles were distributed free of charge, among the needy school children. Community screening was done to identify vision impaired people in the community. During this period, 10,778 cataract surgeries were carried out, while around 11,000 intra ocular lenses were purchased for the poor people through this programme. Services were expanded by establishing satellite eye clinics in the Colombo district. A Custom-made spectacle lab was re-established in the National Eye Hospital. The World Bank provided 3 fundus cameras to improve the Glaucoma programme.

Human resource development

In 2019, ophthalmologists, medical officers (n=319), optometrists and nursing officers (n=351) were trained under the capacity development component of the programme. Community awareness programmes were conducted for prevention of blindness due to glaucoma, covering most parts of the country. Especially school teaches and community leaders were trained in this programme. The National

blindness survey was initiated in 2019 to determine glaucoma prevalence and blindness. This survey is ongoing to date. This survey will cover all 25 districts of the country. Work of the Vision 2020 programme was also delayed due to the COVID pandemic.

Challenges

The expected output of the programme had not been achieved due to many internal and external factors. Especially due to Covid 19 pandemic situation in the country, many activities like community screening, cataract camps, distribution of spectacles, school screening and community awareness were affected. Further, the economic setbacks that resulted after COVID resulted in many donor organizations being unable to support the programme as before.

Progress of eye care in Sri Lanka:

Provision of free spectacles for poor income groups was done under the patronage of the Director of National Eye Hospital, with the support of the National Health Development Fund.

All eye units in state hospitals were provided with very good quality intra ocular lenses and advanced phacoemulsification systems by the Ministry of Health with a huge cost to the state. This improved the quality of cataract eye surgeries.

School of Ophthalmic Technologists (OT) was established in 1983, with the aim of training OTs to work in state sector eye clinics and outpatient departments. The training period is 2 years. A batch consists of 25 OTs. The school functions under the Director of the National Eye Hospital and the Education, Training and Research branch of the MoH. Currently, there are 325 OTs working in the MoH, and they are appointed to hospitals above the grade of Base Hospitals.

Eye Banks in Sri Lanka

The National Eye Hospital Colombo eye bank was established in 2011. It is administered by the Director of NEHC and also under a Director of the Eye Bank. A well-trained staff is available in the Eye Bank to harvest corneas using modern techniques from cadavers. Two collecting centers were established in Kurunegala and Kandy hospitals. Corneas are harvested from cadavers with the prior consent of the diseased or the close relatives. Cadaveric blood samples are tested for HIV, Hepatitis B and C, and VDRL. Harvested corneas are processed in the eye bank. These are preserved to be grafted to patients free of charge. Monthly, around 200 corneas are harvested and around 100 is utilized within the country and around 50-75 are sent abroad. These extra corneas are sent overseas for a nominal fee, and the money collected is credited to the National Health Development Fund. This money is utilized to cover the cost of processing of corneas. Some of the corneas sent aboard are used for research purposes. Accreditation of the lab of the eye bank for international standards is ongoing currently. The eye bank will be functioning under a board of directors in the future after a separate Act is passed in Parliament. The final draft is being reviewed by the Legal department of the MoH.

The Sri Lanka eye donation society was established in 1955 and is registered as a non-profit making organization and functions under corneal grafting Act number 38. The International Eye Bank of the Eye Donation Society was started in 1961. The Sri Lanka Eye Donation Society has gifted over 100,000 corneas to restore the sight of the blind in Sri Lanka and 62 other countries. In addition, over 50,000 corneas have been donated for research and development purposes within Sri Lanka and abroad. Work of this organization is decentralized by the establishment of 8 provincial collecting centers. In addition, 450 branches are available for rapid collection and transportation of collected corneas to the storage centers. These centers handle corneas under sterile condition, and are managed by qualified technicians. Processing and preparation of the corneas are done in the main eye bank of the eye donation society.

Recommendations

1. Develop a national eye care plan and include a sustainable mechanism to work in collaboration with relevant stakeholders and clearly spell out the role of the NCD Bureau.

2. Conduct the second island wide national blindness survey.

3. Incorporate eye care into Primary Health Care of the country and develop management guidelines and establish a proper referral and back referral system.

4. Implement assessment of eye care services according to the International Classification (Eye Care Services Assessment Tool)

5. Establish a proper screening programme for preschool children for reduced vision and establish a proper programme to educate caregivers, teachers and parents regarding the importance of early detection of poor vision in pre- school children.

6. Improve the services provided by the tertiary care centers of the country, specially the National Eye Hospital Colombo and "Center for Sight" Kandy Eye Unit in General Hospital, Kandy, and establishment of low vision centers in major general hospitals initially, and later, community-based rehabilitation centers for people with low vision and blindness.

7. Establish an epidemiology database system and an information management system regarding eye care in Sri Lanka and establish a proper monitoring and evaluation mechanism using performance indicators.

Sub strategy 2.8-: To ensure the delivery of Urological services that cater to the community in a well distributed and equitable manner

Background

Urological (Genitourinary) services in the country are associated with diseases affecting male and female urinary tracts and mainly the male reproductive system. The specific urological investigations and surgeries are provided in the public sector in Sri Lanka, and the investigations include uro-flowmetry (measuring the flow of urine), urodynamics (advanced assessment of lower urinary tract function), flexible cystoscopy (for visualization of inside of the bladder) and biopsies of testis, prostate, and kidney, etc. Some of the most common specific urological surgical interventions provided are urethrotomy, urinary tract stenting, TURP (Transurethral Resection of the Prostate), TURBT (Transurethral Resection of Bladder Tumor), cystolitholapaxy and treatment for kidney stones by PCNL (Percutaneous Nephrolithotomy) or Laser Lithotripsy/ ECSWL (Extra Corporal Shockwave Lithotripsy). It also involves male reproductive tract surgeries such as vasectomies and vasectomy reversals, circumcisions and hydrocele repairs.

There are 28 consultant urologists currently providing services in the public sector and one in the Army Hospital, with another five attached to universities. Altogether with five consultant urologists in the private sector, there are a total of 39 urologists currently working in Sri Lanka. According to their cadre projections, the country needs another 11 urologists by 2025 for the public sector.

Urology surgeons should undergo an extensive Post Graduate training for 8-9 years, including a two-year training in a developed country. Urology surgeons provide partnership care to other specialties such as management of malignancies.

Services

At the end of 2015, the following urology units were functioning and the urological service was restricted to Provincial General and above hospitals only. Depending on the service demand, it was suggested to expand the services to the District General Hospital level after a situational analysis.

Table 30: Distribution of Urological Services in Sri Lanka as at the end of 2015

Province	Hospitals with Urological Units in 2015
Western	NH Colombo, TH Ragama, TH Kalubowila
Southern	TH Karapitiya
Central	TH Kandy
Eastern	TH Batticaloa, DGH Ampara
Northern	TH Jaffna
North Central	Th Anuradhapura, PGH Polonnaruwa
Sabaragamuwa	PGH Rathnapura
Uva	PGH Badulla
Northwestern	PGH Kurunegala, DGH Chilaw

Therefore, the plan was to establish 13 new urology units in District General Hospitals to ensure equitable distribution of urological services in the country, and the following are the hospitals identified in the National Health Master Plan 2015 – 2026: DGH Polonnaruwa, DGH Chilaw, DGH Kegalle, DGH Hambantota, DGH Monaragala, DGH Trincomalee, DGH Nuwaraeliya, DGH Kalutara , DGH Negombo, DGH Vavuniya, DGH Matara, DGH Ampara, DGH Mannar. As at the end of 2021, out of these, except for Trincomalee, Nuwaraeliya, Negombo and Matara, all other 9 hospitals established urological units, and another two new units were established at Gampaha and Kilinochchi. It was also observed that a urology unit has been established at the KDU University hospital and another unit was added to the 2 existing units at the NHSL.

Sri Lanka, is in par with the global standards in many areas expect for robotic surgeries as there is no robotic surgical unit for any surgical field in Sri Lanka although there are many foreign trained urology surgeons in the country who have acquired the skill. There is no epidemiological database on patients undergoing surgical treatment.

Challenges

The main challenge in service provision is that, in parallel to cadre expansion, there is a lack of expansion of infrastructure and theater time with ICU facilities for post-operative care. Further, there is a lack of trained auxiliary staff including nurses and radiographers in this field. It was also observed that Laser Platforms for urological services which is a basic requirement to provide genitourinary surgical facilities, are not currently available in some hospitals with urology units including the NHSL as their old machine has been out of order for nearly two years. The specialty is currently restricted to Adult Urology. Introduction of subspecialties of paediatric urology, female urology and onco-urology is under discussion.

It was also noted that there is a lack of awareness and a referral and a back referral pathway at the primary healthcare level regarding urological conditions. Although there is a referral pathway system guide, specially for bladder and prostate cancer, which has been developed for the Primary Care Physicians, training could not be completed due to the COVID 19 pandemic. It leads to poor early detection of prostate cancers. Public and primary healthcare knowledge on risk factors for renal stones such as smoking, dehydration and food habits also needs to be improved.

Recommendations

1. A Strategic Plan should be developed for the urology field.
2. A facility survey should be carried out for the urology field in public sector hospitals in relevance to logistic, human resource, theatre time & ICU facilities, to improve services to cater to the public needs.
3. Theatre Audits should be done, and short-term and long-term plans should be applied on rearrangement of theatre time and expansion of theatres.
4. A center of excellence should be available for each province with relevant equipment and other resources, followed by establishing a cluster system with other urology units at DGHs.
5. ECSWL machines should be allocated for all provincial centers, and priority should be given to provide a 'LASER Platform' for NHSL and other hospitals with urology units where there are no LASER machines currently.
6. A common robotic surgical unit is suggested to be established at the NHSL on a sharing basis with other surgical specialties.
7. Capacity building of the Primary Health Care Physicians on early diagnosis of prostate cancers and bladder cancers and the referral pathway system to specialized genitourinary services should be implemented.
8. A separate module should be introduced to the central databases in relevance to the urology field to reduce the data gap.

Sub strategy 2.9-: To ensure delivery of comprehensive Accident & Emergency services at all levels of healthcare, to reduce preventable mortality and disability related to accidents and emergencies in Sri Lanka.

Background

Traumatic injuries (ICD S00 - T98, W54) are the leading cause of hospitalization from 2009 to 2019, and accounted for 18.3% of hospitalizations in Sri Lanka. Traumatic injuries were the 10th leading cause of hospital deaths in 2019. Out of all the districts, except Vavuniya, Mannar and Batticaloa, 23 Health districts had traumatic injuries as the highest leading cause of hospitalization.

According to the "Global Health Observatory" of the WHO, globally road traffic accidents were in the 4th place of disability adjusted life years and accounted to 930.79 DALYs per 100,000 Population in year 2019. The corresponding figure for Sri Lanka was 737 in 2015. In Sri Lanka, Accident and Emergency healthcare is a demanding and complex field that presents a variety of challenges to patient-centered care. In Sri Lanka, more than one million people are hospitalized each year with injuries, and the death toll reaches around 12,000. Most of the moderate to severe trauma cases result from motor vehicle accidents and this is the number one cause of morbidity and mortality among the economically productive age group. Prevention of acute injures is one key area to be focused. Post event care is another area conducted with the assistance of experts in the field of first aid, with the aim of training at least one person from each house on basic first aid. This is implemented at the medical officer of health level. Capacity building is done by the Directorate of NCD.

Accidents and emergencies cause deaths and disabilities, which can lead to premature deaths (deaths before the age of 65 years) if an emergency care system is not well-established and properly responsive. During the 30 years of civil war, many hospitals, including the National Hospital of Sri Lanka (NHSL) and the Provincial General Hospital Anuradhapura, have significantly improved their trauma care services. To provide pre-hospital care, some private hospitals have established emergency care units and private ambulance services.

Policy and Strategic Plans and SDGs

The Accident and Emergency Care Policy of Sri Lanka was approved by the Cabinet of Ministers to guide the development of comprehensive Accident & Emergency Care services in Sri Lanka. It addresses the island wide establishment and upgrade of A & E services in appropriate levels of care in government sector health service with the private sector involvement, to improve the standards on A&E care. Further, it addresses defining of standards for A&E services for each level of care, capacity of relevant staff, prehospital care services, public awareness, monitoring and evaluation system with digitalized information system and research on accident and emergency care.

The Multi sectoral Strategic Action Plan on Injury Prevention and Management 2021- 2025 was developed aligning with the National Health Policy, the Accident and Emergency Care Policy and Strategic Framework on Injury Prevention and Management in Sri Lanka 2016. The National Strategic Plan has targeted to achieve 80% availability of general surgical facilities and basic radiological facilities required to manage injuries in secondary and tertiary care hospitals separately and 80% availability of basic emergency care facilities required to manage injuries in all government hospitals by 2025.

This plan addresses the advocacy, health promotion & risk reduction, post event care, capacity building and surveillance & research, transport safety, drowning, home safety, workplace safety, child safety, elderly safety and post event care. The National Committee for Prevention of Injuries (NCPI) is the national high level multi sectoral coordinating body on injury prevention chaired by the Director General of Health Services. It is strengthened under the policy and ensures integration of injury prevention efforts with all ministries, departments, authorities, professional bodies, national and international agencies, NGOs and the private sector relevant for injury prevention.

The SDG target is to reduce by 2030, the mortality rate from road traffic accidents injeuries by 20% from the level of 13.43 per 100,000 in 2015.

Almost all district level hospitals have Emergency Treatment Units (ETUs), and out of the Base Hospitals of Sri Lanka, ETU are available in Avissawella and Panadura. Large city hospitals have more advanced ETUs, but they are still very small compared to PCUs. Many hospitals in the country have emergency treatment units of varying levels. From 2015 to 202, six new A&E units were constructed, and 14-line ministry hospitals were upgraded, while 7 units are under construction.

Table 31: Distribution of accidents and emergency care units in different categories in 2015 & 2020

Availability of A & E units	PGH & above with special hospitals	District General Hospitals	Base Hospitals	Total
2015	9	5	19	33
2020	21	9	34	64

In 2011, the Post Graduate Institute of Medicine at the University of Colombo established a multidisciplinary specialty board in emergency medicine to facilitate a specialist training programme. After a selection examination, the first batch of emergency medicine trainees was recruited in 2013. Nine provincial simulation centers were established as the training hub for each province. The number of Emergency Physicians board certified was 22 by 2021, and they are appointed to 16 hospitals in Sri Lanka.

Although NHSL has an accident service unit separately, the emergency treatment service component has been provided at the OPD separately incorporated to it, and gradually it is planned to change. However, in other hospitals these two services have been incorporated together in the same unit according to the national policy.

There are 4 levels of A &E units in the public sector hospitals:
Level 1 – For apex centers. 1 per province
Level 2 – All other Teaching Hospitals, District General Hospitals
Level 3 – All Base Hospitals
Level 4 – District and Divisional Hospitals

Each levels has different infrastructure and staff allocation described in the A and E guideline.

Almost all of the emergency medical technicians (EMTs) are only qualified in EMT level 1. Their coverage is also restricted to a few regions across the country. There is no established system for recruiting EMT-trained cops and teachers. Prehospital care is usually provided by community responders, but they have little knowledge and experience in safe patient care and transportation. In Sri Lanka, there are no properly trained emergency medical dispatchers. There is a lack of professional dispatchers, and the service is only limited to a very few areas. Some EMS systems can only respond to calls within a 5-km radius from their center.

"Suwaseriya" ambulance services provide free of charge service and have contributed immensely to emergency evacuation of victims from the site to the nearest hospital. This will help in supporting transportation of patients in a short period and provide emergency first aid to avoid complications.

National Injury Surveillance System

The National Injury Surveillance System (NISS) launched in 2016 is basically a sentinel site surveillance. It consists of four components: Outpatient surveillance, Inpatient surveillance, Death surveillance and Transfer surveillance. All secondary and tertiary care hospitals (Base Hospitals and above hospitals) are considered as sentinel sites. By 2017, most of the sentinel hospitals in Sri Lanka were incorporated to the NISS. In some districts, a few primary care institutes feed data to the system (Anuradhapura, Jaffna, Kalutara, Polonnaruwa and Puttalam). Of all components, death investigation and review introduced in 2021 is a joint activity which has to be conducted by both public health and curative health sectors (both public health and curative health sectors to conduct the investigation, and curative sector to conduct the review with all the relevant sectors). However, this system is not yet fully established throughout the country.

For the purpose of streamlining the process of surveillance, data collection and data recording forms and registers were introduced to the system [(Information of Injury (H 1258), Injury Death Information (H 1329), Institutional Injury Death Register (H 1330), Institutional Injury Death Investigation and Review Form (H 1331), Field Injury Death Investigation Form (H 1332), Injury Transfer Information Form (H 1333)]. The collected data is available in a web-based system for of the above registers except the transfer surveillance.

To monitor the programme performance, National Injury Surveillance programme has set indicators and performance targets. As currently thre are no accurate and reliable data sources to calculate the coverage, the coverage is calculated according to estimated numbers derived from many sources considering many assumptions. The percentage of sentinel sites conducting outpatient surveillance was increased from 49% to 81% from 2017 to 2021, respectively and the percentage of sentinel sites conducting inward surveillance was increased from 68% to 89% from 2017 to 2021. However, death notification due to injury was started in 2019 and it was increased from 40% to 67% in the year 2021. The performance of

NISS is monitored through several reviews conducted at institutional, district, provincial and national levels.

As this is a newly introduced system, 100% effectiveness and efficiency cannot be expected for many reasons. Furthermore, injuries have yet to receive due recognition despite injuries being the number one cause of hospitalization in Sri Lanka over the past few decades causing devastating consequences for the individual, family, society and ultimately the country as a whole. As a result, at all levels, allocating resources to implement the injury prevention programme, including conducting the NISS, has not been given the priority it needs.

The surveillance reporting system should be strengthened and the following targets should be achieved by 2025 considering the baseline from 2020.

- 5% relative reduction of overall deaths due to unintentional injuries
- 10% relative reduction of deaths due to unintentional transport injuries
- 5% relative reduction of animal bites
- 15% relative reduction of unintentional poisoning
- 10% relative reduction of unintentional home injuries
- 5% relative reduction of unintentional workplace injuries
- 15% relative reduction of unintentional injuries among children
- 5% relative reduction of unintentional injuries among elders

Recommendations

1. According to the A&E Policy, ensure comprehensive A&E services are available in all hospitals island-wide according to level of care.
2. Develop guidelines and protocols defining standards for A&E services for each level of care including appointing the required cadre including Emergency Physicians to each level to improve A&E care.
3. Multi-disciplinary teams should be trained and mobilized for treatment in a triage to ensure best quality of care is given to the patient.
4. Establishment of an Emergency Alert System from primary health care to other levels of care using a telecommunication mechanism.
5. Encourage to use provincial simulation centres to train all levels of health workers.
6. Establishing of prehospital care services in each district as part of the Accident and Emergency Care Management System and initiate the diploma course organized by the University of Kelaniya for EMTs in collaboration with Suwaseriya, and SLCEP.
7. Enhance public awareness and commitment towards successful utilization of A&E services and empowerment of public on prevention of trauma in line with quality improvement to patient and public satisfaction.
8. Monitoring of the implementation of the developed Accident and Emergency Care Management System in the country through establishment of a management information system related to A&E service.
9. Enhance the research field on Accident and Emergency Care.

Sub strategy 2.10-: To ensure adequate provision of quality assured safe blood; blood products (including local Plasma Fractionation), laboratory and therapeutic services to the entire country.

Background

The National Blood Transfusion Service (NBTS), Sri Lanka is a special campaign coming under the Ministry of Health. It is the sole supplier of blood and blood products to all government hospitals and majority of private sector hospitals. NBTS works to ensure that adequate and quality assured safe blood and blood products including transfusion related laboratory and therapeutic services are provided to the entire country. All blood donations are from volunteer non-remunerated donors. The NBTS is a centrally coordinated specialized campaign with its headquarters in Colombo, and comprises of 107 hospital-based blood banks arranged into 24 clusters with smaller peripheral blood banks attached to a cluster centre.

Director, NBTS is the head of the National Blood Transfusion Service, and all blood banks are centrally coordinated, and monitoring & supervising is carried out from the central level, and the technical information is provided to all blood banks in the country. There are 37 Consultant Transfusion Physicians in the country by 2022. The NBTS provides services to fulfil 100% of the blood and blood component requirement of the government sector and majority of the private sector hospitals.

The NBTS was granted the certificate of approval by the World Health Organization as a WHO collaboration centre for training in 2020. All private hospital blood banks where blood transfusions are done are registered with the NBTS, since they are receiving blood and blood products from the NBTS. All the private hospital blood banks operate under the supervision of the relevant cluster consultant transfusion physician of the NBTS.

All blood banks are required to conduct mandatory screening tests for HIV, hepatitis B, hepatitis C, syphilis and malaria according to the National Health Policy. Transfusion Transmitted Infection testing is done for all donor blood units using latest WHO standard test methods, and positive donors are referred for treatment. Private sector blood banks are coordinated through the Private Health Services Regulatory Council and monitored by the NBTS. Further streamlining the reporting of transfusion transmitted infections from private blood banks is essential.

The NBTS provides blood and blood components including red cell, white cell, plasma, platelets, and a variety of the modified products. The NBTS performs specialized therapeutic procedures including PRP therapy, therapeutic plasma and cellular exchanges. Specialized laboratory services including HLA typing, HLA antibody screening & cross matching for solid organ and stem cell transplantations are carried out by the NBTS. The National Blood Center act as the National Reference Laboratory for immunohematology and histocompatibility test procedures.

Optimal storage facilities are available at all hospital-based blood banks, and efficient stock exchange is conducted with the implementation of a blood stock management system through the BBMS to ensure the availability of various blood components within and outside the cluster BB.
The NBTS has an ISO accredited Quality Management Section (QMS) and an active Quality Assurance Programme to ensure that quality of reagents and consumables used by the NBTS, and blood products issued to patient, are of international standards. In addition, the QMS also conducts quality assurance programme in TTI testing and immunohematology.

The NBTS also has an active adverse events and near-miss reporting process embedded in the National Hemovigilance System, which collects and analyses all the data on events related to blood donation,

processing and transfusion and conducts regular review meetings to disseminate findings. Hospital Transfusion Committees are established in all the hospitals with blood banks, with the participation of all the stakeholders, to monitor transfusion related activities within the hospital and help to improve coordination and service provision.

The annual whole blood collection of the NBTS is around 400,000 units including the apheresis platelet collections. The NBTS Sri Lanka achieved 100% voluntary non remunerated blood donations since 2014, although the WHO target was set to achieve it by year 2020. Blood donations are collected in mobile blood donation campaigns, conducted by hospital-based blood banks and National Blood Center. In addition to that, in house blood collections are done in most blood banks.

Table 32 : Total collection and test positive rates of transfusion transmitted infections from 2015-2021

Indicator/Milestone	2015	2016	2017	2018	2019	2020	2021
Total Collection	395,500	414,175	423,668	450,640	444,515	397,833	385,054
No. of samples sent for confirmation of HIV to NSACP	21	25	28	29	44	34	56
Confirmed HIV-positive rate	0.005%	0.006%	0.006%	0.006%	0.009%	0.008%	0.014%
No. of Hepatitis B screening positive samples	409	505	618	513	528	252	751
Hepatitis B screening positive rate	0.10%	0.12%	0.14%	0.11%	0.12%	0.06%	0.20%
No. of Hepatitis C screening positive samples	800	847	905	898	804	613	495
Hepatitis C screening positive rate	0.20%	0.20%	0.21%	0.20%	0.18%	0.15%	0.13%
No. of VDRL positive samples	1,125	1,027	1411	1577	1344	960	1496
VDRL test positive rate	0.28%	0.25%	0.33%	0.35%	0.30%	0.24%	0.39%
No. of TPPA positive samples	175	152	152	107	119	96	153
TPPA test positive Rate	0.04%	0.04%	0.03%	0.02%	0.03%	0.02%	0.04%
No. of. samples positive for Malaria	0	0	0	0	0	0	0

The blood wastage has been reduced to a very low level by coordination at the central level and peripheral clusters via weekly meetings. The centrally maintained Blood Bank Management System (BBMS) was established in May 2021 and connects all 107 blood banks in Sri Lanka. This system improves collection and reduces discarding of blood and blood products.

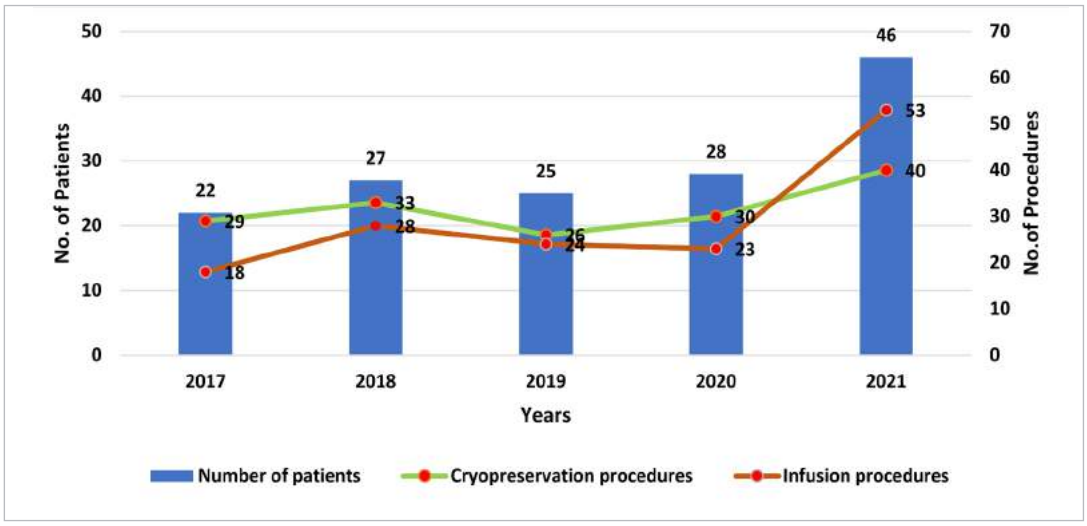


Figure 112: Red Cell Concentrate discard rate from 2015 – 2021

The Stem Cell Transplantation Programme with stem cell collection, processing, cryopreservation and infusion was started in 2016 in the government sector. The Stem Cell Transplantation facility was established at the Apeksha Hospital Maharagama and transplantations were commenced on 24th Oct 2016. A similar Programme is under development at the Lady Ridgeway Hospital.

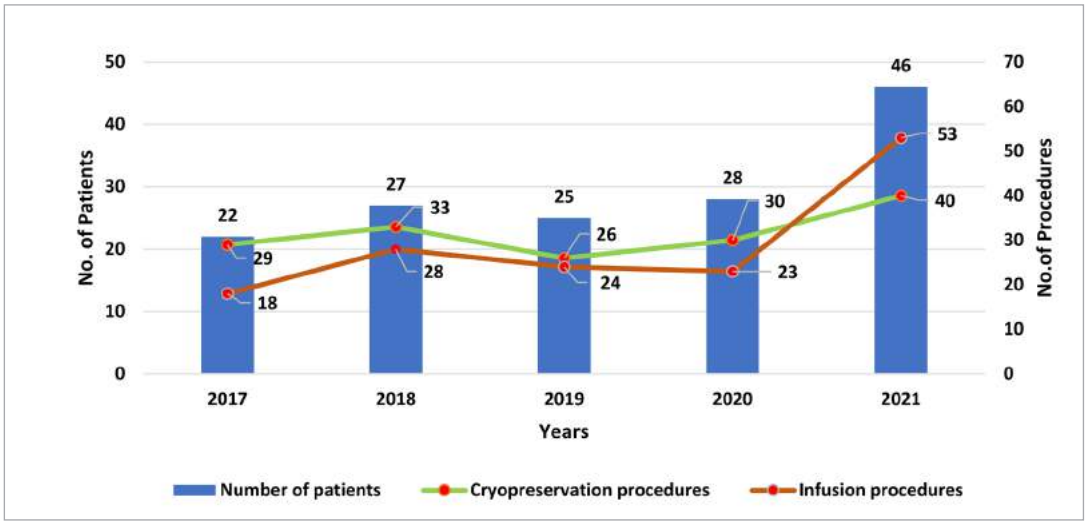


Figure 113: Number of Stem cell transplantations, Cryopreservation and infusion procedures at the National Cancer Institute, Maharagama

There were many new developments/achievements since 2016:

- Established the allogeneic transplantation programme in 2022.
- Commenced cellular therapies for various diseases e.g.: arthritis, eye disease, joint diseases, etc.
- Commenced applications of therapeutic exchange and cellular procedures for various disease conditions.
- Established molecular HLA facilities for solid organ and stem cell transplantation.
- Streamlined the export of excess plasma following component production for fractionation.
- Frozen red cell production was initiated in 2016.
- Establishment of new blood banks (Deniyaya, Chavakachcheri and Kamburugamuwa New Hospital.
- NBC was recognized as a WHO Collaboration Centre for international training in 2020.
- Reagent red cell production for local use was started in 2021.
- Capacity building of clinicians on “Patient Blood Management” is underway.
- Local production of Polyclonal Antisera started in 2022 as a contingency approach to replace the imported commercial products during out of stocks situation in the current economic crisis.

The NBTS has a long list of awards from local and international organizations: National Health Excellence Award-Gold 2009-2010, Taiki Akimoto 5S Award 2010, National Quality Award 2011, National Green Award 2011, ISO 15189 Laboratory accreditation 2011 (it was the first government laboratory in Sri Lanka to achieve this) and ISBT Award for Developing Countries 2012. Plasma Fractionation can be used to produce products such as Human Albumin from excess Fresh Frozen Plasma (FFP). The NBTS has excess production of nearly 40,000 litres of FFP per year, which was discarded before the year 2015. With the cabinet approval, the NBTS commenced to export FFP units to get an income of approximately LKR 15,000 per one litre of FFP. This is an additional income to the country.

Local manufacturing of reagents:

The NBTS has been able to locally produce reagent red cells for blood grouping. (A cells, B cells, O cells, Anti-H, Anti-A1) for a number of years. In addition, the NBTS has commenced producing screening cells and antibody identification cells in 2022. The COVID-19 epidemic during the year 2020 and 2021 affected blood donations and procurement procedures. One of the main challenges is the dependence on imported reagents, consumables and machines.

Recommendations

1. A comprehensive evaluation of the NBTS is vital.

2. Implement the current Strategic Plan for Blood Transfusion Services and introduce a M&E system.

3. Local plasma fractionation setup should be established in order to achieve self-sufficiency in PDMP production according to the WHO guidelines, with the participation of all relevant stakeholders.

4. Local manufacturing of reagents should be strengthened.

5. Private Health Services Regulatory Council should ensure that all private sector blood banks are registered and adhere to guidelines issued by the NBTS.

Sub strategy 2.11-: To establish effective managerial systems and processes at health institutions to facilitate continuous quality improvement

Background

The evolution of the National Quality Assurance Programme in Sri Lankan Health Services dates back to 1989. With the publishing of the handbook on the National Quality Assurance Programme in 1995 by the Ministry of Health, some institutions embraced the concept to introduce quality improvement programmes in their own institutions. In addition, preventive sector programmes are conducting their own specific quality control measures. The Quality Assurance Programme was re-launched in year 2000 with the concept 'Quality Healthcare through Productivity'. The Directorate of Healthcare Quality and Safety (DHQS) is the national focal point which implements the healthcare quality assurance programme in the country. and, Established in 2012, It functions under the theme of 'a centrally driven, locally led, clinically oriented, patient centered, continuous quality improvement' with a vision for 'providing optimum quality and safe healthcare services to the people of Sri Lanka'.

Policies and strategies

In alignment with the National Health Policy and global trends, the Directorate of Healthcare Quality and Safety (DHQS), first developed the National Policy on Healthcare Quality and Safety in 2015, which was revised in 2021. A National Strategic Plan on Healthcare Quality and Safety was developed under the seven key result areas, namely, customer/patient satisfaction, leadership, governance and systems, clinical effectiveness, risk management and safety, enabling culture for quality improvement, staff development and wellbeing and research for quality improvement and patient safety and was launched along with the revised policy in 2022 on the World Patient Safety Day.

Services

The DHQS has been involved in the development of clinical and quality related guidelines. National Guidelines on Respiratory Disorders in Children were published in collaboration with the College of Pediatricians in 2019.

Clinical indicators were developed for the four major specialties, namely, General Medicine, Surgery, Pediatrics and Obstetrics & Gynecology in 2017, and also indicators related to infection prevention and control, in collaboration with the relevant Professional Colleges. In addition to that, the "National Action Plan on Medication Safety "was developed in 2021. The mandatory informed consent form was introduced for all intermediate and major surgical procedures with the collaboration of the College of Surgeons and and other relevant colleges and Attorney General's Department. Later, the relevant general circular was issued under the No: 01-31/2021.

The adverse event reporting mechanism has been established over many years, and it was further complemented by the DGHS circular (No 01-38/2016 dated 13.06.2016) with the formats on incident reporting (H1259) and incident analyzing (H1260) with and the relevant guidelines. The performance reviews have observed that the establishment of an incident reporting mechanism in institutions above Base Hospital level is almost 100% during the last two years. The reporting formats have been revised in 2022 by the DHQS.

Currently, development of a Mediation Incident Reporting format and a Near Miss Reporting format are being supported with stakeholder partnership. In addition to that, Continuous Quality Improvement capacity building programmes and clinical audit training are continuously carried out for hospital staff. The available manual for training of trainers on quality improvement is being revised now. Regular and frequent monitoring of quality improvement activities at the hospitals above base hospital level through performance review reports and performance review meetings held at the DHQS, leads to quality improvements of the hospitals. Data is available at the DHQS pertaining to hospitals above base hospital level. However, a big gap has been identified in hospitals below that level. DQHS has instructed to carry out at least one clinical audit per quarter in each hospital by circular no. 01-11/2021 dated 06.04.2021. The review analysis revealed that only 65% of hospitals conducted such clinical audits in 2019, and 78% in 2021. Conducting clinical audits is a requirement for provision of quality care. Clinical audit trainings ware carried out by the DHQS, in 2021, and the MoH has issued a general circular on strengthening implementation of clinical audits.

The Direction of the DHQS and the collaboration with stakeholders from multiple clinical specialties and patient groups during planning and implementation of quality improvement activities, supported the quality programmes in the hospital setup.

Currently, several quality improvement programmes are being implemented under the Health Information and Quality Improvement (HIQI) project coordinated by the Global Fund. The MoH has started to assess the readmission rate and it revealed to be around 1% per year during the last few years. Currently, the

treatment waiting list and waiting lists for treatment and for investigative procedures for diagnosis are not assessed in the hospital level, and that impacts the achievement of UHC.

Recommendations

1. Review policies and strategies every 3 years to improve the quality of care and revise indicators appropriately. Take into consideration, the following:

2. Strengthening the development and timely update of relevant clinical guidelines, indicators and conducting audits to monitor implementation.

3. Developing standard guides for hospital quality management and capacity building among all categories of healthcare staff to improve quality of care.

4. Quality Medical Officers (QMO) appointed to Base hospital level and above.

5. Community involvement for hospital related work.

6. Ensure mandatory informed consent for surgeries, and adverse event reporting and root cause analysis considered as a part of routine clinical care to improve quality of services. Educate general public and all levels of medical staff of these requirements and conduct surveys to gather data on how to improve services.

7. Regular monitoring of hospital performance to be carried out by regular clinical audits. Ensure adequate capacity building for staff and a regular reporting mechanism is in place with standard formats. On site reviews should be carried out by a selected team.

8. Review meetings should discuss waiting lists for "limited" treatments and investigative procedures for diagnosis (e.g., Cancer therapy, Angiogram)

9. Establishing a comprehensive data management system with an online surveillance system with updated clinical quality data indicators for monitoring and evaluation

Sub strategy 2.12-: To ensure the delivery of sophisticated state-of-the-art Biomedical Technology at all appropriate levels of care

Sub strategy 7.3-: To ascertain the idling (non-use) time periods of expensive biomedical equipment, medical laboratories and operation theatres (especially in the night) and develop mechanisms to provide service to the private sector with a fee for service for the Govt staff and generate revenue for the State.

Sub strategies 2.12 and 7.3 are amalgamated

Background

Biomedical Engineering (BME) is a discipline in which the principles and tools of traditional engineering disciplines are applied to the analysis and solution of problems in biology and medicine. There is no particular subject matter or a set of techniques that belong exclusively to it. The ministry of Health use, several sophisticated medical technological equipment for patient diagnosis and treatment. Some of the equipment are in par with the international level. The Division of Biomedical Engineering Services of the Ministry of Health (BMES) is responsible for ensuring the delivery of cost-effective optimum use of equipment at the right place at the right time to improve the quality of healthcare service delivery. The

BMES is the focal point for procuring, installing, commissioning, providing technical assistance & training and maintaining medical equipment of the MoH. The BMES provides workshop facilities and storage facilities. The BMES develops standard specifications for certain equipment, and approvals are obtained from the Director General of Health Services and publishs them online.

There are 15 Biomedical Engineers serving under the MoH, with six engineers in the central division and the rest attached to the line ministry hospitals. The main function of the BMES is to cater to the needs of the hospitals of the line ministry, but under special circumstances, it provides services to the provincial hospitals, e.g., COVID pandemic. The BMES is in the process of establishing regional Biomedical Engineering Units in the line ministry hospitals for Anuradhapura, Maharagama, Badulla, Matara, Kandy, Karapitiya, Jaffna, Mahamodara, Batticaloa, Peradeniya, Ragama, Kantale, Rathnapura, Colombo South, Kurunegala and Nuwaraeliya, with the objective of reducing the downtime and high transport costs.

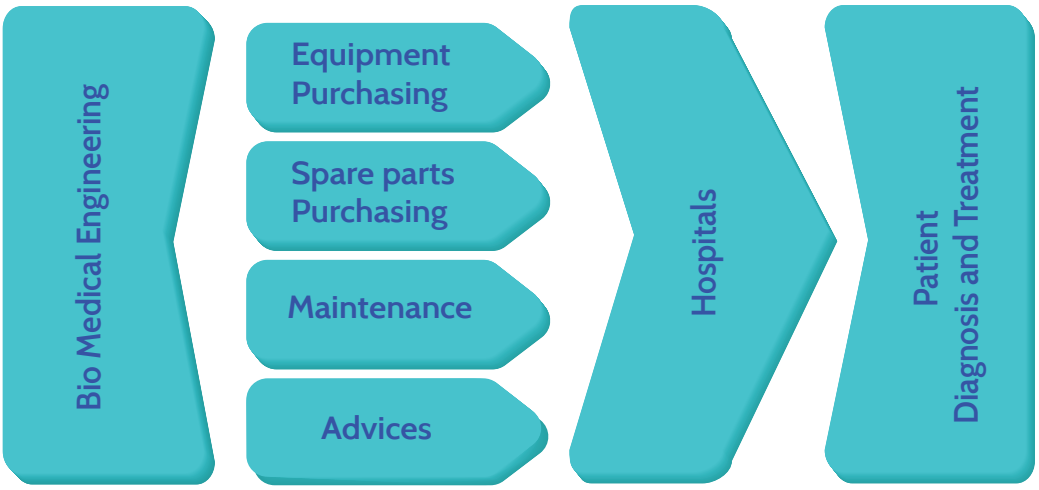


Figure 114 : Services of the BMES and the process of purchasing medical equipment in hospital sector.

In addition, procurement of equipment is done to provincial council, different projects and disease specific programmes.
Several private donors also provide some equipment directly to the hospitals.

The BMES collects the requirement yearly from the Line Ministry Hospitals in preparation to include in the national budget. A significant gap is the absence of a National Strategic Plan and a Procurement Plan for the national needs according to the hospital types and disease specific areas. However, many diseases specific and programme specific strategic plans and activity plans of the relevant health institutions have identified the relevant diagnosis and treatment equipment. It was observed that the annual plan of the BMES is prepared mainly based on the hospital requests for replacements of obsolete equipment, additional requirements for present functioning units and equipment for newly constructed units.

The assessment of hospital requests is done via a need assessment form to ensure the supply of the right items (to be filled by Hospital Directors, with the guidance from medical specialists requesting the relevant items). This process is finally cross checked by an assigned hospital engineer and by the central level.

In addition, there are different projects as well as disease specific programmes that purchase equipment. Occasionally there is no coordination between BMES and such units. The main challenge identified is poor coordination between the BMES and the MSD. It will create difficulties in purchasing equipment, accessories, reagents, maintenance of equipment and unnecessary procurements.

Purchased High-end Machines (X-ray machines, CT machines, Radiotherapy Machines) have a designated warranty period, and the relevant manufacturing companies are attending to the commissioning of equipment. Since the BMES has no capacity to maintain such equipment, separate service maintenance agreements are signed after the warranty period with private partners. It was noted that a limited breakdown reporting systems is available, apart from the hospital level with a proper monitoring protocol. This affects the quality healthcare delivery with increased idling time after commissioning (E.g., Radiotherapy machines).

The BMES has workshops for repairing and calibration testing for equipment such as: Blood Pressure Monitors, Pulse Oximeters, Cardiac Multi Para Monitors, Ventilators and Light intensity (Lux) metering for theater lights, etc. Currently, BES workshops have established facilities to provide a limited number of validations for fingertip and pulse oximeters and oxygen concentrators only. It is important to expand these services for other non-sophisticated equipment like blood glucose meters, weighing scales, etc. It was noted that there are no timely routine validation instructions and monitoring from the central level to the hospital level.

Currently, there is no proper structure of nomenclature and coding to categorize different types of medical equipment in the MoH. The central level coordination should be carried out to identify a system of nomenclature of equipment in each hospital, and it should be incorporated to the BMES digitalized system. This nomenclature system also would be beneficial for the purchasing of spare parts and the consumables to the specific equipment accurately. Moreover, it was noted that there is very poor communication between the BMSD and the MSD, which affects the routine services for proper supply of consumables (laboratory reagents, X-ray films, etc.) for the biomedical equipment. These drawbacks hinder the provision of the right item to the right place at the right time in the right quantity and in right technology.

A research study conducted by Dissaayake S. revealed that the non-existence of a national healthcare technology management policy as a part of good governance on selection, assessment, acquisition, usage, maintenance, disposal and replacement of medical equipment in Sri Lanka is one of the main factors responsible for poor management of healthcare. Developing a national policy and a strategic plan is an urgent need. There were no assessments on cost effectiveness or idling time for biomedical equipment during the last few years. Utilization rates of the high-end biomedical equipment is not done as a routine procedure. According to the BMES, only a 20-30% overall utilization is noted, while generally 20% of equipment are found to be idling at a time due to various factors.

Recommendations

1. Develop a National Health Technology Management Policy and implement it without delay to save money.

2. Develop a comprehensive approved plan for listing the type of sophisticated / state-of-the-art Bio Medical Technology at the appropriate level of care, including an 'essential medical equipment package' for each facility at each level of hospitals.

3. Develop a strategic plan an activity plan with a 5-year procurement plan for the MoH which is in line with the level of care and the availability of human resources, infrastructure and technology. It should include:

   - Ensuring of strategic purchasing for identified diagnostic and treatment services.
   - Introduction of a nomenclature and coding system for all medical equipment.

4. Utilization assessment of sophisticated Bio Medical instruments in each hospital to avoid underutilization of expensive items.

5. Partnerships with the relevant disease specific directorates and the hospitals for purchasing of new equipment to fulfil the national need.

6. Cost effectiveness, quality, usage, work efficiency, maintenance costs and the future need for upgrading equipment should be analyzed, when purchasing high end equipment, by appointing a multi sectoral technical evaluation committee.

7. Upgrading systems in a timely manner based on the requirements.

8. Establishing a proper collaboration mechanism with the MSD and NMRA.

9. Include steps to identify and prioritize equipment needs in advance for each year to reduce the procurement delays while preventing duplication and unnecessary purchasing.

10. Establishing hospital based BMS Service Units in all line ministry hospitals and identify roles and responsibilities.

11. Develop a plan for a cost effective upgrading plan for available sophisticated / state-of-the-art Bio Medical equipment.

12. A system should be developed for financial gains for the public sector through providing services for high end sophisticated technology machines for a private sector in the night time.

13. More funding should be allocated for training of technical staff, including periodic international and national training.

14. Establish partnerships with the University of Moratuwa to improve the bio medical engineering section of the MoH and plan for Post Graduate courses on the Biomedical Engineering field. (Currently, the KDU is providing such a course)

Operation theatre utilization

The operation theatre complex of a hospital represents an area of considerable expenditure in a hospital budget and requires maximal utilization to ensure optimum cost-benefit. However, there is uncertainty surrounding the effectiveness of strategies that have been adopted to improve the start time, such as lack of Standard Operating Procedures for maximum use of operation theatres to prevent underutilization.

It was observed that many of the sub-specialties do not get adequate theater time, and some surgeries have a long waiting list in the public sector in Sri Lanka. Some of the cardiac surgeries have long waiting lists of more than one year. With the rapid increase of subspecialties, the MoH has not planned the theater utilization allocation in a maximum efficient way. Major specialties have one day allocation time, but it was observed that afternoon sessions are not functional in some places for major specialties. Adoption of extended operating theatre times can improve productivity and efficiency, with potentially significant financial savings. However, it can adversely affect staff morale and patient compliance, and reasonable strategies should be developed to overcome that. Operating theaters of the private sector have developed strategies to maximize theatre facilities to provide an efficient service.

Although comprehensive national level studies regarding theatre utilization of hospitals have not been done in Sri Lanka, a recent study in the Colombo South Teaching Hospital (CSTH) and Sri Jayawardenapura(SJTH) Teaching Hospital carried out by Wellala and Dharmaratne in 2021 has assessed their theatre utilization. The results revealed that the utilization observed at both hospitals was well below the global benchmark of 75%. The average per-theatre bed utilization rate at the Colombo South Teaching Hospital (CSTH) was 23.26%, and at SJGH, it was 25.66%. The finding suggests the need of proper strategies to prevent the heavy underutilization of operation theaters.

The same study assessed the average per bed capacity utilization time per day by taking the capacity utilization of the maximum output from the existing investment (that includes human resource, capacity building, infrastructure and motivation). These results revealed that the average per bed capacity utilization time percentages per day were 11.63% and 15.2% at Colombo South Teaching Hospital & Sri Jayawardenapura General Hospital respectively. This suggests that we need proper strategies to prevent this hefty underutilization of operation theaters in the government sector.

One of the options is to conduct elective surgeries after hours, with the advantage of reducing the hospital's elective surgery waiting time, while ensuring that no major post-operative complications occur. Utilization analysis is an important part of hospital operations which has been a priority area for hospital administrators worldwide.

Urgent studies should be carried out to identify possibilities of improving capacity utilization in public hospitals to reduce the waste of large amounts of public funds invested in infrastructure, utilities, and equipment. Therefore, more attention should be given by the hospital administration, as well as all surgical specialties, to improve the time management during the operating lists.

Recommendations

1. All hospitals to carry out a theater audit, and respective hospital directors should devise a plan to rearrange the theater time to achieve an efficient cost-effective method without overburdening the staff.

2. Computerization of theater records and monitoring system with training of theater staff on data management ,will improve the data gap to the central level.

3. "Twilight" operating rooms (Extended hours) are recommended to reduce patient waiting lists and mitigate consequences of non-availability of elective operative time due to closure of an affiliated hospital operating suite.

Sub Strategy 2.13-: To expand the supply of quality diagnostic facilities, research and training through the Medical Research Institute to the entire health network

Background

The Medical Research Institute (MRI) is the country's leading provider of specialized and reference diagnostic services for patient care and for improving the health of Sri Lankans through world-class medical research to achieve the national health goals set by the Ministry of Health. It is a leader in teaching and training undergraduate and postgraduate medical and paramedical students in a wide range of specialties. It is also the primary laboratory that oversees the surveillance programmes for communicable/non-communicable and emerging diseases and provides laboratory quality assurance to hospital laboratories around the island. In addition, the MRI's research committee encourages research initiatives planned within the institution and by external researchers, based on the relevance and added value of such projects in improving health. Although there are 18 Departments in the MRI, certain departments were still functioning within existing departments. Department of Natural products and CKDu was under the Department of Pharmacology. The following main departments in the MRI provide overall and unique services with the involvement of different specialties.

1. Department of Mycology

Due to the gradual increase in immune compromised populations and a variety of reasons, the number of patients with fungal infections in Sri Lanka is increasing. But the required mycological services have not expanded accordingly, leaving a significant space for improvement. The Department of Mycology functions as the only diagnostic, reference, research and training laboratory for Medical Mycology in Sri Lanka. It processes blood, CSF, sputum, bronchial washings, respiratory secretions, sterile fluids, body fluids, stools and aspirates, specimens, and swabs from various sites of the body (corneal scrapings from eye, corneal buttons from eye, vitreous tap specimens from eye) and tissue bank specimens from the Lady Ridgeway Hospital for Children, with regard to direct microscopy and fungal culture.

Furthermore, environmental specimens, food items and important animal specimens are processed for direct microscopy and fungal culture, serology tests & fungal histopathology for invasive fungal infections and fungal staining for *Pneumocystis jiroveceii* infection. In addition, fungal cultures sent from microbiology laboratories (state sector, private sector and universities) are processed and identified up to species level, and antifungal susceptibility test including measuring Minimum Inhibitory Concentrations (MIC), for yeast and mould isolates. A very few private sector laboratories process human specimens for direct microscopy and fungal culture, serology tests and perform antifungal susceptibility test only for yeasts. The Department of Mycology carries out fungal surveillance, as well. It also liaises with consultants in different hospitals in the island in management of patients with fungal infections. In addition, new methods for culture identification and antifungal susceptible testing have been introduced. The Department of Mycology is a participating laboratory for the WHO External Quality Assurance Scheme (EQAS), and involves in research, teaching and training of many staff categories including medical students, doctors, MLT students, nursing students and post-graduate trainee doctors. Only one Consultant Mycologist is stationed at the MRI to cater to the whole country.

2. Department of Immunology

It is a reference laboratory for immunological investigations of Inborn Errors of Immunity (IEI). The following tests are carried out by appointment: flow cytometry for lymphocyte subsets, lymphocyte function tests, and Nitroblue tetrazolium blood test for neutrophil function. The other tests performed are: serum immunoglobulin, complement C3 and C4, immunofluorescence of skin biopsies (Bullous disease of the skin), serum cryoglobulins antinuclear antibodies, ANA titre, ds DNA, ANCA, NMDAR, autoimmune encephalitis panel, anti-cardiolipin and anti-CCP. Tests are carried out in the department free of charge for samples from state hospitals, and charged for selected tests from private samples. The allergen testing facilities are only available at the MRI. Immunology and allergy clinics for diagnosis and management of immunological disorders are conducted based on referral, and collaborate with foreign specialists for diagnosis and advise on management if needed.

3. Department of Haematology

It is the youngest department in the MRI. The Hematology Department functions as the center for laboratory quality assurance in hematology. For FBC, the NEQA facility is provided down to Base Hospital level and a few district hospitals, while coagulation tests are offered only to the hospitals where such tests are done. For blood picture and retic count, quality assurances are done down to Base Hospitals. However, it doesn't provide accreditation for laboratories. The following special diagnostic tests are carried out at the department: Platelet Function tests, assessment of antiplatelet drug effect, coagulation factor assay, Von Willebrand test profile and thalassaemia diagnostic test profile, immunophenotyping for diagnosis of lymphoid malignancies and body test, sickling test and meth Hb test are unique tests performed by the department. The screening test for G6PD is also available. In addition, education & tutoring for training PG doctors (M.D, Diploma in Haematology), MLT and MLS, and carring out research on thalassaemia and bleeding disorders, are done. Genetic and molecular testing are under trial from 2021.

4. Department of Histopathology

A variety of specialized tests are carried out to facilitate the accurate diagnosis of a wide range of malignancies, e.g. Immunofluorescent testing, Immuno-histochemistry for breast markers (which is also available at Apeksha Hospital), and a wide range of special stains for tissue biopsy (available at NHSL and Apeksha Hospital, as well). Specialized tests for renal biopsy (facilitating the accurate diagnosis and accurate treatment for all renal diseases) is provided to nephrology units of all hospitals and the Universities in the country. The Department of Electron Microscopy was established for ultrastructural diagnosis of pathological entities. The Department provides recommendation for procurement of reagents and consumables used in histopathology in all hospitals, and for instruments to the NMRA and EQAP for all histo-path laboratories in the country (Private sector on request).

5. Department of Biochemistry

The Biochemistry Department functions as the reference and referral laboratory in the country. The department provides immunoassay services to all government institutions in the country and performs many biochemical tests such as 17 OHP, insulin, C-peptide, PTH, vitamin D, tacrolimus and cyclosporine. Additionally, it provides HbA1c, lipid profiles and urine micro albumin testing for other hospitals including the NHSL. The department is the national EQA provider for 92 government hospitals with biochemistry labs. The department carries out research on cardiovascular risk factors at the moment. Recently, it started neonatal screening for neonatal hypothyroidism for 4 provinces including Western, Northwestern, North Central and Northern provinces. Target areas to be developed include EQA, accreditation, LIMS introduction, research and human resource development. Special biochemical testes for endocrinology, tumor pathology, trace metals and heavy metals, metabolic markers, therapeutic drugs and markers for CKD identification are not available in the country.

6. Department of Parasitology and Entomology

Research on mosquito vectors of disease is the main activity of the department. This department also conducts disease vector surveillance for dengue haemorrhagic fever and Japanese Encephalitis, to guide the health authorities in implementing evidence-based vector control programmes. Special investigations on vector borne disease problems are undertaken when requested by the MoH, in order to assist in controlling epidemics. It is the main reference and diagnostic laboratory for serological and microscopic diagnosis of samples with parasitic infections.

The tests include serological tests (such as Toxoplasma IgG & IgM antibodies, toxoplasma IgG avidity, toxocara IgG antibody, filarial antibody and rapid antigen, malaria rapid antigen) and microscopy (for blood-borne, faecal & urinary parasites). In addition, tests are available to identify worms & histological specimens with parasites. Toxoplasma, toxocara and filarial serology were available only at the MRI, a few universities and private laboratories. Department of The parasitology of MRI is the only place to carry out the toxoplasma IgG avidity test.

Department of The Entomology is the Reference laboratory for assessing biological efficacy of househ old insecticidal products. The registrar of pesticide requests MRI certification prior to the marketing of each household insecticidal product. Assessing biological efficacy of household insecticidal products (mosquito coils, repellents and sprays), which was limited to laboratory trials, has expanded to field trials for all products. Teaching and training for middle-grade technical officers attached to the MoH and undergraduate/postgraduate students is another activity carried out by the Department.

7. Department of Rabies and Vaccine Quality Control Unit

The Rabies and Vaccine Quality Control Department is one of the oldest departments in the MRI and is responsible in providing quality assurance for all imported vaccines to Sri Lanka. Vaccine registration, new vaccine evaluation and batch analysis are the major services provided by the department, and it

is eventually responsible for vaccine batch release for use in Sri Lanka. In addition, the Dept of vaccine quality control which is the National Control Laboratory (NCL) for the vaccines and sera for human use in Sri Lanka, offers the following services: Technical evaluation of all human vaccines for the drug regulatory authority before licensing, lot release of government procured vaccines, quality testing of vaccines for pre-registration, newly registered vaccines, following AEFI reporting, cold chain break down, etc. and production of pharmaceuticals for laboratory use.

It is the National Reference Laboratory for rabies diagnosis in Sri Lanka and includes, human rabies diagnosis (ante mortem & postmortem), and rabies diagnosis in animals (postmortem). Rabies management advisory clinic, Rabies neutralizing antibody detection and Rabies real time PCR (RT_PCR) are the tests available. Assessment of rabies antibodies in serum and CSF in humans as a special test is carried out only at the MRI. In addition, FAT is available at the MRI and Peradeniya University using human and animal samples, while, the direct smear test is available only at the MRI and Karapitiya. Quality assurance tests of decentralized rabies diagnostic laboratories are also carried out. This department plays a role in the development of rabies post exposure treatment guidelines and conducting training programmes for hospital staff. There is under-reporting of animal rabies deaths, although all human rabies cases are reported. Therefore, a proper sample sending system for animal specimens should be introduced and a sentinel surveillance system should be established.

8. Department of Animal Science

It provides facilities for animal experiments, animal blood for laboratory media preparation and other special tests as requested. The MRI provides, necessary individual training on laboratory animal handling and techniques as requested, for MLT, undergraduate, postgraduate and PhD students. Breeding of internationally designated laboratory animals such as ICR mice, inbred colony of mice such as C3H, C57/Bl and Balb/c, Wistar rats, New Zealand White Rabbits, Hartley Guinea pigs hamsters for research purposes, is done at the MRI. Alternatives for animal research, e.g., Hen Egg Chorioallantoic Membrane Method (HET- CAM) as an alternative to Draize Eye Irritation Techniques in Toxicity testing and Zebrafish egg model, are available at the MRI. The MRI provides rabbit blood to the Lady Ridgeway Hospital for the coagulase test and sheep blood to the Faculty of Medicine, Department of Microbiology, University of Colombo to diagnose *Berkolia pseudomalei.* They are in the discussion process to develop Coomb's reagent using rabbit blood, and as requested by the National Blood Transfusion Service Colombo. It all so conducted a practical session for the Diploma course of Laboratory Animal Science organized by the Faculty of Medicine, University of Colombo and collaborated to conduct the Certificate course in Laboratory Animal Science conducted by the Sri Lanka Association for the Laboratory Animal Science.

9. Department of Virology

In the current context, emerging and re-emerging infections due to viruses has become a major public health issue in the world, and equally in Sri Lanka. In addition, the increasing immune - compromised population, especially the transplant patient population and the cancer patients have made a great demand on virology services in Sri Lanka. To meet this increasing demand, the Department of Virology will target on providing clinical diagnostic services to the immune-compromised population and strengthen the reference services. Strengthening the research activities will also contribute to the services rendered by the Department.They provide public, routine and diagnostic testing related to virology. There are 5 accredited labs for Polio, Rubella, Measles, JE and Influenza. Cultures and molecular testing were unique tests performed by the department. In addition, they act as a regional centre for Polio, and is monitored by the WHO. They carry out testing for Polio, Rubella, Covid, Hepatitis- C, Measles and HPV, and are involved in the outbreak management of Influenza, Hepatitis A, and Congenital Rubella. In addition, they conducted reference activities for Chikungunya, Dengue and Zika. They also contribute to collaborative research with international agencies.

10. Department of Bacteriology

There are two labs headed by different Consultant Microbiologists.

a. Clinical Microbiology Lab

This includes the Clinical Microbiology and Molecular Biology Laboratory. It is a designated National Reference Laboratory (NRL) for AMR surveillance / clinical microbiology and leptospirosis. It is the first and only government-owned accredited clinical microbiology laboratory in Sri Lanka, certified by the Sri Lanka Accreditation Board to ISO 15189. 36 microbiological investigations are accredited in the following categories: bacteriology, serology and molecular biology.
They established a Molecular Biology laboratory for clinical bacteriology for real-time PCR and bacterial DNA detection from clinical specimens for meningitis, Brucella, whooping cough, and C. diphtheriae.in-house The validated method for pathogenic Leptospira DNA detection and AMR genotyping were also done. Automation in the microbiology laboratory was introduced for the identification of pathogenic bacteria, and antimicrobial susceptibility testing (AST) by MIC and new techniques (manual) for antimicrobial susceptibility testing were carried out by MIC. The Microbroth dilution method for pathogenic Leptospira and penicillin and the colistin Agar dilution method for vancomycin were the new developments introduced by the clinical microbiology lab. Antimicrobial susceptibility testing was introduced, and the WHONET laboratory database software which is a free desktop Windows application developed by the WHO and configured by the Department for the laboratory used routine microbiological report generation, retrieval of monthly statistics, data analysis and AMR surveillance data generation.

b. Enteric Department (Food and Water)

Food testing, zoonotic testing, anaerobic diagnosis and microbiological surveillance of food were carried out by this Department. There are four reference labs, namely, Enteric Microbes, Anaerobes, Food & Water Microbiology and Serology. The Food & Water Microbiology Lab received the ISO Certification for Accreditation. It is the sole laboratory for the diseases of Enteric bacteria, Rickettsia, Brucellosis and Anaerobes. New technologies were introduced, such as PCR for Salmonella, Listeria, cigar toxin producing E Coli & Closterium difficile, and several new instruments were introduced to the lab (Biosafety cabinet, stomacher, vacuum filtration system). Further, antimicrobial surveillance for human & clinical samples was carried out from this department. In addition, Dialysis water testing was only carried out by the MRI.

11. Department of Pharmacology

The main function of this department is to monitor therapeutic drug levels in serum and plasma for immune-suppressive agents, Aminoglycosides, anti-epileptic drugs and Metabolites in urine. Among these, the 24 hours urinary metanephrine testing is a new development as well as the only unique test carried out by the Department. In South Asia, the main investor in medical research is India, followed by Pakistan and Bangladesh. Sri Lanka secures only the fourth place in South Asia when it comes to the medical research output. As a result, Sri Lankans still suffer with tropical disease outbreaks from time to time, exhibiting the incapability of addressing medical issues with solutions that are suitable for our conditions. A similar condition prevails in the control of non-communicable diseases. Furthermore, the MRI spends a huge sum of money to import pharmaceuticals and diagnostic tools & consumables.

The MRI has the human resource and capacity to develop and produce certain low cost, yet high quality medical products (such as anti-venom preparation for snakes, insects, marine organisms & poisonous flora endemic to Sri Lanka, in-house diagnostic kits, etc.,) concerning the specific requirements of our population, with special reference to genetic variations affecting drug

metabolism of the local population. To address these medical issues in Sri Lanka, there should be a national recognition for medical research on traditional the medicines, as well as a central medical research facility in order to improve public health. At present, the MRI is conducting basic, applied and translational medical research at the Natural products department to produce health, social and economic benefits to Sri Lanka.

12 Department of Nutrition

In 1938, the Department of Nutrition was established at the De Soyza Bacteriological Institute (Now MRI) for the purpose of researching prevailed major nutritional problems, surveillance of the nutritional status of the population for annual budget, identifing the essential commodities and reliefs required for the at risk population in the annual budget, food composition analysis to promote local food items, etc.

There is no improvement of the nutrition status of children under 5 years for the last 20 years. Triple burden of malnutrition is ongoing, with an increasing trend of overweight and obesity of adolescents and women. The elderly population has many nutritional issues, and the elderly population is also growing. The department is conducting several surveys at the national level to determine iodine salt consumption and household level, improve nutritional status of children, women, men and elderly, overweight and obesity in children and NCDs, iron and other micronutrient deficiencies among Sri Lankans. In addition, several researches are conducted on determination of fat, salt and sodium contents of selected fast-food items available, sugars and synthetic colorants in commercial branded fruit juice products and identification of synthetic food colours in selected confectioneries and beverages. Furthermore, the Department of Nutrition developed food composition tables for Sri Lanka recently.

Recommendations

1. Assess the existing situation of infrastructure & technology at the MRI and develop new plans to improve the quality of medical research, ensuring proper bio safety and security measures.

2. Develop a strategic plan for the MRI to streamline its activities and to attract international donor agency funding.

3. It is recommended to establish direct transportation of samples from the hospital to MRI and establish and Information Security Management System to issue the relevant reports from the MRI to avoid unnecessary delays.

4. Explore the possibilities to recognise the MRI as an independent institution with special regulations to be the apex centre for medical research in Sri Lanka .

5. Strengthen the molecular diagnostic facilities including genomic sequencing, in par with reference facilities in the region to meet the ever increasing and expanding demand with emerging and re-emerging infections.

6. Secure overall adequate fundings for the uninterrupted supply of regeants and maintenance of equipment.

7. Explore the possibility of improving the technology to carry out international level innovative research in the field of Natural Products by developing the infrastructure and technology of the department and as a whole at the MRI, and encouraging quality research.

Sub strategy 4.3-: To ensure sharing of resources within a cluster to provide quality primary level care to the community.

Sub strategy 4.4-: To develop a referral and back – referral system for patients in each defined catchment area.

Sub strategy 6.9-: To establish a new structure for management of primary healthcare level curative services which include all divisional hospitals and primary medical care units of the country.

Sub strategies 2.15-: To provide quality laboratory services by ensuring efficiency in functioning and equity in the clustering of laboratories in hospitals

Sub strategies 4.3, 4.4, 6.9 and 2.15 are amalgamated.

Background

Sri Lanka is currently facing the challenges of demographic, socio-economic, epidemiological and lifestyle transitions which affect the whole population. The MoH has taken a policy decision to reorganize and strengthen the primary healthcare system to ensure Universal Health Coverage (UHC) to all citizens. UHC means that all people have access to the health services they need, when and where they need them, without financial hardship. It includes the full range of essential health services, from health promotion to prevention, treatment, rehabilitation and palliative care. One of the globally recognized strategies is primary healthcare (PHC) strengthening in a country to achieve UHC. The Policy on Healthcare Delivery for Universal Health Coverage (2018) is already in place, and the Cabinet of Ministers have approved "The action framework for the implementation of the UHC policy" as a policy implementation tool for the five-year period of 2019-2023. The strategic directions in the policy for universal health coverage include the reorganization of healthcare delivery by establishing an appropriate primary healthcare model suited for Sri Lanka, including the primary healthcare reorganization.

Even though the Sri Lankan government health system provides services free of charge at the point of delivery, health outcome disparities still exist by sex, age, sector and poverty. The MoH decided to restructure the PHC system to address some of the currently existing health disparities to ensure UHC to all population groups, by reducing the OOPEs, and improving quality of services at the PHC with better continuity of care and health seeker satisfaction. This can be achieved through a service package, to ensure better access and reliability.

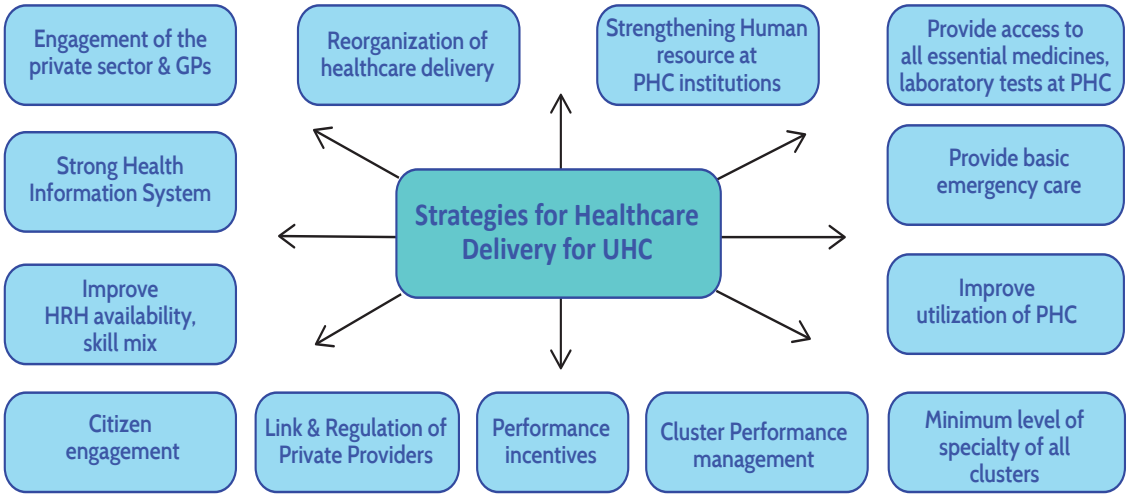
National Policy background

The Policy on Healthcare Delivery for UHC

The policy has focused on providing quality healthcare at the point of first contact with the health system while ensuring equitable access to all citizens, and if necessary to refer for specialized care through the identified referral pathways. This is to be achieved through strengthening the primary healthcare system and using a family centered approach. The policy emphasizes the need to provide continuum of care especially for chronic non-communicable diseases such as hypertension and ischemic heart diseases, diabetes, stroke, chronic kidney disease and mental health problems. The policy emphasizes the establishment of a "shared care cluster" model for management of chronic diseases, as well as providing basic emergency care at the primary care level and developing a supportive and equitably distributed network of specialized care services at secondary and tertiary healthcare levels by infrastructure and human resource development at all levels. The policy calls for the delivery of an "essential health service package" for each of the disease entities, while ensuring the availability of clinical guidelines for management of relevant diseases, ensuring availability of laboratory investigations, essential medicines, and concomitant access to health promotion and prevention interventions at each level. The policy emphasizes the need to empanel the geographical boundaries around the primary

healthcare units, with its hierarchal specialized service provider (Base Hospital and above) serving as the "apex hospital" to enclose a cluster. A communication strategy is required for citizen engagement and empowering the community for rational health seeking behaviors which would eventually help citizens to seek care closer to their homes, thus avoiding over- crowding at specialized hospitals and reducing out of pocket health expenditure. The "shared care cluster" is to be managed by a cluster manager with the responsibility of providing quality healthcare services to the empaneled population by the adoption of an organized system of care with regular monitoring and evaluation to provide effective and efficient care in an equitable manner without gender discrimination. The Health Information System (HIS), Waste Management Systems and Supply Chain Management systems are to be strengthened as supportive systems. These Shared Care Clusters are linking a specialized care institution and provide a continuum of care between primary and specialist services by sharing between the different levels of care, to optimize the availability and utilization of services.

Strategies for healthcare delivery for UHC



Source: UHC Policy 2019

Figure 115: Strategies for healthcare delivery for UHC

All the above strategies have been identified to achieve the objective of the primary healthcare reorganization.

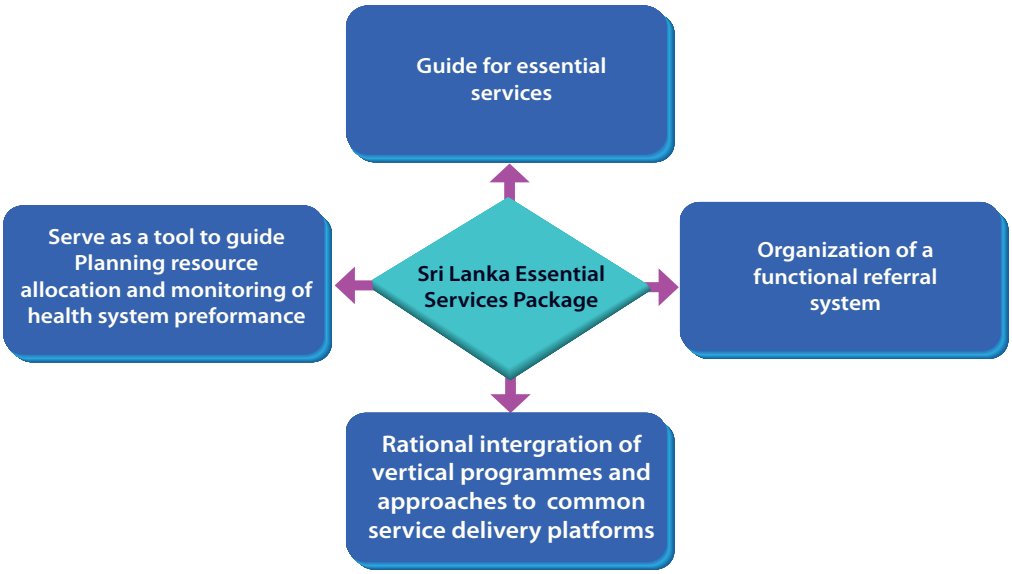
Primary care includes Level 1 institutions which consist of Primary Medical Care Units (PMCU) and Level 2 institutions which consist of Divisional Hospitals type A, B and C. These four types of institutions are collectively known as Primary Medical Care Institutions (PMCI). According to the Annual Health Bulletin, 58 million people have received services from PMCI during 2019.

The "shared care cluster" system has been identified for reforming of the primary healthcare structure to achieve UHC. The health institutions of each cluster are being strengthened to provide comprehensive care through a family practice approach. In order to strengthen the capacity for NCD diagnosis and management, it was recommended to create a cluster laboratory system. The boundaries of the cluster of a curative system may overlap with two or more boundaries of MOH areas. Based on the policy, it further strengthens the human resources at primary-level curative institutions, including the provision of one family doctor per 5000 population, and allied healthcare workforce cadres, including public health nurses, providing access to all essential medicines and laboratory tests, providing basic emergency care, creating an environment in primary care hospitals that is conducive to improving their utilization by patients and retention of healthcare personnel including the citizen partnership. This shared care cluster is responsible for delivering the newly defined Sri Lanka Essential Services Package (SLESP) cutting across preventive and curative services. The four main components of the SLESP are 1) services linked to the

life-course- reproductive, maternal, neonatal, child, adolescent and elderly care 2) Health services linked to prevention and management of communicable diseases 3) Health services linked to prevention and management of non-communicable diseases 4) Health services which are not linked to specific conditions, e.g. emergency care, out-patient and in-patient care, surgery and trauma, dental care, rehabilitation and palliative care.

Sri Lanka Essential Services Package

The Sri Lanka Essential Services Package (ESP) was developed in 2019, and it is an important tool to implement this reform. The Government remains committed to gradually scaling up the existing services to ensure the availability of these services, and it was delayed due to the COVID-19 pandemic. The ESP provides the standards for services to be delivered across all levels and as a tool to guide resource allocation at the implementation level.



Source: Essential Health Care package of the MoH, 2019

Figure 116 : Component of the Essential Services Package

The PHC reorganization introduced the referral and back referral system within the cluster system and referral to outside of the cluster when necessary for specialized care. Once the management is over at secondary or above hospitals, the same patient is referred back to the cluster hospital for further management which can be given at that level. The implementation has not fully implemented all over the country. It saves out of pocket expenditure and provides quality care without overcrowding. Once the reforms are implemented, it is expected that patients will prefer accessing their PHC services, avoiding bypassing to secondary/tertiary care.

An additional feature introduced is to conduct specialized clinics at the PHC level by hospital-based consultants, with the aim of giving further relief to patients and strengthening service delivery at the PHC level. Improvement of telemedicine and telehealth at primary health care institutions is planned. Regular capacity building programmes will be carried out to improve primary care service delivery and speed up with E-learning modules. Properly designed basic and compulsory capacity building programmes are a necessity.

Consultant Family Physicians are to be placed in appropriate apex hospitals to overlook the primary healthcare at secondary and tertiary care level and to overlook the DHs and PMCUs. In addition, a Consultant Family Physician will be the Unit head of the Outpatient Department to overlook the services of the OPD Medical Officers, and do appropriate referrals to relevant consultants at the OPD level (VP OPD, VS OPD, etc.) and other consultants of the hospital for quality and safe patient care.

Role of external funding agencies in PHC reforms

The MoH has obtained technical and financial support from the World Bank and the ADB to restructure the primary healthcare delivery services. The Ministry of Health is responsible for restructuring of the primary healthcare system, and it has been initiated via two foreign funded projects: Health System Enhancement Project of the Asian Development Bank and the Primary healthcare System Strengthening Project of the World Bank. Under these two projects, phased implementation of these health-system reforms by the government is now actively underway, with a National Steering Committee set up in 2018 to monitor the progress in implementation and provide overall oversight and guidance.

The ADB-funded HESP was launched in 2018, and it will support the establishment, implementation and monitoring & evaluation of cluster systems, targeting all nine districts of the four provinces of Central, North Central, Uva and Sabaragamuwa, with a special focus on the geographically, socially and economically deprived populations. The beneficiary population of the project is approximately 7 million, which is 33% of the Sri Lankan population (21 million), while the target population within the four provinces is estimated to be approximately 2.4 million. The project outcomes are expected to achieve: (i) A 20% increase in outpatient utilization at PHC, (ii) A 20% increase in patient satisfaction, knowledge and attitudes toward utilization (iii) 90% of notified notifiable diseases investigated within the stipulated time in the MOH areas in the target provinces and (iv) cluster system reform implemented and evaluated in all nine clusters.

The Primary healthcare System Strengthening Project (PSSP), of the World Bank is working to increase the utilization and quality of primary healthcare services, with an emphasis on detection and management of non-communicable diseases in high-risk population groups, in selected areas of the country. It has three components. (1) implementation of the Primary Healthcare system reorganization (2) strengthening strategies to support the MoH and provinces to implement the PHC system reorganization (3) strengthening strategies through the routine health sector planning and budget execution systems. This project covers 550 hospitals island-wide to develop the infrastructure facilities, supply equipment and provide training to develop the skills of primary healthcare workers. The project objective is to increase the utilization and quality of primary healthcare services, with an emphasis on the detection and management of non-communicable diseases in high-risk population groups. This includes primary healthcare institution development as well as staff development.

The WHO is providing catalytic technical support on the health system work, such as for a health information system mapping and assessment, which will form the basis for developing the architecture of the health information system enterprise to monitor UHC. Further, the Global Fund to Fight AIDS, Tuberculosis and Malaria has recognized that a strong, resilient health system is needed to end AIDS, tuberculosis and malaria, and has invested in technical catalytic activity for primary healthcare with the WHO, for example a cross-programmatic efficiency analysis and development of the SLESP service-delivery model, policy dialogue and provincial consultations on the reorganization of primary healthcare, and health information system mapping.

Role of the Ministry of Health in Primary Healthcare reforms

Several circulars have been issued by the MoH on Physical Space Norms for Primary Healthcare Facilities Established under the HSEP (Circular Number 01-29/2018), Implementation of shared care clusters at the District Level for Improvement of Service (Circular Number 01-06 /2019), Reorganization and Strengthening of Primary Care Service Delivery System to Achieve UHC (Circular Number 01-18/2019) and for strengthening of the primary healthcare system. Further, a letter has been issued by the DGHS on supervision and coordination of the clusters established under HSEP (Letter Number HP/HPC/01/2019 dated 21st March 2019). This process was further complemented by the development of guidelines for Utilization of the Primary Healthcare Innovation Fund (PIF), Cluster Guide for Providing Shared Care -

Piloting a Primary Healthcare Reform in Sri Lanka – 2019 and Guideline for Management of NCDs in Primary Healthcare (Total Risk Assessment Approach).

In addition, MoH has issued another circular to provide specialist services at apex hospitals by Family Medicine Consultants, under the circular number No -01-37/2021.The aim of appointing these specialists into the apex hospitals is for the life course management, management and prevention of communicable and non-communicable diseases, rehabilitation services and palliative care services including the rational use of antibiotics. These help to reduce the health burden and health expenditure by making timely referrals and reduction of unnecessary hospital admissions. Presently, there are 17 Qualified Consultant Family Physicians based in the Base and Divisional hospitals as at the end of 2021. They were appointed in 2022 from the annual transfer list to BH Panadura, Homagama, Horana, Kiribathgoda, Maravilla, Dambulla, and Wathupitiwela to establish Family Practice Units (FPU). They are also entrusted with supervision of Medical Officers who are attached to the OPDs. The Family Medicine Specialist is expected to focus the medical team on patient centered first contact care, to train the team to deliver the ESP, establish a patient record system, achieve multi-disciplinary care, organize and supervise the FPUs empaneling DHs with arrangements for visiting clinics of nearby DHs and to establish a training center for Postgraduates and Undergraduates.

Further, as per the policy, it is required to strengthen the community health services, robust changes in the health information system, effective engagement of the private sector and involvement of the private General Practitioners. In addition to the cluster system, a family doctor for all and a minimum level of specialty care for each cluster have been identified.

Under the pilot project, a cluster manager/ head will be assigned to each cluster, and the cluster head/ cluster manager will be responsible for coordinating the cluster management team and will be appointed by the RDHS in the respective District. Further, the MoH instructed all RDHSs, through the special letter dated 21st March 2019, to entrust the responsibility of the management of the clusters through coordination of activities within the cluster and supervision of the cluster, to the Deputy Regional Director, under the guidance of the RDHS. The HSEP has taken necessary action to develop a proper mechanism for sharing resources among healthcare institutions. This activity is also outsourced by the HSEP. After the finalization of the ToR for the Cluster Head and the mechanism of the resource sharing among the cluster system, it can be scaled up to the entire system.

Laboratory services

Laboratory services are an essential component in the healthcare delivery system to get accurate laboratory results in a timely manner, which is essential for the accurate diagnosis of a disease. Early detection of diseases and prevention of their complications can be achieved by accurate diagnostic tests, and it can save millions of money to contribute to the economy.

A Concept Note and Guidelines were prepared by the Division of Laboratory Services of Ministry of Health, Sri Lanka in 2019 for Strengthening Laboratory services in Primary Healthcare Institutions. The main objective of strengthening laboratory services in PMCI is to provide the highest possible laboratory facilities at the primary care level and to reduce the number of patients visiting secondary care institutions, bypassing the PMCI level. This will prevent overcrowding of higher-level healthcare institutes, while bringing convenience to the patient. Further, it reduces out-of-pocket expenditure and reduces financial risk through providing diagnostic services including medical laboratory investigations, within public facilities. In addition, this will also contribute to UHC, ensuring that all people have access to the necessary promotive, preventive, curative and rehabilitative health services. The Deputy Director General, Laboratory Services gives leadership for the Directorate of Laboratory Services, the Medical Research Institute and the National Blood Transfusion Service. The private laboratories are regulated by the Private Health Services Regulatory Council (PHSRC), which is chaired by the Director General

of Health Services, and the technical guidance is delivered through the Directorate of the Laboratory Services. The Laboratory Services Directorate of the Ministry of Health provides support for curative, preventive, promotive and rehabilitative care services through public sector laboratories at each level. Laboratory Services are provided under five main subspecialties - histopathology, chemical pathology, hematology, microbiology and transfusion medicine, each of which is subdivided into multiple areas in response to expanding clinical demands.

The MoH has identified lab facilities for primary, secondary and tertiary care. Level 1 is in PMCU, and level 2 includes Divisional Hospitals A/B/C. Both these levels belong to primary care and provide services for the empaneled population and mainly focus on investigations from Healthy Lifestyle Clinics (HLC), Well Woman Clinics (WWC), Maternal and Child Health Clinics (MCH) and self-referrals. Level 3 labs are situated in Base hospitals A/B and level 4 labs are situated in the NHSL, Teaching Hospitals, PGH, DGH, Specialized Hospitals and the MRI (National Reference Centre). Medical care facilities above the level of a Divisional Hospital could be selected as an Apex Institution, where the samples from peripheral hospitals will be referred to those hospitals.

The following guidelines were given to ensure maximum benefit to the community: A basic investigations package pertaining to haematology, microbiology, biochemistry and histopathology at PMCIs, sample collecting centers can be established in PMCIs, to collect blood samples and forward them to the Apex Hospital laboratories for analysis, and the final reports should then be sent back to the PMCIs in a timely and coordinated manner, while maintaining confidentiality.

The laboratory service network will take one laboratory at a referral hospital and several feeding institutions in its catchment area as one “network cluster,” and within this cluster, primary care institutions can benefit from the laboratory services extended by the referral hospital. This requires providing equipment and other facilities to primary care hospitals where the Medical Laboratory Technicians (MLTs) are available, by providing transport facilities, developing infrastructure by construction/modification of primary and secondary institutions, and expanding mobile labs, vehicles and equipment. The Laboratory Information Management System (LIMS) should facilitate networking and data sharing within laboratories in secondary and tertiary care institutions, wards/clinics, and cluster laboratories. The LIMS should adhere to “the National eHealth Guidelines and Standards”, “National Policy on Health Information” as well as the Laboratory Manual developed by the MoH. Point of Care Testing (POCT), facilities are introduced to conduct basic screening tests/confirmatory tests (depending on the need, or level of institution), including blood glucose, total cholesterol, urine, sugar, urine albumin and haemoglobin levels, etc. In all places where POCT (strip or another method) is established with or without an MLT, a periodic quality assurance process (according to ISO 22870: 2016) has to be established.

Each PDHS division should have a minimum of one mobile laboratory, to expand this service by allocating one mobile laboratory for each district in the future. Level 2 laboratories (Divisional Hospital Laboratories) will be facilitated with the above-mentioned laboratory investigations, including biochemical tests, hematological tests and histopathological tests except for microbiological tests and immunoassays (Example: TSH, T4, T3 and Hb A1C) for analysis of samples collected from PMCIs. In addition to that, it has been identified that basic hematology, microbiology, biochemistry and histopathology tests should be available at PMCIs. Advanced laboratory facilities will be available at the national level (MRI, NHSL).
Expanding of human resources for Quality Management of laboratories, including providing adequate human resources for Quality Management of Laboratories (consultants/medical officers to relevant fields, MLTs) and preparation of a laboratory human resource plan that forecasts recruitment requirements and establishes recruitment criteria, are needed. In order to expand training, continuous capacity building for MLTs and other staff and offering training programmes on selected topics (advanced techniques and innovations, locally and internationally) are to be considered.

This system has been identified as a network that requires an efficient system within which blood samples and test results are transported back and forth between feed-in institutions and a designated referral hospital with laboratory facilities.

The guidelines provided in the publication "A Guide for Establishing a Laboratory Service Network" compiled by the MoH in collaboration with the JICA, provides all necessary guidelines as well as technical details with regard to establishing sample collecting centers, choosing the right mode of transport, and dispatching results.

The main vision is to achieve standards for medical laboratories set by the International Organizations for Standardization, with the mission to provide timely, reliable, high-quality diagnostic services to relevant healthcare providers. The main function is to strengthen, expand and regulate the provincial and line ministry hospital laboratories and provide necessary equipment with necessary guidelines. They will serve as the focal point of combating Anti-Microbial Resistance (AMR) in the country and take measures for improvement of Biosecurity and Biosafety in the Laboratory sector.

There were many expansions and upgrading of laboratory systems during 2018 and 2019, and new developments during 2016-2021. Four virology laboratories in the Medical Research Institute, TH Anuradhapura, TH Karapitiya and NH Kandy are in operation. There are 33 PCR Laboratories for COVID-19 which have been established during the last few years due to the COVID epidemic, and gene sequencing laboratories for COVID-19 have been established in the MRI, TH Anuradhapura, TH Karapitiya, NH Kandy and National Cancer Institute during 2021. Good collaboration has been observed by professional colleges and the WHO, World Bank and ADB. Insufficient fund allocation is a big challenge for upgrading the laboratory services, and so is the frequent reagent unavailability. It affects the quality of services, and it leads to out-of-pocket expenditure on the patient's side.

Recommendations

1. Speed up the implementation of the restructuring of the primary healthcare process and improve.
2. Improve basic emergency treatment facilities at primary medical care institutions (PMCI) and link to the tier-based referral system.
3. All service provisions should have SOPs.
4. Reorganize human resources to fill the cadre positions of the PMCI while ensuring residential quarters for staff.
5. Establish a proper mechanism for sharing of resources within clusters, including human resources, ambulances, etc.
6. Updating the standards and norms according to the current context for the laboratories.
7. The National Laboratory Management Information System should be developed to get real-time results, for supply chain management, and to facilitate the monitoring and evaluation of laboratory services. The monitoring of laboratories has to be done via a digitalized networking system.
8. Establish and implement clustering of laboratories and link to the Provincial and Teaching Hospitals and arrange a sample transport courier service urgently.
9. Estimate medical items and reagents in a periodic manner to prevent stockouts.
10. Health Technology Assessments (Cost effective/Cost-efficient) in medical and laboratory equipment (Cost calculation) need to be carried out.

11. Monitoring of primary care reforms should be strengthened at the focal point with central and provincial coordination. The programme should be reviewed quarterly, and an annual review should be done with relevant stakeholders by the MoH.

12. Develop, updateand disseminate the clinical management guidelines and monitor the implementation.

13. Include PHC reorganization reforms into post graduate curricula of Community Medicine, Medical Administration, Microbiology, and Internal Medicine as appropriate.

The following indicators were recommended for future monitoring and evaluation purposes. It should cover the following broad categories: ESP, Empanelment, Cluster system and Community participation

1. Disease specific impact indicators

2. Percentage of Divisional hospitals with average Bed Occupancy Rate should be targeted above 80% (data from the Medical Statistics Unit)

3. Percentage of population for which empanelment into the web-based system has been completed (Data from PSSP Project/ Medical Statistics Unit)

4. Percentage of PMCIs which have fulfilled the standard physical norms of a PMCI (Data from Medical Statistics Unit)

5. Percentage of PMCIs with at least two established specialist clinics under the apex hospital- (Data from PSSP Project/ Medical Statistics Unit)

6. Percentage of PMCIs with recommended human resources as per the essential services package
   - Medical Officer - Medical Administration Branch, Ministry of Health
   - Medical Officer, Nursing Officer, MLT, Midwives, Health Assistants and other - Planning Unit has data of line ministry institutions / Health Information unit- HRMIS- has details about all designations, planning to update regularly

7. Percentage of laboratories that have the capacity to perform investigations according to developed norms (Data from special survey)

8. Percentage of laboratories with staff according to the approved cadre

9. Percentage of laboratories which have the equipment according to the approved norms (25%, 50%,75%,100%)

10. Percentage of laboratories adhering to the External Quality Assessment schedule

11. Percentage of health budget allocated to laboratory services and the utilization

12. Percentage of staff undergone compulsory basic training (Life support/ Emergency Management/ NCD, etc.)

13. Include quality management indicators, resource allocation indicators, accountability and cost indicators.

Sub strategy 2.16-: To provide quality ENT care services in an equitable manner throughout the country

Background

Otorhinolaryngology services are related to the management of a wide range of ear, nose and throat (ENT) conditions, as well as some head and neck pathologies.

At the moment, there are 50 consultant ENT surgeons providing services in public sector hospitals, two attached to universities, two attached to the Sri Jayewardenepura Hospital and one attached to the Army Hospital. There are nine consultant ENT surgeons working fulltime in the private sector. Altogether 64 consultant ENT surgeons are currently working in Sri Lanka. Annually, 2-3 newly qualified specialists return to the country. According to MoH cadre projections, the country needs 113 consultant ENT surgeons by 2025 for the public sector.

Currently, 23 ENT Units are established in provincial and above hospitals, 17 in DGHs and seven units in Base Hospitals, as at the end of 2021. However, it was observed that, although 17 out of 21 DGHs have ENT units, out of the 33 Type A BHs, only five of them (15%) had established ENT units (along with two other units at Gampola and Kiribathgoda Type B BHs), hindering the equitable access to services. NHSL, LRH, CNTH, TH Kandy, TH Karapitiya, TH Jaffna, TH Anuradhapura and PGH Kurunegala had 2 or more ENT specialists, thus providing round the clock services. In the National Health Master Plan 2015 – 2026, it was planned to appoint two ENT surgeons for all hospitals above BH Type A and one ENT surgeon for identified Type B Base Hospitals.

The carder norms for specialists and medical officers have been developed, and they're currently awaiting approval. The intake of training of otorhinolaryngoloists was increased to four per batch and a maximum of eight per year. Carder norms fo speech and language therapists and audiologic scientists/ audio technicians were done, but recruitment gaps are there. Implementation of a system of outreach clinics or day case surgeries is still at the planning stage.

Many hospitals have shared wards and clinics (with OMF/Eye), with limited operating theatre times for routine and casualty surgeries. Facilities for essential investigations and radiographic imaging were limited. Essential equipment for audiology and surgical procedures are not adequate. Inadequate supporting staff, audio technicians and speech and language therapists were issues identified especially at the provincial level. Enthusiastic newly qualified surgeons returning from overseas training who are placed in such places may tend to lose their skill and the much-needed experience. Therefore, it was decided to develop a comprehensive action plan with the support of the college and central and provincial governments.

Specific ENT investigations and surgeries are provided in the public sector in Sri Lanka.
Specific investigations available include:

- Endoscopic Evaluation from nose to the lungs using Flexible/Rigid: Nasal Endoscope, Laryngoscope, Bronchoscope, Esophagoscope.
- Evaluation of Hearing and Balance using Pure Tone Audiometer using Impedance Tympanometry, OAE Machine, ABR Machine, Few Special equipment for balance testing (Video Nystagmography, Caloric testing - in some hospitals only).
- Snoring and Sleep Apnoea Evaluation using Polysomnography.

ENT surgeries performed in the public sector ENT units in the country include;

- Outer, middle and inner Ear surgeries to eradicate ear disease/ treatment of deafness: Meatoplasty, Tympanoplasty Ossiculoplasty, Myringotomy and Grommets, Mastoidectomies, Stapedotomy, Cochlear implantation and surgeries to fix implantable hearing aids.
- Nasal, paranasal and anterior skull base surgeries to treat congenital, traumatic, autoimmune, infective, inflammatory and neoplasm conditions: Septoplasty, Septorhinoplasty, Functional Endoscopic Sinuses Surgeries (FESS), Endoscopic Turbinoplasty, Endoscopic DCR for tear duct obstruction, Endoscopic tumor removal from nose, paranasal sinuses, anterior skull base and postnasal space. Endoscopic trans-nasal CSF leak repair, endoscopic trans-nasal pituitary surgeries, endoscopic trans-nasal orbital abscess drainage and optic nerve decompression, and endoscopic procedures for control of nasal bleeding are advanced facilities available in some hospitals.
- Pharyngeal surgeries for treatment of infection, inflammatory and neoplasm conditions: tonsillectomy, adenoidectomy, special palatal and tongue base surgeries for snoring and obstructive sleep apnoea, removal of localized tumors.
- Laryngeal surgeries for treatment of inflammatory, traumatic, congenital, benign and malignant neoplastic conditions, Laryngeal framework surgeries for voice problems: Open Laryngectomy, Micro Laryngeal surgeries (Cold steel, LASER and Coblation), Micro larynx Bronchoscopy for congenital laryngeal conditions.
- Neck surgeries for treatment of inflammatory and neoplastic conditions: thyroidectomy, Salivary gland tumors, cervical block dissections and removal of other lumps.

Currently, the range of public sector services are in par with the private sector in Sri Lanka, although the out-of-pocket expenses are still high for prostheses & treatment devices such as hearing aids and cochlear implants. Public service delivery is in par with the global standards in many areas except skull base surgeries and otoneurology, as there aren't sufficient resources or training facilities in Sri Lanka. There is no epidemiological database on patients undergoing ENT surgical treatment, too.

The main challenge in service provision is that, in parallel to cardre expansion, there is a lack of expansion of infrastructure and theatre time along with ICU facilities. It was also observed that even basic requirements were not fulfilled at relevant levels of healthcare to provide quality ENT surgical services in some hospitals.

Recommendations

1. A strategic plan should be developed for the ENT surgical field to fulfil the basic standards of ENT services, identifying the services that should be provided at each healthcare level with infrastructure, equipment, human resources, etc.

   E.g., Each ENT unit should have facilities for Pure Tone Audiometry (PTA), Tympanometry and Oto Acoustic Emission (OAE) screening as the basic minimum. THE units in higher levels should have facilities for ABR/ASSR/VEMP and other advanced facilities depending on the expertise provided. Each ENT clinic is to be equipped with soundproof audiologic testing facilities, nasal endoscopies, fibro optic nasolaryngoscopies, stroboscopy and microscopy facilities, and other advanced facilities depending on the expertise provided.

2. Improve the facilities for ENT services including the logistic, equipment and human resource, in accordance with a facility survey, and appoint two ENT surgeons for each BH Type A and one ENT Surgeon for identified BH Type B.

3. Upgrade the existing ENT theatre facilities to the standard level with microscopy and endoscopic surgical facility for all ENT theatres, and advanced equipment including navigation LASER should be provided for all Teaching Hospitals. Establishment of temporal bone & cadaveric dissection Labs in all major hospitals should be carried out according to the National Health Master Plan, along with capacity building including international training.

4. Do a need assessment and increase the trained staff in all categories accordingly, mainly focusing on provision of Speech & Language Therapists for each ENT Unit. Especially for Paediatric hospitals with Cochlear Implantation Programme, Speech & Language Therapists and an Audiologic Scientist/ Audio Technician should be made available according to the requirement.

5. Establishment of Sleep Study (Polysomnography) facilities in major hospitals to diagnose conditions such as Obstructive Sleep Apnoea, and introduce new ENT subspecialties such as skull base surgeries, otoneurology and paediatric ENT Surgery in all major Teaching Hospitals according to the National Health Master Plan.

6. Implement a system of out-reach clinics/ day case surgeries for ENT patients led by Consultant ENT Surgeons, as the coverage of Base Hospitals is limited as described above.

7. Actions to reduce out of pocket expenses for prostheses & treatment devices.

8. Implementation of a National Programme for prevention of deafness.

9. Ensure ENT data are captured in the Hospital Health Information system, and a separate module is introduced to the central database in relevance to the ENT field to reduce the data gap.

Sub strategy 2.17 : To ensure the efficient and effective supply of quality medical items to relevant health institutions

Sub strategy 6.10 : To improve the efficiency of Supply Chain Management; re-structure the Medical Supplies Division

Sub strategy 5.3 : To strengthen the mechanism of regulation of prices of medicinal drugs and devices

Sub strategy 7.2 : To promote local manufacturing of pharmaceuticals

Sub strategies 2.17, 6.10, 5.3 and 7.2 are amalgamated.

Background

Under section 3.8 of the United Nations' third Sustainable Development Goal, "access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" is identified as a major target for Good Health and Well-being in order to ensure healthy lives and promote well-being for all at all ages. An efficient and quality medical item regulation process and a medical supply chain are essential to achieve this goal. Sri Lanka has planned to maintain the same level of baseline values for the SDG goal, in line with the availability of essential medicines and commodities at public and private healthcare sectors, by maintaining at least a 50% level in 100% of public sector and 95.29% of private sector, a 75% level in 82.16% of private sector and 80.26% of private sector and a 90% level for 21.44% of public sector and 53.04 of private sector.

National Policies and Strategies.

The government of Sri Lanka has imposed price control on pharmaceuticals from time to time, and responsibilities are taken by the NMRA. There are price regulation legislations available for medical items in Sri Lanka, and the relevant policy and gazettes are: National Medicinal Drug Policy for Sri Lanka, 2005, Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka- 21.10.2016, The National Medicines Regulatory Authority (Ceiling on Prices) Regulations No. 2 of 2016 - Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka - 14.12.2017, The National Medicines Regulatory Authority (Ceiling on Prices) Regulations No.6 of 2017 - Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka - 31.08.2018 - Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka - 15.05.2019, The National Medicines Regulatory Authority (Ceiling on Prices) Regulations 2019 - Gazette Extraordinary of The Democratic Socialist Republic of Sri Lanka- 21.10.2019 and The National Medicines Regulatory Authority Pricing Regulations 2019. The list of products under price control are published on the NMRA website. 48 medicines underwent price control in 2016. In 2017, 48 were added. 23 and 60 additional medicines underwent price control in 2018 and 2019, respectively. In addition to that, pricing of 60 medical products, intra ocular lens and medical devices pricing was done in 2021. Due to the fluctuating dollar rate, drug prices were increased in early 2022.

The National Medicinal Drug Policy for Sri Lanka was published in 2005 by the Ministry of Health, and the National Medicine Regulatory Authority Act (Act No 05 of 2015) was approved by the Parliament of the Democratic Socialist Republic of Sri Lanka and certified on 19th March 2015. The National Medicinal Drug Policy ensures the availability and affordability of efficacious, safe and good quality medicines relevant to the healthcare needs of the people, promote the rational use of medicines by healthcare professionals and consumers and to promotes local manufacture of essential medicines. The "Supply Chain Management" refers to the planning and management of all activities involved in the sourcing, procurement, warehousing, distribution and delivery of pharmaceuticals from the supplier of raw materials to the patient. The Supply Chain Management (SCM), should ensure to provide quality assurance from the manufacture level to the end user level. This helps to reduce costs, increase supply chain efficiency and, depending on how it is implemented, build greater agility and resilience into the healthcare value chain. The patient needs an assurance that, at each stage, all care has been taken to ensure that the product is precisely 'what the medical doctor prescribed'.

Around 11% of the healthcare budget in Sri Lanka is allocated to medical items. Continuous supply of essential drugs is one of the most important requirements for saving a patient's life. Proper management of the supply chain is essential to improve the availability of drugs in healthcare institutions. A supply chain consists of all the stages involved in fulfilling a customer request, either directly or indirectly. Therefore, whether public or private, proper management of the supply chain is very important for a hospital. There were complaints about shortages of drugs and other medical devices in public sector healthcare institutions on some occasions. Sometimes, problems associated with drug quality and efficacy are also reported in public sector health institutions. The high cost of drugs in private sector hospitals is a major problem, and they also experience the shortages of drugs. The Medical Supplies Division (MSD), National Medicines Regulatory Authority (NMRA) and local manufacturing agents are responsible for the supply chain management. In addition, hospital and community pharmacies are also involved. The NMRA regulates the process of importing and local manufacturing of medical items. It thereby plays a leading role in protecting and improving public health, by ensuring that medicinal products are available in the country to meet applicable standards of safety, quality and efficacy. The National Medicines Regulatory Authority Act, No. 5 of 2015 provides the authority to the NMRA to regulate all aspects pertaining to medicines. The NMRA regulates medicines, medical devices, borderline products & cosmetics and conducts clinical trials. The National Medicines Quality Assurance Laboratory (NMQAL) is responsible of ensuring the quality of medicinal products also functions under the purview of the NMRA.

The Medical Supplies Division of the MoH is responsible for providing all medical items (Pharmaceuticals, Surgical items, Laboratory Items Radioactive Items, and Printed materials) for the government sector. The MSD is the sole supplier of dangerous drugs (narcotics) to all the hospitals in the country including the private sector where the private sector, obtains their quota after approval by the NMRA. The State Pharmaceutical Corporation (SPC) is the procurement agency for the MSD. At present, the MSD procures from the SPC, State *P*harmaceuticals Manufacturing Corporation (SPMC) and local suppliers. In addition, local purchasing is done in emergencies by the emergency procurement pathway.

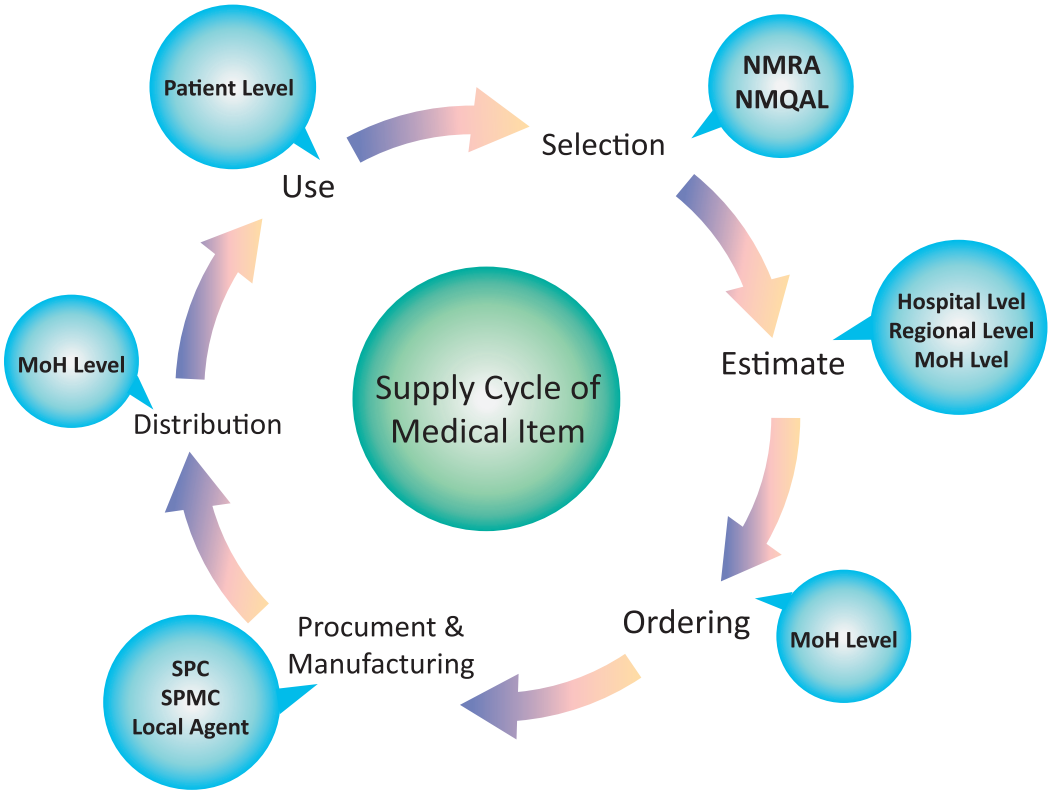


Figure 117: Responsibilities of the supply chain management, MoH

Quality assurance responsibilities of the NMRA

The NMRA thereby regulates and controls manufacturing, importation, storage, distribution, transportation, pricing, wholesale and retail sale, advertising and disposal of medicines to ensure standards and affordability. In addition to the medicines, the NMRA regulates devices, cosmetics and borderline products. The Medicines Evaluation Committee (MEC) formed under the NMRA Act uses registration and certification procedures to carry out scientific and technical reviews, inspections and surveillance activities of the medicines forwarded for registration to ensure the quality, efficacy, safety, need and cost of such medicines. The MEC consist of experts drawn from various specialties in medical and pharmaceutical fields, who meet monthly to decide on applications submitted for marketing authorization of medicines and to make relevant policy decisions.

All these institutions are responsible for the SCM quality and efficacy of medical items. At the moment, the MoH faces a range of availabilities of drugs, long lead time (more than 15 months) in the drug procurement process, as well as a minor number of expired medical items and quality failures of the medical items each year. In addition to that, there is a long lead time in the process of drug registration at the NMRA. The main reasons of failure of the SCM are improper planning, inadequate monitoring & evaluation, existing stringent regulations, delays in procurement & registration process, lack of human resource, non-use of modern technology for the SCM and failure to provide monitoring feedback on time. The following description provides each step of the SCM, the existing situation and the relevant challenges identified.

Registration and approval of a medical item

The quality of the product is assured at the registration process for both importing as well as local manufacturing medical items in the following way.

The registrations are done separately after evaluating each product on quality, safety, effectiveness and durability. The applicant or the registration holder, either the manufacturer or the importer, must declare in writing that they are responsible for ensuring safety, quality and effectiveness of the registered medical items, and that the product complies with all the existing regulations and specifications (standards). The Industrial Technology Institute report is necessary to submit applications for the registrations. The management of the Industrial Technology Institute is unreservedly committed to maintain the ISO 17025 Quality Management System for the Testing and Calibration services, and ISO 9000 Quality Management System for the entire Institute, in keeping with the National Quality Policy, thus providing customers with services of the highest professional standards.

Several sub committees are responsible for handling items in the MSD main list. The relevant evaluating Sub-Committee is the regulatory body for the decision making for granting approvals for the registrations. The decision is made based on the outcome of the evaluation of the submitted documentation. The tevaluation may be done by both external expertise and internal evaluators. The decision is submitted to the relevant Evaluation Sub-Committee for further opinion. The evaluating subcommittee takes decisions based on the interest of public safety and rejects the registration of any product if they fail. This takes long period. After that, they have to get the renewal every 2 years after submitting the necessary documents. Every importer should employ a registered pharmacist and possess a wholesale license subjected to an annual fee from the Cosmetics Devices and Drugs Authority (CDDA), in order to carry out the business. They should also get a separate import license on an annual basis for each product from the CDDA for importation. Local manufacturers are treated in the same manner by the NMRA, in addition to site inspection and approval, by issuing a Good Manufacturing Practices (GMP) certificate.

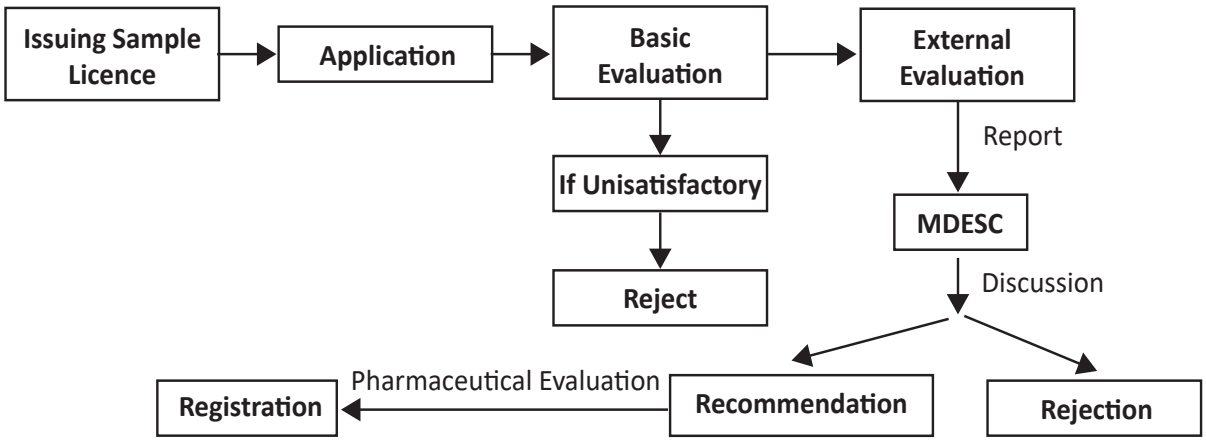


Figure 118 : NMRA Registration Process of a Medical Item

The process of vaccine registration has been described under the sub strategy 1.3.

As shown in the above diagram, the drug registration process of the NMRA (E.g., For an imported medical item) follows these steps: submission of information about the company, receiving of company profile by a pharmacist, assigning a serial number to the application, issuing of a letter to the applicant indicating the serial number, evaluation of the company profile in the order of the serial number by a pharmacist, checking of the evaluation report by the chief pharmacist, submission of the report to the director for a decision, communication of the decision to the applicant (approval / rejection / require more information).

If the NMRA has approved the basic registration, the local importer has to submit an application with the samples to the CDDA to approve. After the NMRA registration process, the authorized local importer has to submit an application with the samples to the CDDA for the registration of the respective drug, and a sample license should be obtained subjected to a license fee, from the CDDA, in order to facilitate customs clearance when importing these into the country. An acknowledgement letter is issued to the importer with the serial number, which will be the reference number for the application. Importer should pay a processing fee for each application.

Product Identification

An identification number will be allocated by the authority when a product application is deemed to have satisfied the registration requirements. The identification number is specific for the product registered, with the name, identity, characteristics, origin (manufacturer) and the market authorization holder. It may not be used for any other product. The following prefix is used before the product identification number.

DVR - Registration of a new medical item
DVR - RR - Re Registration of a registered device

All applications except new chemical entities have to go through the pharmaceutical evaluation first. New chemical entities first go to the Drug Evaluation Sub Committee (DESC) of the CDDA. Then the dossiers are subjected to a pharmacological evaluation. If the committee decides that it should be registered in this country, then it is taken for thorough pharmaceutical evaluation. The pharmaceutical quality of products is assessed through pharmaceutical data evaluated, and the information on factors determining quality (starting materials/ formulation, manufacturing process, intermediate & finished product controls, packaging, stability, bioequivalence data) are carefully considered.

If the pharmaceutical evaluation of the application is satisfactory, it will be submitted to the DESC. The DESC comprises of consultants from various specialties, and a decision is taken at the DESC meeting accordingly. If registration is recommended, DESC decides on the Schedule under which it should be registered (i.e., I, IIA, 11B, or 111). The local agent will be informed of the decision (whether rejected or approved). If it is approved, the Certificate of Registration will be issued by the Director Medical Technology and Supplies, who is the Chairman of the DESC. Rejections will be informed, giving reasons for the decision. Registration is subjected to a fee and usually valid for 5 years. Under special circumstances, (e.g., when the drug is a new chemical entity, the manufacturer is new to this country) a provisional registration can be issued for one year.

Period for new medical item registration and reregistration:

The NMRA is taking a long period for a new drug registration process. The usual time is a minimum one year period. It is also delaying in granting the re-registration of products which have been available in the market for a considerable period, as well as new product registration, which is further delaying imports. This really leads to a shortage of drugs in the country and leads to high prices in the private market.

Cancellation of Registration

The NMRA is authorized to cancel the registration of the medical item if: any of the conditions of registration of the product have been changed, any complaints on quality failure of the product have been reported from the National Pharmacovigilance Centre or any other national or international sources or customers, the information which was furnished at the time of application is later found to be false or insufficient, for any other matters as specified by the authority at the time of cancellation.

After the above registered and regulated, imported or locally manufactured product is entered to the market, it goes through the supply chain of the Medical Supplies Division of the Ministry of Health, which is the main central organization responsible for providing all pharmaceuticals, surgical items, laboratory & radiology items, radioactive items and printed materials, etc., needed by hospitals and other healthcare institutions in the government sector. The National Medicines Quality Assurance Laboratory (NMQAL) provides the technical support needed to operate the quality assurance system on Medicines, Medical Devices, Borderline products and Cosmetics. The primary function of the NMQAL is to conduct laboratory tests necessary for determining compliance with product quality, safety and efficacy requirements.

Medical Supplies Division

Ensuring an adequate supply of safe and effective drugs of acceptable quality is an integral part of the health policy of Sri Lanka. The Medical Supplies Division of the Ministry of Health is the central organization responsible to supply all pharmaceuticals, surgical items, laboratory items and radioactive items for the Government sector healthcare institutions island-wide. Further, the MSD is the sole supplier of dangerous drugs (narcotics) to all hospitals in the country including the private sector. In this context, the main functions of the MSD are estimating, indenting, procuring, storing, monitoring, distributing and accounting of medical supplies. The National requirement of medical items is procured mainly through the State Pharmaceutical Corporation (SPC), which is the procurement agency for the MSD. The MSD also procures drugs from local producing agents. These medical items are distributed directly to line ministry institutions by the MSD and to institutions under the provincial administration through Regional Medical Supplies Divisions based on their annual estimates and on their requests. In addition, donations received from donor agencies such as WHO/UNICEF, etc., are cleared from the Port/Airport by the wharf division of the MSD and are stored and distributed by the MSD.

The MSD is the central organization where the medical supplies are stored until they are distributed among healthcare institutions. Having identified the role of the MSD as "equitable timely distribution of supplies, procured based on its estimates and delivery schedules", the main functions of the MSD

are national formulary revisions, estimation, procuring, quality assurance, storing, distribution and accounting with proper surveillance and monitoring, of the medical supplies to government health institutions.

The MSD manages items procured by the SPC from foreign and local suppliers, using the MSD's own procurement pathway. Apart from that the MSD has provision to handle emergency medical procurements. In 2016, the MSD handled 6,648 medical items, and 77% of them were imported, plus 23% were from the local manufactures. In 2021, out of the 6,820 items in the MSD main list, 63% were imported, and 37% of items were supplied by local manufactures. There are 10-15 numbers of dangerous drugs which are issued only through the MSD. The supply chain of the MSD reaches to the Line Ministry Hospitals, Regional drug stores, special campaigns and other special hospitals. In addition to that, the MSD supplies the medical items to Semi Government Institutions (SJTH, Vijaya Kumaratunga Hospital, Nevil Fernando Hospital, KDU), some items for the three Armed Forces, Prison Hospital, Plantation Health Development Trust, Private Hospitals, and individuals based on their requirements.

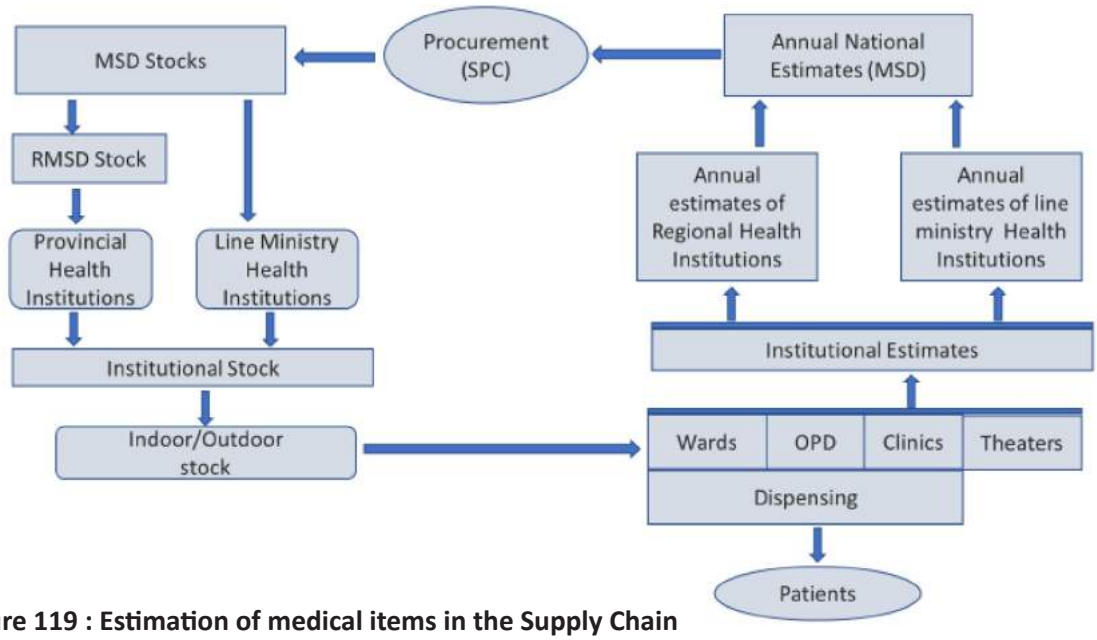


Figure 119 : Estimation of medical items in the Supply Chain

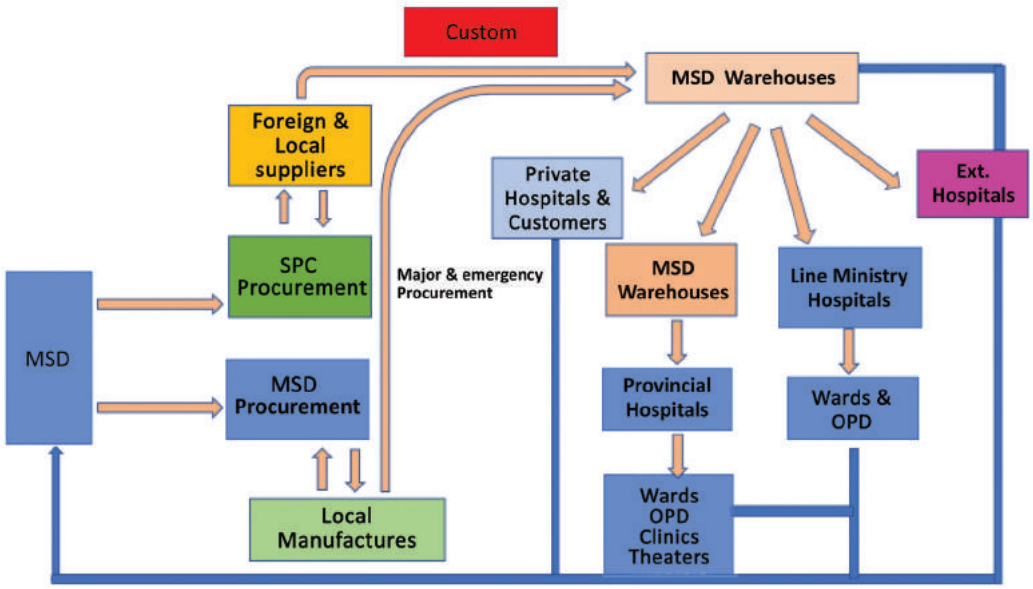


Figure: 120 Supply Chain Management from the MSD to the end user

There is a long lead time to obtain the medical items after placing the order from the SPC. Usually,

lead time is more than one year. A study conducted by Sridharan et. al. in 2022 showed that the main reason for unavailability of drugs is the "long lead time (more than 15 months) in the drug procurement" process. The other reasons were late payment of bills, lack of an e-procurement method, lack of adoption of technology and limits of the procuring committees. Measures should be taken to improve the availability of drugs.

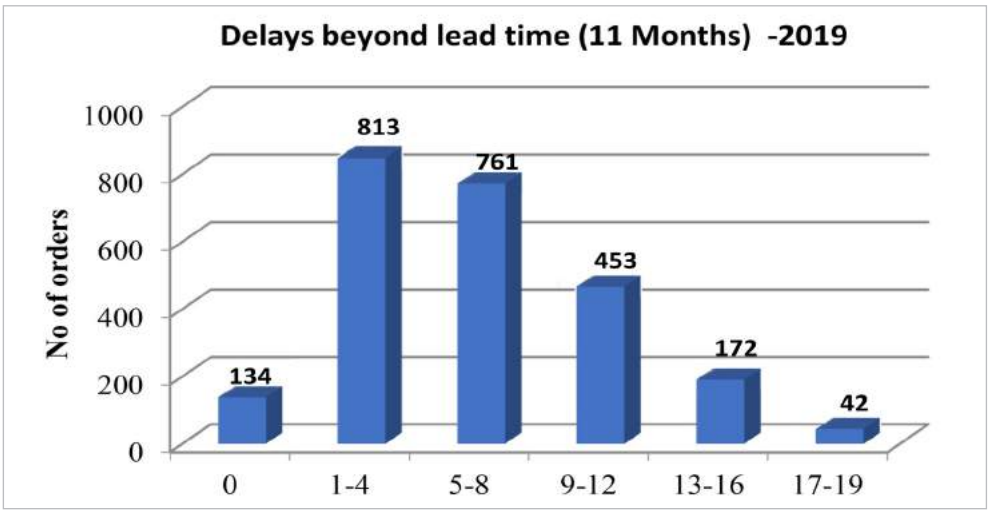


Figure 121 : Lead time of different medical items by the SPC supply in year 2019

Formulary Revisions

National Formulary revisions are done by the Formulary Committee of the MSD. Three Formulary Revisions were introduced in 2016/2017 and 2020/2021 to cope with the changing country requirements. Further, it analyzes the decisions of institutional Drug Therapeutic Committee (DTC) Meetings & National Drug Therapeutic Meetings. Formulary revisions are done under three main categories, as pharmaceutical, surgical and laboratory. There are 18 subcommittees for the pharmaceutical category, 17 for the surgical category and 15 for the laboratory component, available in the MSD. The members consist of MoH staff, representatives from professional Colleges as well as some professionals who are knowledgeable on the subject matter. In these formularies, the pharmaceutical items are prioritized in the following way according to Vital (V), Essential (E) and Non-essential (N) status.

- V- Vital drugs are potentially lifesaving and crucial for providing basic health services. They should be available at all times.

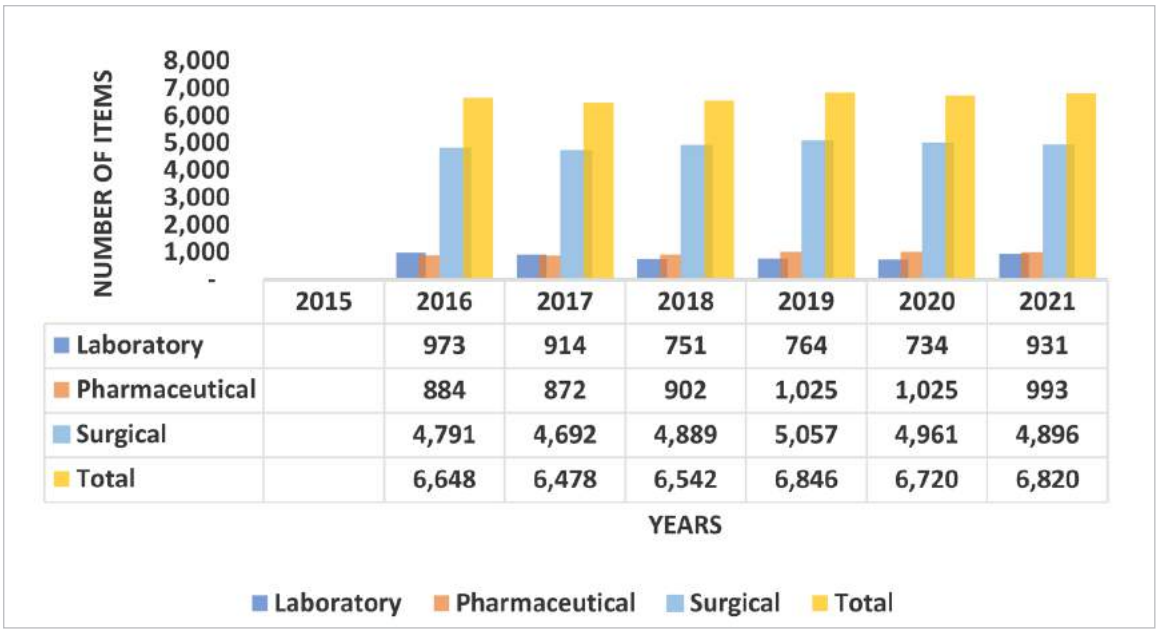
- E- Those drugs that satisfy the healthcare needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dosage forms, at a price the community can afford. (Essential drugs are effective against less severe, but nevertheless significant forms of illness, but are not absolutely vital to providing basic healthcare).

- N- Non essential drugs are used for minor illnesses and are of questionable efficacy or have a comparatively high cost for a marginal therapeutic advantage.

- Regular Items-These items this had been approved to be included in the formulary for the use of general practice. These items will be regularly supplied by the MSD.

- Complimentary Items - Essential medicines for priority diseases for which specialized diagnostic or monitoring facilities and/or specialist medical care and /or specialist training are needed. In case of doubt, medicines may also be listed as complimentary, on the basis of consistent higher costs, or less attractive in a variety of settings.
- Named patient items - The items are issued for a particular patient for a specific indication.

Many discussions revealed that there are significant number of medical items which are discarded after formulary change. (E.g., Cardiac Stents). This can be avoided by introduction of new drugs/devices in a phased out manner, by tailing off the deletions to reduce the financial cost. The annual cost incurred from drugs discarded due to national drugs formulary revision, has been not calculated.



Source MSD

Figure 122: Number of medical items in the MSD Main List from 2016-2021

Out of all the services provided by the MSD, ensuring the availability of vital and essential items is the most important task in the supply chain management. Their numbers in a given year from 2015 – 2021, are given below.

Table 33 : Number of vital and essential pharmaceuticals list in the MSD in a given year

	2015	2016	2017	2018	2019	2020	2021
No. of Essential items	570	588	591	710	714	716	709
No. of Vital Items	14	13	15	18	18	17	18

The MoH faces many challenges for providing quality medical items at the right time. The long delay of the NMRA drug registration procedure (minimum of one year) and the lack of staff of NMRA and NQAL for quality surveillance, are the main challenges. The poor monitoring capacity added to that worsens the situation. Although the E-procurement process has started, it has not been implemented 100%. Drugs inadequacy was calculated, and it was found that 82 essential and 90 non-essential items were not available for a one-month period in 2020.

Expired medical Items

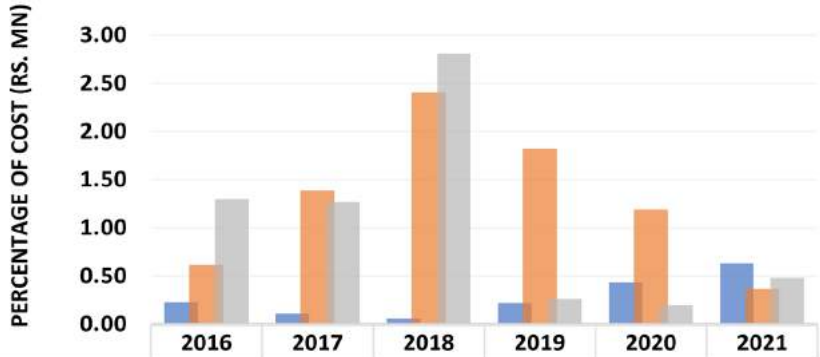
The National Medicines Regulatory Authority Act No. 05 of 2015 empowers the National Medicines Regulatory Authority (NMRA) to recall and dispose of medicine, medical devices, borderline products or investigational medicinal products. Disposal of pharmaceuticals should be carried out under the supervision of an Authorized Officer appointed, and also prior approval should be obtained from the authority before disposing of items. A guideline has been prepared by the NMRA. The best environmental option for pharmaceutical destruction is purpose-built high temperature incineration with adequate flue gas cleaning. Though this high-tech facility is not available in Sri Lanka, other marginally safe treatments and disposal methods are available. The NMRA holds the sole responsibility in disposing pharmaceuticals in the country with the support of central and provincial health authorities. Other relevant government agencies are also consulted whenever necessary, e.g., the Central Environmental Authority. Inadequate

fund allocation leads to delays of the process.

Table 34: Number of expired items within in the MSD Main List from 2016 to 2021

Indicator		2015	2016	2017	2018	2019	2020	2021
Number of expired items in the MSD in each year	Pharmacological	22	190	254	305	220	292	495
	Surgical	1	41	137	219	331	364	392
	Laboratory	0	36	43	35	61	84	92
	Total	23	267	434	559	612	740	979

The above table shows the number of expired item categories in the MSD main list from the 2016 to 2021.



	2016	2017	2018	2019	2020	2021
% of cost for expired Laboratory items	0.23	0.11	0.06	0.22	0.43	0.63
% of cost for expired Surgical items	0.61	1.39	2.40	1.82	1.19	0.37
% of cost for expired Pharmaceutical items	1.30	1.27	2.81	0.26	0.20	0.48

Source MSD

Figure 123 : Percentage cost incurred due to expired medical items in the public sector from 2016-2021

The above figure indicates the percentage expiry costs of medical items from 2016 to 2021, and they are within the WHO recommended limits. Although 245 institutes are connected to The MSIMS, the central and district monitoring process of expiry intervals should be reassessed in order to further reduce the loss from expiry.

The loss incurred due to expiry has two arms, the financial loss and that loss due to unavailability of drugs for patients. Therefore, the MSD obtains an assurance from the supplier that if 80% of shelf life from the set standard of 24 months couldn't be fulfilled by the supplier, then the suppler is bound to replace the expired volume before consumption.

Quality failure of medical items

The technical support to operate the quality assurance system for medical items is provided by the National Medicinal Quality Assurance Laboratory (NMQAL), through monitoring of the compliance of drugs and other products with respect to quality and safety at pre and post marketing stages, and issuing recommendations based on the findings. When there are post marketing problems for the items, arrangements are made for quality testing by the NMQAL. The primary function of the NMQAL is to conduct laboratory tests necessary for determining compliance with product safety and quality requirements, supporting in quality surveillance. Detection of quality failures early and issuing timely circulars to prevent the use of such failed items help to safeguard the supply to patients in a responsive

manner. This process also helps the hospitals to use an alternative product in their stock until the quality failure situation in resolved, thereby maintaining proper patient care. However, by that time, clinicians may have used these items for patients. The quality failure of medical items is experienced by the MSD and several circulars are issued to withhold the item.

Table 35: Number of circulars issued by the MSD to batch withhold or withdrawal of pharmacological, surgical and laboratory items from2016 to 2021.

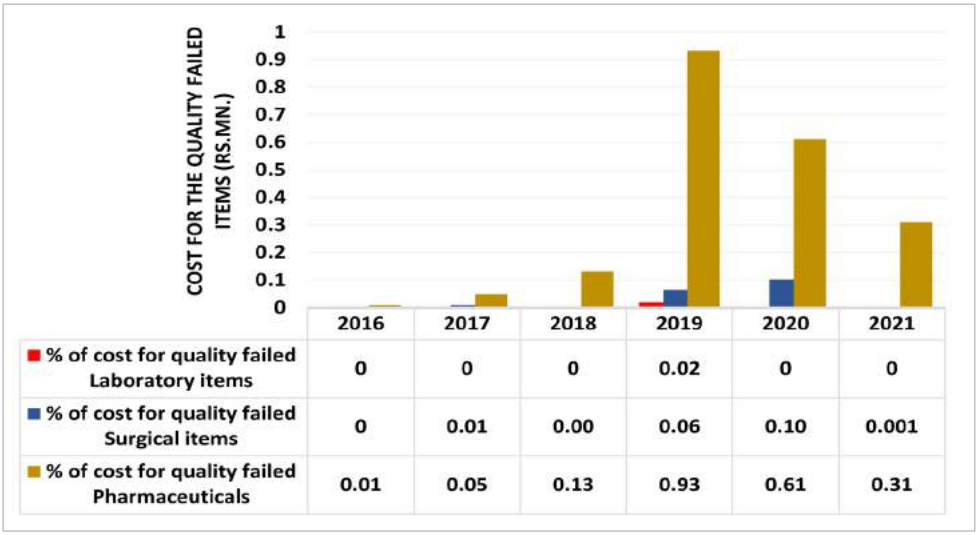
Year	2016	2017	2018	2019	2020	2021
Number of circulars issued by the MSD for batch withhold or withdrawal	70	97	87	100	81	121

After complaining from the hospital level, circulars are issued to withhold the items, and quality investigations are carried out. Depending on the results, circulars are used for the relevant items to be either totally withdrawn or revoked.

Table 36: Number of Quality failed items within in the MSD Main List from 2015 to 2021

Indicator		2015	2016	2017	2018	2019	2020	2021
Number of quality failed items in MSD in each year	Pharmacological	1	6	56	322	137	247	197
	Surgical	0	0	3	0	17	38	6
	Laboratory	0	0	0	0	1		
	Total	**1**	**6**	**59**	**322**	**155**	**285**	**203**

The above table shows the number of quality failed item categories in the MSD main list from 2015 to 2021.



Source MSD

Figure 124: Percentage Cost incurred due to quality failed medical items in public sector from 2016-2021

The above figure indicates the percentage costs of quality failed medical items from 2016 to 2021, and they are within the WHO recommended limits. The delay of issuing of withhold circulars and revoking circulars should be minimized to further save the cost incurred due to this process.In quality failure scenarios, the suppler is bound to a deduction from the due payment from the procurement body for the volume of the total quality failed batch, irrespective of the consumption.

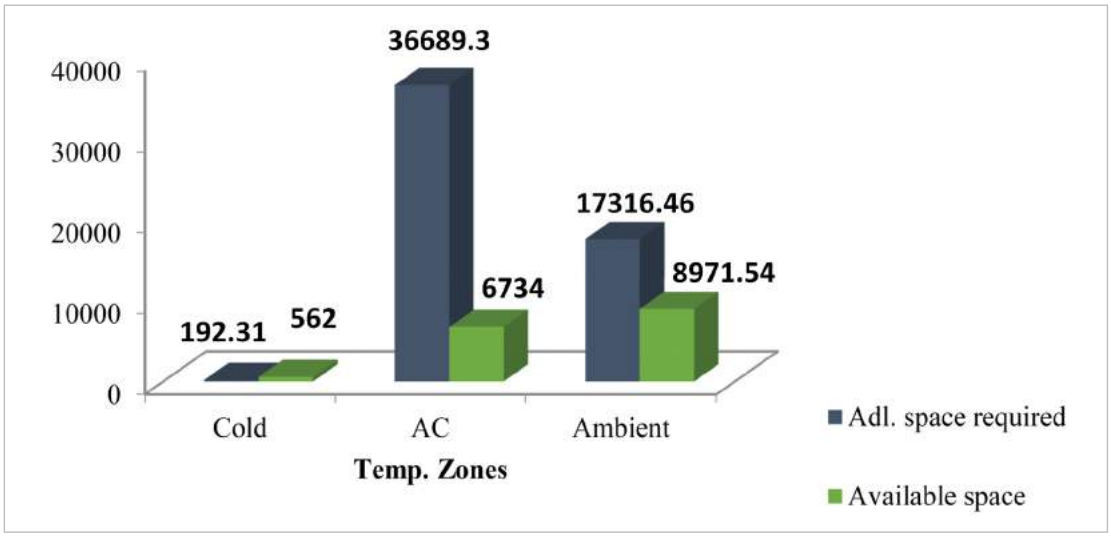
Medical item storage and transport

Storage of medical items follow the 2008 Manual on Management of Drugs issued by the Ministry, which also includes storing guidelines. This manual is not revised yet to meet the new demands. Although the manual is there to refer, there is no training provided to the staff who manage the stores. Improving Store Facilities of Health Care Institutions was approved by the Cabinet in 2017, with the scope of improving store facilities. In 866 Institutions (Line Ministry 56, RMSDs 26, BH 78, DH 430, PMCU 276), store facilities are being improved from 2020 to the end of 2024. The storage capacity is planned to be upgraded by 20%. The MSD has a network of stores comprising of a Central Medical Stores in Colombo, which is the Medical Supplies Division and there are 26 Regional stores at the district level (RMSD). In the chain of central medical stores, there are 18 bulk warehouses at the main building of the MSD, five at Wellawatta, 3 bulk warehouses at Angoda, one warehouse at Digana and one warehouse at Welisara.

Table 37: Storage capacities of each warehouse at the end of 2020

Name of Store	Storage Space at the end of the year 2021	
	Storage Area (m^2)	Storage Volume (m^3)
Central Store	3898	7796
Angoda Sub Store	3003	6006
Digana Sub Store	818	1636
Wallawatta Sub Store	3019	6038
Shrawasthipura (Anuradhapura) Sub Store	4550	9100
Veyangoda Sub Store	2676	5352
Total	**17966**	**35928**

Insufficiencies in central and institutional store capacities were observed in 2020, data as the MSD only had 23.1% of the required storage capacities to accommodate 6-month stocks.
The gap in required vs available capacity to maintain temperature zones is shown below.



Source MSD

Figure 125: Required vs available store capacity of the medical items in the public sector at the end of 2021

Ideally, different pharmaceuticals should be stored in different temperature zones (cold, air condition and ambient) , and they should be stored accordingly to maintain the SCM. The above figure demonstrates the available space and the additional required space for the MSD depending on the temperature zones. It indicates the storage capacity of different storage temperature zones (cold, air condition and

ambient) and the insufficiencies at the end of 2021. This issue will hinder product quality significantly for temperature sensitive items. However, during the time of the review, the air-conditioning facilities of the central warehouse were under improvement.

Further to these challenges, there is no bar code system to track the drug availability and to tally with the information system in the drug stores management. There are no Conveyor Belt Systems for warehouses to handle heavy lots. The monitoring system was not done properly, and gaps have been identified at the central level monitoring. Each and every store of the heath institutions should have a monitoring system, including the checklist on volume capacity, rack capacity and temperature control. A quality transport system is essential to maintain the quality of the medical items. The vehicles available in the transport chain were 36 Lorries (Normal - 21, With Freezer - 15). Deficiencies in the transport facilities were observed. In 2020, the available numbers were: 10 freezer trucks, 1 van, 3 cabs and 5 forklifts, and this is severely inadequate for the requirement of the MSD. Residential accommodation facilities for the transport staff are also inadequate.

Table 38: The service period of the transport vehicles at the end of 2020

Time duration	Number
Over 30 years	11
20-29 years	4
10-19 years	12
Below 9 years	9
Total	**36**

Some of the vehicles have no air-conditioning, and that hugely affects the quality of the medical items. There is no proper vehicle tracking system for transport. Any disturbance to the supply chain management process of the MSD, reflects on patient care and increases the out-of-pocket expenditure for the patient. The MSD has identified the following gaps of the supply chain management process.

Human resource and restructuring

Considering the responsibilities of the MSD, the Health Mater Plan 2016-2025 has proposed an MSD reform: the post of Director (Medical Supplies) to be upgraded as a Deputy Director General (Medical Supplies) with adequate authority, while attending to the same operations in the same institute. Also, it was proposed to include the Director (National Drug Quality Assurance Laboratory) into the purview of the Deputy Director General (Medical Supplies). Out of these reforms, Deputy Director General (Medical Supplies) was appointed in 2020. However, Director (National Drug Quality Assurance Laboratory) post has not been still established.

Establishment of a Research and Development (R & D) Unit (Scientist, Medical Professionals, Pharmacologist, Pharmacist) and recruitment of new staff categories of data analyst, legal officer, internal auditor and logistician were fulfilled by 2020. However, it has not identified to include a medical professional to the MSD, and it should be a priority.

Table 39: Human resources availability of the MSD at the end of 2021

Designation	Approved Cadre	In position	Vacant
DDG/Director	2	3	-
SAD/AD	1+10	1+4	6
CA/ACSp	1+1	1	1
AO	1	1	-
Pharmacist	40	39	1
MLT	5	5	-

Designation	Approved Cadre	In position	Vacant
Driver	43	40	3
MSA	132	90	42
ICT Officer/Assistant	29+6	8+5	21+1
DO/PHMA	15+55	8+46	7+9
Other	352	246	106

A single medical professional cadres has been not identified in the cadres in the MSD, other than the DDG-MSD and the Director MSD. For an efficient supply management system for continuous functioning, it is important to plan and manage the entire drug management cycle with a M&E system, and it is important to allocate Medical Administration/Community Medicine consultants to each and every unit under the Director/MSD for planning, monitoring and evaluation and maintaining quality.

Medical Supplies Management Information System

To carry out the complex tasks in the supply chain information, a technology-based supplies management system is a crucial necessity. A Medical Supplies Management Information System (MSMIS) was officially launched in 2017 to ensure the timely availability of medical items in health institutions in the government sector to efficiently manage the medical supply chain. The MSMIS is arranged in 17 modules covering all aspects of items of management, including estimation of requirements, ordering, procurement, transportation, warehouse management, inventory management and national formulary revisions, etc. This system is operating in Base and above hospitals and in certain directorates which are handling medical items.

Majority of the functions related to the MSD, RMSDD and other line ministry institutions are beginning to adhere to the MSMIS, while the annual estimation process and verification process have already commenced through the system. It was observed that some of the modules are not suitable. It was also noted that monitoring system not used in an optmal through this system. The MSIMS system established in 2008, and it has no analysis software for certain features to deal with for changes of requirement. A central monitoring system for all institutions is a need. Deficiencies in utilization of database of information technology for routine monitoring and evaluation is a big challenge. It is planned to expand this system up to the Divisional Hospitals and Offices of Medical Officer of Health which are managed under RMSDD.

Table 40 : Expected number of institutions to be connected with MSMIS under the expansion project

District General Hospitals	Base Hospitals (Type A)	Base Hospitals (Type B)	Divisional Hospitals (Type A)	Divisional Hospitals (Type B)	Divisional Hospitals (Type C)	MOHs	Total
08	20	40	54	134	301	353	910

However, this expansion project has been halted from August 2022, but the MSIMS system is functional. An evaluation of the MSMIS is necessary before scaling up .

Challenges

The main challenge of the SCM of the MSD identified is the increase of out-of-pocket expenditure of the patient. The MSD has identified the following gaps of the supply chain management process in relevance to this: frequent out of stock situations, quality failure situation, waste and expiry items, central and institutional store capacities, poor transport facilities with unavailability of a tracking system, poor infrastructure facilities with poor stores management system and long lead time. Inadequate fund allocation and delay in destruction of discarded items are also identified as challenges. An evaluation of the system is required to identify the weaknesses in the supply management chain.

All the areas identified in the National Drug policy should be implemented. Also, it is identified that the SPC & SPMC should be amalgamated into one body, comprising of technical experts in the relevant fields and officials from the Ministry of Health and Treasury. This has to be discussed with several experts, and need to identify the implementation options and the advantages. It is identified that irrational prescribing, wastage and maldistribution occurs, at varying degrees at both public and private sectors. Rational prescribers should attempt to: maximize clinical effectiveness, minimize harms, avoid wasting scarce healthcare resources and respect patient choice. One of the main responsibilities of each institution is to monitor the supply and effective use of drugs within the institution, ensuring consumption of drugs within the financial allocation.

Prescribed drugs at community pharmacy level

Although prescriptions are essential for purchasing the pharmaceuticals from the community pharmacies (CP), many drugs are purchased without prescriptions. One study carried out among community pharmacies in a selected location in 2019 by Balasooriya & Kommalage showed that, more than one third of purchases occurring in the CP are without prescription. Many prescriptions were unsuitable to purchase medicine due to expired duration of the drug regime, and incomplete without duration or date. Refilling of the prescription was done mainly using expired prescriptions. This monitoring at the peripheral level is the responsibility of Food and Drug Inspectors attached to the RDHS level. They are supposed to supervise storage conditions, updated license status of the pharmacy, availability of an authorized pharmacist and adherence to the legislative guidelines during issuing. It was observed that the central level monitoring of these activities is minimum, and no returns are coming to the central level.

Recommendations

1. Policy decisions need to be taken on overall restructuring of the MSD to improve the SCM, with the development of the cadres of medical professionals in the MSD, and the cadres should be filled immediately to monitor the system. More resources and staff should be allocated to the NMRA and the MSD quality surveillance departments.

2. Indicators should be identified, and an overall monitoring process should be done at the regional level and central level quarterly. The drug information system should be used. Lead time for registration, reregistration, loss due to expiry items, quality failures and discard wastage should be assessed in each quarter and on an yearly basis. Expiry items should be assessed in a hospital and institutional basis and take appropriate measures and then provide feedback to avoid such situations. The MSMIS should be used for monitoring and evaluation of the SMC.

3. National drug formulary revisions should be carried out after obtaining written submissions of each professional colleges, considering the country/global situation and the healthcare need with multi stakeholder consultation and introduction of new items should be done in a phased out manner to reduce the discard rate of replaced items.

4. Policy decisions need to be taken on implementation of the e-procurement process in all settings that will improve the time delays in procurement and improve the monitoring process.

5. Fund allocation processes need to be strengthened and careful assessment should be done to reduce the expiry items.

6. Establish a better integration of central and regional data. This will also support in reducing the loss of drug expiry discards.

7. Adaptation of new technologies will help to improve the quality control process that will lead to minimizing quality failure situations.

8. Estimation of required warehouse capacities and proposals for expansion of warehouses and improvement of their storing conditions should be initiated in a timely manner. Temperature zone gaps should be assessed, and proper maintenance of temperature and humidity should be targeted. E.g., Installing central air-conditioning units in required warehouses.

9. Deficiencies in transport facilities should be analyzed, and improve the process to minimize the idling time of items and to improve availability at the end stations. Also, the transport temperature and humidity conditions should be regulated to minimize quality failures, and allocating additional resources such as increasing the number of freezer trucks or upgrading old vehicle models to new ones will be helpful. Furthermore, a vehicle tracking system should be implemented during the medical item transport system.

10. The National Medicinal Drug Policy for Sri Lanka, 2015 should be updated by including broad strategies.

11. The National Drug Quality Assurance Laboratory should be upgraded to test quality of all drugs.

12. A usage monitoring system to be established including prescribing, wastage, expiry and compliance, for rational prescribing by the DTC.

13. A feasibility study of a community pharmacy system with private public partnership to serve the clinic patients to preserve the time, human resources and storage demands, is recommended to be carried out.

14. Peripheral level private sector pharmacy monitoring activities should be strengthened by the Food and Drug Inspectors.

Recommended indicators

There should be continuous availability of medical supplies for the healthcare services in the government sector. Therefore, the following new indicator is suggested to monitor the availability of essential drugs. The following indicators is recommended to improve the SCM:

Indicator definition:

Percentage of nationally out of stock essential drugs for more than 2 weeks in a given year.

Numerator:

Number of nationally out of stock essential drugs for more than 2 weeks in a given year in any hospital* 100 (Source: MSD)

Denominator:

Total number of essential drugs listed for the given year (Source: MSD)

The following new indicator was suggested to monitor the percentage availability of the national storage capacity of drugs at the central and regional MSD.

Indicator definition:

Percentage availability of central/regional storage capacity of drugs of MSD.

Numerator:

Drug storage capacity of central/regional MSD stores for a given year * 100 (Source: MSD)

Denominator:

Minimum required drug storage capacity of the specified stores for a given year (Source: MSD)

Sub strategy 7.2-: To promote local manufacturing of pharmaceuticals.

In Sri Lanka, the pharmaceutical sector is heavily dependent on imports, with around 85 percent of the requirement coming from imports. The government plans to establish a pharmaceutical zone to manufacture some products locally. The State Pharmaceutical Corporation (SPC) was established in 1971 to import drugs for use in hospitals. The State Pharmaceutical Manufacturing Corporation (SPMC) was established for the manufacture of drugs in 1987, and it has succeeded in manufacturing around 50 drug types at the end of 2021. The local market provides only 15% of the Sri Lanka's pharmaceutical market. The Government is encouraging local pharmaceutical manufacturing via offering of guaranteed buyback agreements and other concessions. The contribution from the local manufacturing agents to fulfill the national requirement of pharmaceutical, surgical and laboratory items has increased from 2015 in a progressive manner. Sri Lanka lags behind India, Pakistan and Bangladesh in the pharmaceutical industry. Although the term manufacturing is used, Sri Lanka is used importing drug powders from abroad including the hard gelatin capsule, and it's the packing that is done in the country. Only some raw materials in the form of chemicals are imported, and mixing and pressing is done to produce tablets or capsules. It was observed that a significant amount of capital is required to manufacture, develop products, meet regulatory standards and marketing of products. By year 2030, the goal of the Health Ministry is to fulfill 50% of the required items from the local manufacturers.

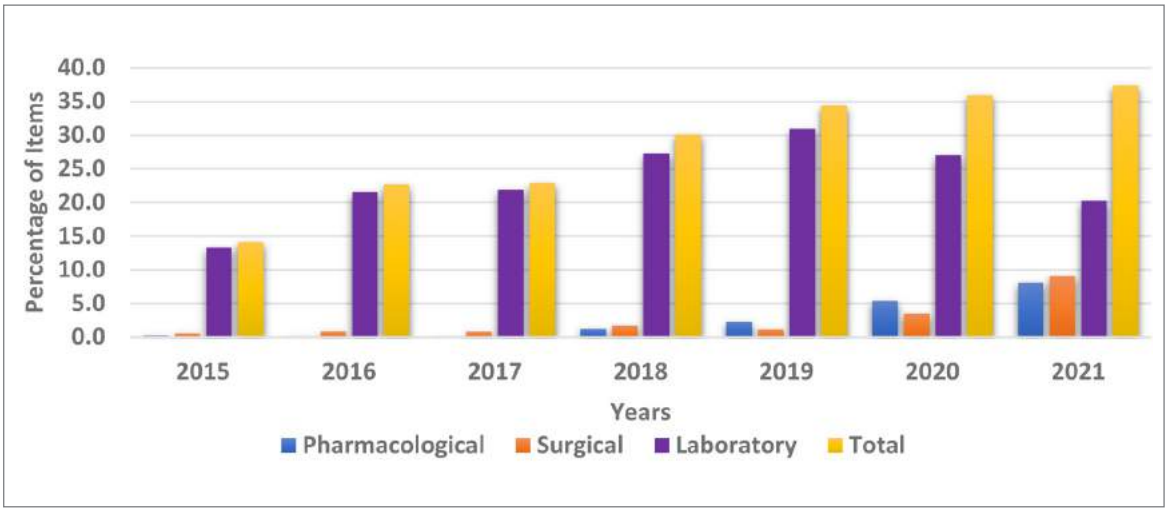


Figure 126 : Percentage of Items Supplied by Local Manufacturers against the total items supplied from 2015-2021

The above graph indicates that from 2015 to 2021, there is a steady rise in the percentages of items supplied by the local manufacturers.

The Ministry of Health has taken a policy decision not to import any pharmaceuticals which are sufficiently produced by local manufactures. Although that policy is applied to the public sector hospitals, importation continues in the private sector market even when they are produced by the local manufacturers sufficiently.

There are currently 22 local manufacturers of pharmaceuticals in the Sri Lanka Pharmaceutical Manufacturing Association, and currently around 12 of them are in the process of initiating the process. These local manufacturers supply the MSD procurement while other local manufacturers provide their services for the joint venture agreement with SPMC via the SPC procurement pathway.

The registration process for local manufacturing of pharmaceuticals is done by the NMRA, and it usually takes around one year under the usual pathway. The procedure includes a desk review of essential documents including the site master file and several GMP Inspections. The Good Manufacture Practice (GMP) certificate issued by the NMRA after a site visit, and the renewal should be performed every 2 years. Some companies are also in the process of obtaining European Union accreditation, targeting the regulated international market. This will open Sri Lankan products to the export market. The NMRA has given legal authority to produce dual brands of the same pharmaceuticals to local manufacturers in 2021.

In 2020, the WHO has conducted a comprehensive training for the local manufacturers on improving their technical capacity, and production quality, and training for NMRA staff in order to review the registration process in an efficient way. Further to that, the WHO has conducted a "Holistic situational analysis for sustainable quality local production" in 2021. Based on that, the WHO has made some recommendations for improvement of the local manufacturing of drugs in Sri Lanka. Apart from this, the NMRA staff have been trained on regulating the local manufacturing of drugs. During local manufacturing of drugs, exporting raw materials and machinery are liable for taxations with importation tax and VAT, while zero taxation has been laid on finished drug products that are being exported from other countries.

However, the National Medicinal Drug Policy for Sri Lanka, which was published in 2005 by the Ministry of Health states that, medicines including raw materials (both local and imported) should be free of any taxes. Tariff rates are 0% for importing finished pharmaceutical products, active pharmaceutical ingredients (APIs), biological active substances and raw materials for medical devices including invitro diagnostics. Tariffs for importing primary packaging materials is at 8%. The tariff is 28% for importing laboratory reagents/chemicals, machinery and spare parts. Additionally, local medical product manufacturers pay up to 15% VAT (value-added tax) and up to 10% PAL (Port and Airport Development Levy) for importing materials. For APIs, VAT is 0% and PAL is 0%. For excipients, VAT is 15% and PAL is 10%. Other taxes include a CESS tax (a tax on what is produced locally, ranging from 7-25%), corporate income tax and personal income tax. It is important to give tax concessions for local manufacturing agents to promote their service.

The Ministry of Health signed a buyback agreement with the local manufacturers in 2015 as a five-year agreement, and is bound to buy all the produced quota from them. Later, this agreement was extended by another five years in 2019, up to 2024. The SPMC had signed an agreement with manufacturing companies as joint ventures. It was observed that the buyback agreement was not fully implemented due to MSD procurement from SPMC through joint venture companies. However, a condition in the buyback agreement indicates that the MSD should give priority for the SPMC in procurement. The local manufacturers invest on high quality instruments and new drug production, and this should be given due attention by the MoH, being fair to both parties.

The Government of Sri Lanka has laid out a new National Medicine policy for 2020-2025 (NMP 2020), to ensure equitable access to affordable essential medicines of assured quality and their cost-effective use by prescribers and consumers, as a part of universal health coverage, with increased focus on the poor and disadvantaged sections of the society. There are 3 overall objectives in the NMP 2020:

1 Ensure availability & affordability of efficacious, safe and good quality medicines

2 Promote quality of care & prevent waste through scientifically sound & cost-effective use of medical products

3 Promote efficient domestic manufacture of essential medical products of assured efficacy, safety & quality.

To achieve these objectives, a separate strategic plan and a M&E plan are needed to promote local manufacturing of pharmaceuticals and provision of quality goods to the end user.

Recommendations

1. Establish a mechanism to reduce the delay of registration process and renewal process for local manufacturers.

2. Promote local manufactures to target the international market.

3. Explore the possibilities for waving off the tax reduction for the relevant machineries of local pharmaceuticals which has been identified in the drug policy.

4. Develop a strategic plan for local manufacture of pharmaceuticals and encourage local agents to produce priority medical items to cater the local need according to the WHO's local production and technology transfer strategic guideline. Develop a M&E Plan as well.

STRATEGY 3
PROMOTION OF EQUITABLE ACCESS TO QUALITY REHABILITATION CARE

Sub strategy 3.1-: The mainstream health system should provide Palliative Care to all patients who are in need of such care, for them to live and die with dignity with a multidisciplinary approach and medium / long term plan

Palliative care was identified as a prioritized activity in the Sri Lankan health context and the National Strategic Framework on Palliative Care Development (NSFPCD) 2019-2023 was developed, targeting the integration of palliative care services at all levels of the healthcare system in Sri Lanka from the community level upwards. The overall goal of this is to improve the quality of life of patients with life threatening illnesses and their families, by offering holistic support for prevention and relief of suffering through evidence-based, multi-disciplinary and cost-effective approaches.In addition to the NHP, palliative care is identified in several other health policies, including Non-Communicable Diseases (2010), Cancer Prevention and Control (2015) & Elderly Health (2017) policies. Parallelly, palliative care services are also evolving gradually at all levels of care over the years, due to the initiatives of government, non-government, and civil society institutions.

The National Cancer Control Programme (NCCP) was identified as the focal point for palliative care services in the Ministry of Health, and it was followed by the establishment of a National Steering Committee for Palliative Care chaired by the DGHS from 2012. Presently, in the government sector, specialist palliative care is available in 24 cancer treatment centers distributed island-wide at different levels. Apeksha Hospital has a fully-fledged palliative care service, being the epicenter for cancer treatment and care. In addition, several other hospitals are providing formal palliative care services in an inter-disciplinary approach, e.g., TH Karapitiya, TH Rathnapura, DGH Nuwara Eliya and DGH Monaragala. Furthermore, Teaching Hospital Karapitiya has established a palliative care centre in 2020 which has in-ward facilities for palliative patients. This is the first government palliative care hospice facility. Further, , primary health care institutions, OPD settings and private sector including family practice settings provide palliative healthcare services in the country at varying levels, but not in an organized manner as training has not covered all the levels yet. Although home-based palliative care services are provided by Public Health Nursing Officers (PHNOs), currently only about 100 PHNOs are remaining in the country. In addition, there are several home-based programmes and seven hospice services provided by civil society organizations (CSO), which collaborate with the government sector cancer treatment hospitals.

Several steps have been taken to accelerate the implementation/strengthening of the services, e.g., strengthen human resource of the national focal point for palliative care at the NCCP amidst several challenges. The Ministry of Health issued a circular to major hospitals with the instructions to implement Palliative Care Consult Services with an inter-disciplinary approach in hospitals in 2020. Medical Officer (Palliative Medicine) is identified as a key member of the multidisciplinary team of the Palliative Care Consult Services (PCCS) at these hospitals, and he/she is responsible for effective integration of palliative care services across all levels of service settings, namely, at tertiary, secondary, primary and at community level. In 2021, the Ministry of Health has identified cadre positions for MO Palliative Medicine and has initiated training of PHNOs attached to primary healthcare units to provide home based care. Furthermore, the country is at the early stages of integration of palliative care into the primary healthcare system. It is interesting to note that, Sri Lanka, a lower middle income country, with limited resources, has been able to achieve many public health indicators which are in par with some developed countries and are better than those of peer neighboring Asian countries.

Furthermore, following are the major developments in palliative care during the past few years:

- The Ministry of Health issued a circular to major hospitals with the instructions to implement Palliative Care Consult Services with an interdisciplinary approach in hospitals in 2020. The circular number is 01-34/2020.

- In 2021, the Ministry of Health has identified the cadre positions for MO Palliative Medicine.
- Appointing PHNOs attached to primary care institutions for NCD with a mandate to include home-based palliative care.
- Establishment of the palliative care task force and the College of Palliative Medicine in the country.
- Development of a Palliative Care Guide for all levels of health services .
- Development of a guide for hospice management.
- The Postgraduate Institute of Medicine (PGIM) has initiated a one-year full time Post Graduate Diploma course in Palliative Medicine in 2018. Presently, two batches of medical officers have completed the training and passed out with a Diploma in Palliative Medicine. The PGIM is in the process of commencing a MD in Palliative Medicine.
- Introducing palliative care into relevant undergraduate medical disciplines, post basic nursing training courses and relevant paramedical courses, is in progress.
- In-service training programmes are ongoing for health professionals using different strategies, e.g.,master training programmes during COVID 19 pandemic, training of primary healthcare doctors and PHNOs on palliative care through virtual platforms. Development of distant learning modules and guidelines are in progress to conduct training programmes in a structured manner in the future.

These activities are supported by professional colleges and organizations such as the Palliative Care Association of Sri Lanka, College of Palliative Medicine Sri Lanka, and the Task Force for Palliative Care of the Sri Lanka Medical Association. All these institutions carry out different activities to uphold the palliative services in Sri Lanka. Sri Lanka Medical Association established a volunteer task force for palliative and end-of-life care (PCTF) in October 2016, comprising of multi-disciplinary healthcare professionals, legal fraternity and members of the civil society.

The NCCP is promoting partnerships with government and non-government organizations to deliver palliative care, empower family members, caregivers and general public for provision of palliative care. The first ever one-day training programme on providing basic palliative care was conducted for staff of island-wide hospices operated by non-governmental organizations, by the NCCP in 2020.
One strategic direction in the NSFPCD is to ensure availability of drugs and technologies for provision of palliative care at all levels. A major achievement is amending the Narcotic rules to make morphine available at the tertiary care centres and hospice based palliative care services, even though stock disruptions are not uncommon. Access to morphine at primary care level is still limited. Currently, the possibility of increasing availability of morphine for palliative patients at the community level through the PHNOs is being explored.

The country has a well-developed primary healthcare system which will be the strength in integrating palliative care into the mainstream healthcare delivery. The National Cancer Control Programme developed Guidelines for Palliative Care for Cancer Patients in Primary HealthCare (2021). Availability of policies, dedicated manpower at the central level to coordinate activities and for capacity building of relevant categories, integration into the primary health are system and service provision at secondary care level and in tertiary care level in the centers of excellence for cancer care, and provision of care by a multi-disciplinary team are factors which have helped to establish palliative care, since Sri Lanka is in a demographic and epidemiologic transition, reflecting an increased life expectancy and increased prevalence of NCDs such as cardio-vascular diseases and metabolic diseases. The country still has a long way to go, but it seems to be moving in the right direction.

Recommendations

1. Prioritize and implement activities of the National strategic plan (NSFPCD).
2. Establishment of a national database for palliative care services.
3. Develop a palliative care monitoring & evaluation mechanism and incorporating indicators to the health management information system.
4. Streamline palliative care training programmes by incorporating the services of the academic bodies for Palliative Medicine.

Programme monitoring indicators

1. Percentage of completed number of activities of the NSFPCD
2. The number of new palliative care services (primary , secondary and tertiary) established
3. The number of multidisciplinary palliative care teams formulated
4. The percentage of unmet need of palliative care

Sub strategy 3.2-: To provide equitable, efficient and quality Stroke Care to needy patients

Background

The cerebrovascular diseases (ICD 160-169) are considered as the 7th leading cause of hospital deaths in Sri Lanka, and they have accounted for 7.6% of all hospital deaths in 2019. According to the public hospital admission data in 2019, the case fatality rate of cerebrovascular disease (ICD- I60-I69) was 6.73 per 100 cases, in the background of a total of 56,671 live discharges. According to the "Global Health Observatory" of the WHO, stroke takes the 6th place in disability adjusted life years and accounted to 879.54 DALYs per 100,000 Population in year 2019.

Management of stroke should have a multidisciplinary approach involving many specialties. Approximately 95% of in-patient care in Sri Lanka is provided in the government hospitals but facilities for optimum care for the state-of-the-art acute stroke care is limited. Patients are managed by neurologists and consultant physicians in the government hospitals. The rate of neurologists and consultant physicians in Sri Lanka were 0.2 and 1.48 per 100,000 population, respectively, at the end of 2020.

Policies and strategies

The National NCD policy identifies cerebro-vascular diseases as a condition which causes considerable amount of morbidity and mortality. Strategies have been developed to prevent cerebro vascular diseases at the primary care level. Risk assessment for hypertension is one such strategy. The Ministry of Health has taken a policy decision and issued a circular (Circular No: 01-06/2011 on 23rd Nov 2011) to establish Acute Stroke Units in all Teaching and Provincial General Hospitals in a phased manner. Stroke units should be established with at least 10 beds in a respective institution, and the respective consultants should be responsible for providing the required care.

Table 41 : Available stroke units in government hospitals at the end of 2021, in comparison to 2015

Availability of stroke units	PGH & above with spescial hospitals	District General Hospitals	Base Hospitals	Total
2015	5	0	0	5
2020	5	1	3	9
Total	10	01	03	14

Infrastructure development for a National Centre of Excellence for Stroke Care is in progress, and the work was slowed due to various reasons including the COVID epidemic. There are no stroke subspecialists in the country, and there is no formal training or accreditation programme in stroke care. A survey done in 2018 revealed that, there were only 38 neurologists attached to government hospitals. Thrombolysis was available in only 14 hospitals, and mechanical thrombectomy is performed only in the NHSL.
The Ministry of Health conducts risk factor screening and health promotion programmes at the primary care level and implement preventive strategies to reduce risk factors and provide drugs for controlling risk factors. Management of stroke patients and institutional and community-based rehabilitation facilities are limited. private sector also provides care for stroke patients in selected hospitals.Professional Colleges have developed Guidelines on Stroke Management (latest one in 2017), and they are being updated. A map of available stroke thrombolysis centres is available as a mobile app. However, detailed epidemiological data on stroke in Sri Lanka is not currently available.

Partnerships

The National Stroke Association of Sri Lanka supports the interventions of the Ministry of Health**.**

Recommendations

1. The government policy of establishing stroke units in each hospital, should be implemented. The NCD Bureau, hospital directors and Colleges should work in partnership to initiate the process by establishing stroke-ready hospitals with dedicated beds in district and provincial hospitals, capable of delivering multidisciplinary modern acute care and rehabilitation facilities.
2. Rehabilitation services should be expanded and strengthened with special emphasis on community-based rehabilitation services.
3. Capacity building of all relevant staff should be implemented.
4. A digital based data monitoring system should be implemented with an incorporated National Stroke Registry for this field.

Sub strategy 3.3-: To develop and expand responsive mental health services with structural and process changes in different settings

Background

Mental health includes people's emotional, psychological and social well-being, and it affects how people think, feel and act. It also helps determine how to handle stress, relate to others and make healthy choices. Mental health is important at every stage of the life cycle, covering anxiety disorders, mood disorders, psychotic disorders (such as schizophrenia), eating disorders, personality disorders, dementia and related areas affecting mental wellbeing. Mental health services include provision of evidence-based treatment, follow-up, prevention and rehabilitation for those with mental disorders and promotion of mental health of the population to improve general wellbeing.

At the national level, the Directorate of Mental Health which is the central organization of the Ministry of Health which is responsible for policy development, development of technical strategies, guidelines, annual operational plans and budgets, resource mobilization, and capacity building, in collaboration with relevant sectors and monitoring and evaluation of the national mental health programme.

Policies and strategies

The Mental Health Policy of Sri Lanka 2005–2015 was approved by the Cabinet. It was revised and approved by the Cabinet in 2021. The present mental health policy for 2020 to 2030, which was

published in 2022, identified many stakeholders and identifies four main areas: strengthen leadership, legislation, stewardship, research and management functions of the mental health services, delivery of comprehensive, socially and culturally acceptable mental health services, reduce the burden of mental disorders and promote mental health, improve capacity building of both human resource and infrastructure and in promoting mental well-being and reducing stigma and discrimination among communities. The national policy is to provide mental health services at primary, secondary, and tertiary healthcare levels, and the community. The National Committee on Mental Health (NCMH) was appointed to provide technical guidance for implementation of the strategies of the National Mental Health Policy. At the provincial and district levels, Provincial and District Mental Health Committees are responsible for implementation of these strategies.

The mental health legislation, or the Mental Health Act, is under deliberation since the year 2005. After years of multiple drafts and competing interests, a diverse task force consisting of representatives from the Ministry of Health, World Health Organization, Sri Lanka College of Psychiatrists, Non-Governmental Organizations and other stakeholders have compiled the Draft Act, and it is being reviewed currently to develop into the final stage. The Act will replace the present 1956 Mental Diseases Ordinance. There are many challenges that have been identified in the mental health field. Among them are: poor awareness about mental health and mental disorders among the public, high percentage of persons with mental disorders not seeking treatment, increased misuse of psychoactive substances, lack of suitable infrastructure facilities in each district, lack of human resource for mental health, stigma associated with mental disorders, lack of attention for mental health promotion, and lack of multi-sectoral partnership for mental wellbeing at the community level. The present Strategic Plan was developed to mitigate these challenges.

Implementation team

The Medical Officer - Mental Health (MO/MH) is the district level focal point appointed to the RDHS office to coordinate curative, preventive and promotion of mental health in the respective area and to link closely with the national level, district health team and all other relevant sectors and community groups. Within a region (district), services are provided through a network of medical institutions and health units. Community Psychiatry Nurses (CPN) who are having a Community Psychiatry Nursing diploma after completing a 6 month training programme, are based in hospitals to provide both hospital and community services. Psychiatric Social workers (PSW) provide services mainly related to social issues of clients.

The Consultant Psychiatrist leads the team along with Senior Registrars, Registrars, Medical Officers with Diploma in Psychiatry, MO/MH, CPN, PSW, Development Officers Mental Health (DA/MH) and Occupational Therapists (OT), to provide hospital based as well as community based mental healthcare. Each of these professionals play an important role in providing comprehensive and holistic mental health care to Sri Lankans. Many of these disciplines have become stronger and more established over the past 15 years. There are no clinical psychologists or counselors attached to the Ministry of Health, and the Ministry is in the process of recruiting them.

The consultant psychiatrists provide acute inpatient care and main and outreach clinic care for those who are in need. The norm is to have at least one acute psychiatry inpatient care unit per district in Base Hospitals Type A and above. Except for the Puttalam district, the other 24 districts have already achieved this. At present, the National Institute of Mental Health (NIMH) is the largest tertiary care hospital in Sri Lanka, caring for persons with mental disorders. There are 34 in-patient psychiatry units in other tertiary and secondary care hospitals, including child & adolescent psychiatry and forensic psychiatry care.

As per the NHP, the two main hospitals that specialize in childcare, the Lady Ridgeway Hospital in Colombo and the Sirimavo Bandaranayke Specialized Children Hospital in Kandy, address child mental

health needs. Facilities for children with special needs are in place in several districts. There are three child in-patient units and two forensic units in the NHSL and Karapitiya Teaching Hospital in Sri Lanka.

The main clinics provide assessment, treatment and continuity of care. They are conducted by Consultant Psychiatrists, Medical Officers/ MH, or Medical Officers/Psychiatry. There are specialized clinics to address mental health needs of children and adolescents, substance users, LGBTQI+ people and elders. Mental health clinics support continuity of care, assessment, treatment, and home visits, whereas outreach clinics are conducted by the team in the field.

Mental health outreach clinics provide close-to-home services in Sri Lanka to enable better care and follow up on clients and to reduce the treatment gap. Home visits are mainly for the defaulted clients to provide assistance to them and their caretakers, as well. Home visits are done by the multidisciplinary mental health team consisting of Medical Officers, Community Psychiatry Nurses and Psychiatric Social Workers. In addition, Mental Health and Psycho-social Support (MHPSS) are provided to needy persons, especially conducted during humanitarian settings such as floods, war and conflicts, etc., There are 446 main clinics and outreach clinics in healthcare institutions across all levels of care.

Rehabilitation care for mental health

Rehabilitation care is provided through medium and long stay rehabilitation units, alcohol rehabilitation centers and community support centers. The number of Rehabilitation Centers in Sri Lanka has grown from one in year 2000 to 22 in year 2017. These include medium-stay (6 months) and long-stay (1 year-plus) rehabilitation centers. Medium stay units provide services to individuals who do not require intensive medical interventions, but need further treatment and support to develop life competencies for them to live productively. Medium stay rehabilitation facilities were available only in five districts in 2004, which has now expanded to 17 districts. While Long-stay residential facilities are provided for those without support, they are available in only in 7 districts. However, it was noted that the medium stay units are being converted into long stay-units due to poor management. In addition to these government rehabilitation centers, non-governmental organizations such as 'Nest' and 'Sahanaya' have their own facilities. De-addiction rehabilitation units (Alcohol Rehabilitation Centers) are another initiative to combat the increasing use of alcohol. There are six centers located in Gampaha, Kandy, Jaffna, Kurunegala, Badulla and Kilinochchi. There are RC for drug users run by several religious organizations and the National Dangerous Drugs Control Board (NDDCB). Additionally, the Directorate of Mental Health is currently in the final stage of opening a Drug Rehabilitation Centre in Minuwangoda.

School mental health services

School mental health services are provided by the MoH, in forms of life skill development, counseling and through school health clubs. Alcohol and tobacco cessation sessions are done in Healthy Lifestyle Clinics (HLCs) of Primary Medical Care Institutions (PMCI). The MOs and NOs in these centres are specially trained by consultant psychiatrists for this purpose. The NIMH and some hospitals run separate substance abuse clinics at the OPD level.

The National Health Policy identifies the need to establish Community Support Centers (CSC), and they are being set up at the district level to serve as hubs for promotion of mental wellbeing. They are established for promoting mental wellbeing of people and to provide psycho-social support in the community, by implementing programmes for promotion of mental well-being and establishing psychosocial support networks, liaising with officers working in government and non-government organizations. Currently, there are 23 functioning CSCs at the end of 2021, and the target is to establish one CSC per MOH area. A mental health service package is being developed to be implemented at CSC. There is a lack of attention for mental health promotion by the health staff and coordination among other sectors involved in provision of mental healthcare. Community participation is also poor.

Consumer and Care Groups for mental health:

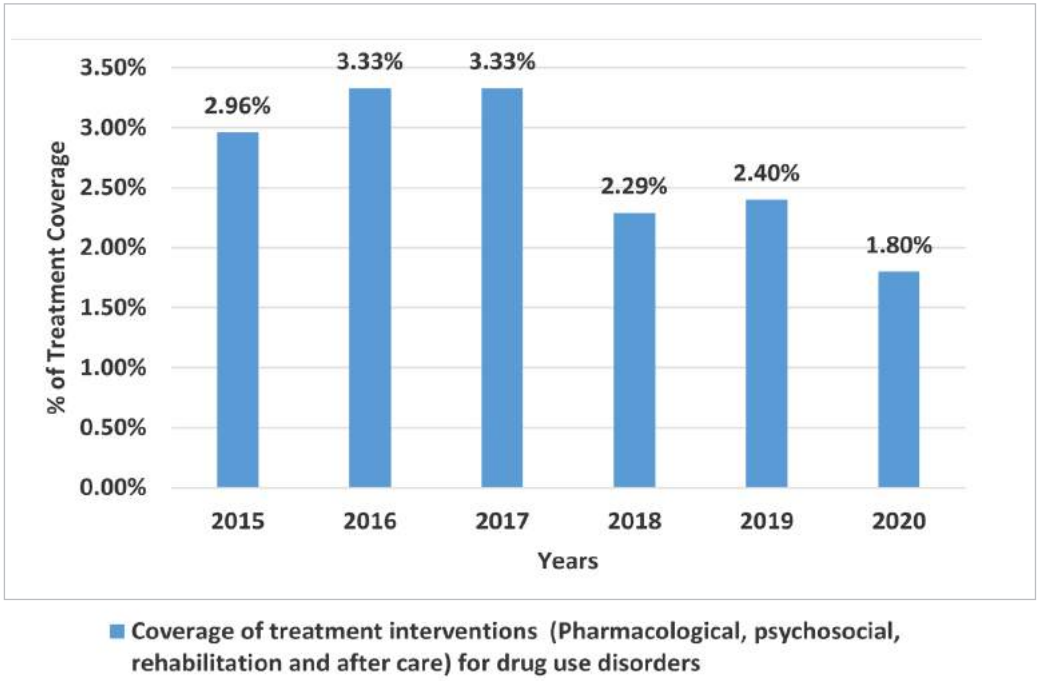
The National Health Policy identifies the need to establish Consumer and Care Groups, and there are about 60 groups representing most districts, where 10 of them are registered as non-profit entities. The Consumer Action Network Mental Health Sri Lanka (CANMH Lanka) is one such successful organization. The network was established for the collaboration of people affected with mental health issues and their caregivers to advocate for a secure mental health system. The Ministry of Health has already developed a "National guideline for the establishment and implementation of consumer and caregiver associations of persons with mental disorders", with the participation of all relevant stakeholders.

Data Management

The Mental Health-Management and Information System (MH-MIS) was converted from a paper-based to an e-based system in 2017 using the District Health Information Software (DHIS2), to overcome reporting errors and delays.

There are two returns sent by the MO/MH from the district level to the centre: The first return is the monthly return on patient details and mental health activities carried out by the MH clinics. The second return is sent quarterly on infrastructure availability and capacity; human resource availability and assessment of MO/MH activities.

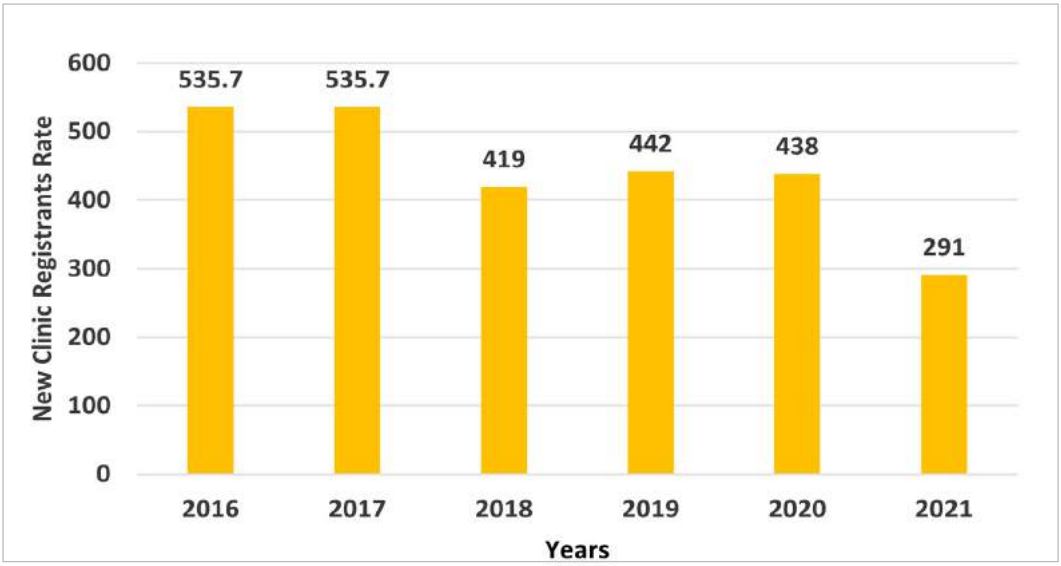
District review meetings act as a platform for the Mental Health Directorate to monitor and guide service provision. The meetings are conducted by the Regional Director of Health Services, with the support of the Consultant Psychiatrist and the Medical Officer Mental Health (focal point). The review is attended by multi-disciplinary team members: Consultant Community Physicians, all MO/MH, Medical Officer in-charge of rehabilitation centers, Medical Officers of Health, and non-government organizations and consumer and care groups including officers from other relevant ministries.



Source: Mental Health Unit

Figure 127: New Clinic Registrants with Diagnosed Mental Illnesses per 100,000 Population from 2016 to 2021

The low value in 2021 was probably due to the COVID pandemic situation



Source: Mental Health Unit

Figure 128: Percentage Coverage of Treatment Interventions for Drug Use Disorders from 2015 to 2020

Workplace Mental Health programme

According to the WHO, engaging in work is beneficial for mental health wellbeing. However, a poor work environment can cause issues with physical and mental well-being. Bullying and harassment at work are frequently reported issues that can seriously harm mental health. Workplaces should have strategies to promote mental wellbeing of employees to obtain efficient and productive services. Negative workplace conditions can result in issues such as drug or alcohol usage, absenteeism and loss of productivity.

A recent report by the Health Ministry's Mental Health Unit observed that stress affects one out of every five workers in Sri Lanka's public sector. The same study revealed a rise in the number of people seeking medical treatment for mental problems.

In Sri Lanka, different workplaces have a varying degree of strategies in this regard. However, there is no such work support mechanism available in most of the public institutions and small-scale industries. The well-established private companies hire counsellors and provide capacity building programmes to improve their workers 'mental wellbeing.

Suicide prevention

In Sri Lanka, self-harm and suicide are serious public health issues. Given that suicides typically elicit pity for the departed, a permissive attitude toward suicide is frequently recognized. Similar to how some media reports elevate suicide to the status of a heroic act, suicide culture is propagated in this way. Lack of coping mechanisms in the most vulnerable people and incapacity of loved ones to recognize their anguish are viewed as major contributors to the current rise in suicide rates. Lethal pesticides and medications that are freely available for over-the-counter purchase contribute to high suicide rates by making it simple for people to poison themselves when they are distressed. Undiagnosed and undertreated mental diseases, as well as suicides linked to alcohol and illegal drugs, are major contributing factors that require immediate attention. Other significant factors that call for a socio-political dialogue include poverty, unemployment, migration of caregivers for vulnerable people, anger among young people and loneliness among the elderly.

The national problem of the high suicide rate in Sri Lanka, which has diverse contributory factors and evidence, warrants a multi-modal approach to bring about a sustainable solution, as no single technique is adequate, and should take into account a variety of evidence-based tactics at both universal and individual levels.

Several steps have been taken to prevent suicide and improve mental well-being in various settings. The maternal suicides inquiry instrument was developed recently. In order to reduce the stress, school counselling services and family counselling services have been extended to schools, higher educational institutions and divisional secretariats. However, there is no structured programme to address the different settings.

There are several NGOs and professional colleges in Sri Lanka providing counselling facilities and public awareness for preventing of self-harm. The National Mental Health helpline (1926) which was established in collaboration with NIMH, is expanded to the district level. Additionally, an NGO called Courage, Compassion and Commitment (CCC) is running a toll-free telephone line (1333), offering counselling services that provide emotional support and guidance for people facing difficulties or simply wanting to talk to someone about their problems. These facilities should be communicated to the general public.

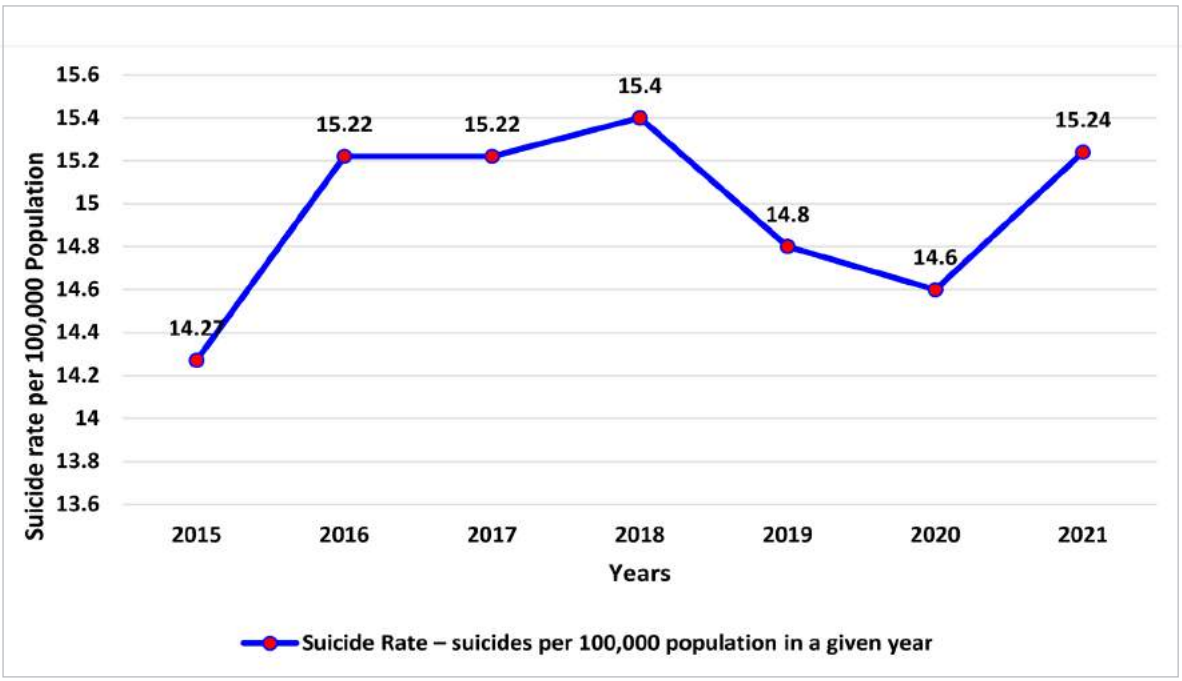


Figure 129 : Suicide Rate per 100,000 Population from 2015-2021

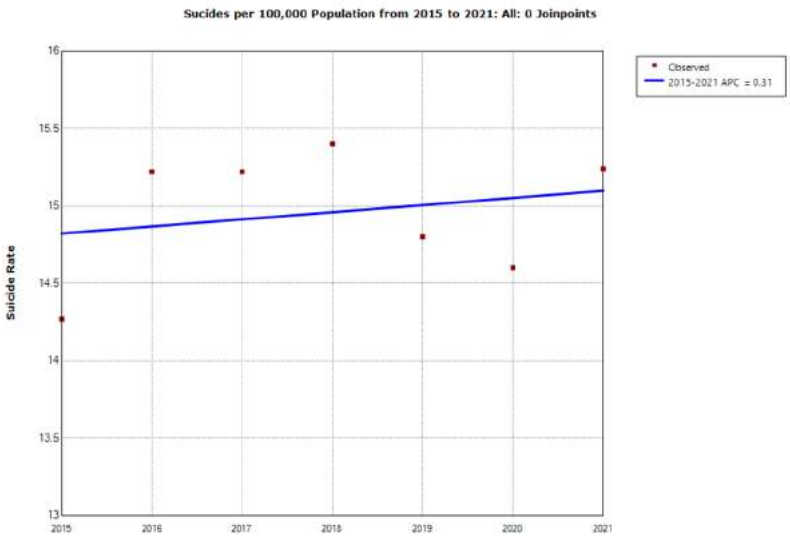


Figure 130 : Trend Analysis of Suicide Rate per 100,000 Population from 2015-2021

This above graph shows the trend of suicide rate per 100,000 Population from 2015-2021 in Sri Lanka. Although it shows a slight increase, it is statistically not significant.

Partnerships

Several non-government organizations and civil society organizations support the Ministry of Health.

Recommendations

1. A higher-level advisory council chaired by the Secretary of Health and Provincial/ District Mental Health committees need to be streamlined based on the National Mental Health Policy.
2. A regular national level survey should be carried out to identify the burden of mental disor ders, different target groups, risk factors, and health seeking behaviors, to identify gaps and i mprove services.,
3. Ensure mental health services are well organized at the community level with the full participation of the community, families and consumers. A national guide should be developed to facilitate this process.
4. A strategic and action plan with monitoring indicators on suicide prevention to be published as early as possible, for further action of prevention of suicide in Sri Lanka.
5. Ensure a national strategy is developed and implemented as stated in the NHP, to reduce stigma and discrimination associated with mental disorders to protect the rights and dignity of people living with mental illnesses.
6. Strengthen the electronic data management system for mental health.
7. Ensure rehabilitation centers are providing essential skills to return to the society, and each individual leaves the center with a plan of action which the MO-MH should follow up.
8. An e-based research repository on Mental Health to be developed and the priority research areas need to be identified.
9. Regular educational sessions on Mental Health Promotion to be carried out for all categories of health staff.
10. Strengthen monthly review meetings by developing a TOR and identifying roles and responsibilities to ensure the multi-sectoral approach as given in the national policy.
11. As per the National Mental Health Policy, recruit at least 2 clinical psychologists for every district.
12. As per the NMP, the MoH should advocate the Ministry of Women Empowerment and Social Welfare to train counselors and deploy them according to a plan to all sectors.
13. Emphasis to be given for more community-based supportive services and empowerment of care givers. Capacity building of healthcare providers & public awareness on human rights, stigma and discrimination should be strengthened along with community mental health promotional activities using a multi-sectoral approach.
14. Mental healthcare and support for the health workforce need to be strengthened.

Sub strategy 3.5-: To provide equitable distribution of geriatric care

Background

Geriatric Medicine is a growing field in Sri Lanka. The government health sector provides curative services through all the hospitals, to all age groups including the elders. However, there are only two places providing separate geriatric ward facilities, namely, at Kadugannawa Hospital (30 beds) and Peradeniya Teaching Hospital. The Kalubowila Teaching Hospital provides Geriatric out- patient clinic services, which is a recognized training center for the Post Graduate Institute of Medicine.

At the moment, there are no separate geriatric Medicine specialists in Sri Lanka. Geriatric care should be provided by a multidisciplinary team. The Post Graduate Institute of Medicine initiated a Geriatric Medicine Diploma in 2015 and a Geriatric Medicine MD course in 2018 for medical graduates, with the objectives of ensuring adequate knowledge and skills to maintain age-related problems in elderly patients with multiple pathologies, also focusing on sensitive emotional needs with the utmost competence and care. Currently, Geriatric specialists are following the foreign training component. Although, the post-basic nursing curriculum includes elder care, it is questionable whether the nurses receive adequate geriatric medicine training in order to provide care to the elderly as a team. There are plans to increase physiotherapy, occupational therapy, and social worker training to support geriatric care. In 2006, the National Secretariat for Elders (NSE) began a three-week training programme for home healthcare assistants on how to care for elderly patients. The programme has evolved into a National Vocational Qualification (NVQ) level 2 qualification in 2015, and the National Apprentice and Industrial Training Authority (NAITA) conducted and assessed it. The NSE now has around 100 trained home care aides in its database, and most of them are working in private places.

The coronavirus disease pandemic had a disproportionate impact on older persons, resulting in high mortality and morbidity. The MoH has given priority for administering vaccination for elderly patients.
Strengthening primary care is essential for scaling up services for elderly people. Preventive health services are provided through Medical Officer of Health areas, by following the model of the Healthy Lifestyle Centres, whereby a new cadre of medical officers was created, who were specifically charged with coordinating activities related to noncommunicable diseases at the district level. Another shortcoming in primary healthcare is the absence of a public-sector system of general/family practitioners. In the field level, the cadre of family health workers could be expanded to provide assessment, prevention and rehabilitation services to the elderly in the community. Village elders' committees established across the country support government health services to elders. At least 246 divisional elders' committees exist, and 19 district-level committees. In addition to the state's provision at the community and primary-care levels, many nongovernmental organizations and private-sector organizations provide elderly care.

It is critical to develop a public financing model for Long Term Care (LTC), in order to stimulate the expansion of much-needed LTC services for elderly across the country. The workforce planning and training are required due to the increase of the number, quality and capacity of the LTC workforce. This includes providing LTC training to existing health and social welfare staff, as well as developing a cadre to provide home and community-based social care support. Beyond healthcare, Sri Lanka is in desperate need of LTC services. Most of this care is provided by informal caregivers, who will increasingly be insufficient in both numbers and capacity to provide all of the necessary care support.

The MoH and the Ministry of Social Welfare, as well as some private and civil society organizations, provide various elements of LTC, including health and social care. There is no monitoring or supervision or integrated home and community care-based models with adequate quality management. Older people, family caregivers and other informal caregivers require immediate assistance, training and information.

Recommendations

1. The age category of geriatric care needs to be defined for the Sri Lankan context.
2. The current primary care network needs to be modified to provide healthcare needs of an ageing population, and require a greater reliance on the use of trained family practitioners. Basic competencies can be integrated to primary care with referral, according to the cluster model, outreach care and telemedicine support.
4. Integration of primary care with secondary prevention and associated clinical care, and coordinating these services with primary care providers, elders and their caregivers will support to stick to their treatment plans and avoid complications.
5. Existing Long-Term Care-related services need to be improved, integrated and monitored, and ensure coordinated implementation. A designated focal agency with sufficient authority should be appointed. Engagement from multiple sectors and stakeholders will be required.
6. Expand communication campaigns for existing services and home care Long Term Care facilities.
7. It is necessary to improve the connections between hospitals, nursing homes, home-and community-based formal care services, and older people and their families.

Sub strategy 3.7-: To establish Clinical Genetics services at appropriate centers to cover the entire population.

Background

Clinical Genetics is useful for diagnosis and management of inherited medical disorders, birth defects, estimation of genetic risks and provision of genetic counselling for family members. The Human Genetics Unit of the Faculty of Medicine University of Colombo is the oldest center established in 1983. It provides genetic testing and genetic counseling. In addition, the Human Genetics Unit at the Faculty of Medicine, University of Kelaniya provides genetic counselling services.

The National Health Master Plan, 2016-2025, has identified the need for development of Clinical Genetics services as a national programme in Sri Lanka. Training an adequate number of MD qualified Clinical Geneticists has been identified as a need. The PGIM has started the MD course in 2018 and the Diploma course in Human Genetics. In addition, Masters in Human Molecular Biology is conducted by the University of Colombo, together with a Training Programme in Clinical Genetics designed for medical professionals. Although establishing clinical genetics units in government hospitals has been identified in the NHMP, it has not been planned yet. It is important to establish these services in the government sector, since patients have to pay for these genetic tests at the moment. Currently, certain private hospitals provide genetic testing.

Recommendations

1. Develop a plan and establish clinical genetic services in the government sector.
2. More research to be carried out in the Sri Lankan setting.
3. Improve collaboration with all relevant stakeholders until the Ministry of Health establishes services to provide services to the needy patients.

Sub strategy 3.8-: To provide comprehensive pulmonary rehabilitation services

Background

Chronic Respiratory Diseases such as chronic obstructive pulmonary disease (COPD), require long term care that extends beyond pharmacotherapy. Breaking the spiral of disability and improving quality of life and recurrent hospitalizations will reduce the cost incurred by the healthcare system, as well as by the patients and the families. According to the "Global Health Observatory" of the WHO, COPD has reached the 3rd place in causing disability adjusted life years in Sri Lanka, and accounted to 2241 DALYs per 100,000 Population in year 2019. It is the 3rd leading cause of death in Sri Lanka, and resulted in 44.4 deaths per 100,000 Population in year 2019. A total of 45,715 live hospital discharges took place in 2019, and the case fatality rate of COPD (ICD- J40-J44) was 2.78 per 100 cases.

A Pulmonary Rehabilitation Service (PRS) is a comprehensive intervention, based on patient assessment, followed by patient tailored therapies that are not limited to exercise training, and includes education and self-management interventions aiming at behavior changes designed to improve both physical and psychological well-being. PRS is provided through a multidisciplinary approach involving physiotherapists, psychologists, nutritionists, nursing officers and medical officers. The main indications are persistence of respiratory symptoms such as dyspnea or functional status limitations, despite optimal medical therapy as advised by respiratory physicians.

The objectives of pulmonary rehabilitation (PR) are to improve symptoms, restore functional capabilities, and enhance overall quality of life. Pulmonary Rehabilitation includes effective, low cost and high impact interventions to reduce the disability associated with lung disease. Benefits of establishing a widespread dedicated PRS will ensure that care is given closer to the patient in their community and will reduce the overall healthcare burden in the country. Currently, there is no formal well recognized widespread PRS established in Sri Lanka, but there is ad hoc availability of ongoing PRS in a handful of government chest clinics and respiratory units, commenced under the leadership of individual respiratory physicians due to their special interest in PR. Owing to the limited facilities and limited availability of expertise in the existing chest clinics, if a dedicated Pulmonary Rehabilitation Service is to be established, it will require thorough planning and training. To support this programme, it is important to attach a dedicated team including physiotherapists in adequate numbers to the respiratory units or the chest clinics where the PRS is planned. There are approximately 45 Consultant Respiratory Physicians in the country, working in 24 districts, and pulmonary rehabilitation is available only in six centers.

Recommendations

1. Establish a national level Pulmonary Rehabilitation Programme based on a Strategic Plan, and develop SOP for PR services.
2. Develop Guidelines for clinical management of chronic respiratory diseases.
3. Train multi-disciplinary teams and provide regular training.
4. Ensure patients with chronic respiratory diseases are able to access palliative services across healthcare level, and hospital/community rehabilitation.
5. Maintain a national database of patients with chronic respiratory diseases and who need pulmonary rehabilitation. It should include data on registered patients for PR services, patients who need domiciliary oxygen and non-invasive ventilation services.
6. Establish a domiciliary oxygen service through a lending system to provide oxygen concentrators or cylinders and home-based noninvasive ventilation.
7. Conduct clinical audits accordingly.

Sub strategy 3.9-: To establish a national mechanism to protect children from abuse, exploitation, violence and neglect

Background

Children of all ages have the fundamental right to live, learn and grow without fear of violence, abuse, neglect, exploitation and discrimination.

In 1989, world leaders made a historic commitment to the world's children by adopting the United Nations Convention on the Rights of the Child – an international agreement on childhood. It became the most widely ratified human rights treaty in history, and has helped transform children's lives around the world. Sri Lanka signed the Convention on the Rights of the Child on 26th January 1990 and ratified on 12th July 1991. As a follow-up to the UNCRC, the government of Sri Lanka formulated the Children's Charter in 1992. Subsequently, Sri Lanka also ratified the Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict on 8 September 2000, and ratified the Optional Protocol to the Convention on the Rights of the Child on the sale of children for child prostitution and child pornography on 22 September 2006. But, still not every child gets to enjoy a full childhood. Still, too many childhoods are cut short.

The WHO mentions that child abuse and neglect or maltreatment constitute all forms of physical and/or emotional ill treatment, sexual abuse, neglect or negligent treatment, or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity, in a context of a relationship of responsibility, trust or power.

Policies, Strategic Plans and legal documents

A National Policy on Child Protection was developed under the powers vested in terms of Section 14 (a) of the NCPA Act No. 50 of 1998, with the relevant stakeholders, and it received Cabinet approval in 2019 October. The policy is applied to all persons under the age of 18 years living in Sri Lanka, with six policy goals. As for the implementation of the policy, the enforcement of the policy will be achieved through the establishment of a high-level National Steering Committee which provides technical guidance and assistance. A Five-year Action Plan on the National Policy on Child Protection was drafted and forwarded to the Department of National Planning, to obtain comments before submitting to the Cabinet and the Parliament of Sri Lanka.

The Penal Code, along with its amendments, specially no 22 of 1995, 28 of 1998 and 16 of 2006, Children and Young Person Ordinance, Children and Woman Employment Act, Domestic Violence Act, Compulsory Education Act and Evidence Ordinance, are some of the legal provisions relevant for child protection. The Sri Lanka National Plan on Alcohol Control (2015) recognizes the need to control alcohol consumption as a measure to prevent gender-based violence and child abuse. One aim of the National Strategic Plan on Child Health 2018-2025 of the Family Health Bureau is to prevent child abuse and address the vulnerabilities of children of migrant mothers, children in orphanages and street children. The National Strategic Plan on Adolescents and Youth Health 2018-2025 of the Family Health Bureau calls to strengthen services on child abuse.

National Child Protection Authority (NCPA):

Definitions given in the National Policy on Child Protection (2019) are highlighted below.

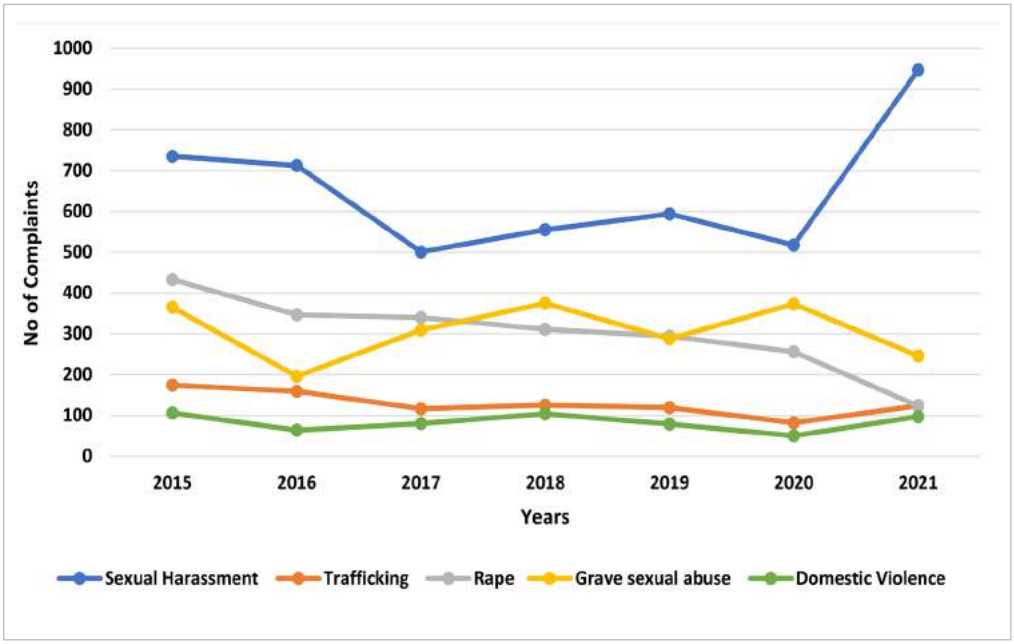
Child Protection: a process that includes effective procedures and structures designed to respond against all forms of child abuse including violence, exploitation, neglect, and the vulnerability in the event of crime.

Child abuse: child abuse means breach of any provision of section 286A, 288, 288A, 288B, 308A, 360A, 360B, 360C, 363, 364A, 365, 365A or 365B of the Penal Code, any provision of the employment of women, young person's and children act, any provision of the children and young person's ordinance. The regulation relating to compulsory education, made under the education ordinance, and an act or omission committed in regard to a child, includes involvement of a child in armed conflict, which is likely to harm such a child physically or emotionally.

The NCPA is the main authorized focal point in Sri Lanka working for preventing child abuse in the country, through multi-sectoral stakeholders including government and non-governmental organizations. It was established by the Parliament of Sri Lanka (by the Act No.50 of 1998), for the purpose of advising the government on policies and laws on the prevention of child abuse and the protection and treatment of children who are victims of such abuse, and coordination and monitoring of actions against all forms of child abuse. The NCPA also provides legal services such as advising the government on the measures that should be taken for the prevention of child abuse and protection of the victims of such abuse. It covers situations such as child victims of humanitarian settings, such as Tsunami, domestic violence and child labour. Recommendations are provided with regard to legal, administrative, or other amendments required for the effective implementation of the National Policy for prevention of child abuse. The NCPA also facilitates responding to the concluding observation and recommendations on international obligations of the Government of Sri Lanka pertaining to the protection of children. It also facilitates the module in the school curricula on law and child. It monitors the criminal proceedings of child abuse and the legality of media reporting on children.

The National Guideline for the Management of child abuse and neglect has been developed with multiple stakeholders in 2014, to provide a more systematic, well integrated and well directed management and a follow up plan for victims of child abuse and neglect in Sri Lanka. The guideline outlines the immediate medical care in a secure environment, reduce re-traumatization, psycho-social rehabilitation and reintegration, assess other children who may be at risk, work towards holistic recovery, prevent further abuse, and assist legal processes for justice. A standard operational procedure (SOP) based on the guideline is being prepared since 2016.

The following figure shows the number of different types of child abuse cases reported from 2015 to 2021, with the highest number of cases reported for sexual harassment cases in the past seven years.



Source NCPA

Figure 131: Reported complaints on Child Abuse types from 2015- 2021

Video Evidence Recording:

Establishment of video evidence recording units in hospitals was granted Cabinet approval in July 2021. The Video Evidence Unit of the NCPA video records and produces before the court, the evidence of a child who becomes the victim of child abuse, in terms of the Evidence (Special Provisions) Act No.32 of 1999. The first such unit was established at Lama Piyasa at the Colombo North Teaching Hospital, Ragama, in April 2022. The next units will be established at Teaching Hospitals Karapitiya - Galle, Batticaloa, Anuradhapura and Jaffna. It was identified to establish one per each province in the NHMP, and it was not completed. Approximately 100-120 children who have faced violence are managed in these units per year.

Data from the Lama Piyasa, Ragama from 2016-2022, is given below table.

Table 42 : Data from Lama Piyasa, Ragama from May 2016 to 20th of May 2022, is as follows:

Total No. of admissions to the Lama Piyasa	625
Categories of admission	**Number**
No. of pregnancies	33
No .of deliveries	24
No. of Miscarriages	10

The Cybercrime Surveillance is carried out for all types of online violence against Sri Lankan Children. It investigates and appears against online violence against children and creates awareness-raising through the dissemination of knowledge and skills on cyber-safety/ online-safety for children, via training programmes and awareness programmes among children. This will be combined with the Sri Lanka Police.

The 1929 is the Child Helpline of the NCPA. This hotline is a private and confidential service for any child-related inquiry. “1929” can be contacted free of charge anytime, in all three languages. It responds to both emergency as well as non-emergency care. In an emergency, these complains are directed to the relevant police station and the time gap due to logistic problems can be identified when necessary.

Other activities carried out by the NCPA

It monitors the Child Development Centers in the country and evaluates them using a star system, as to whether they are satisfactory with regard to child protection or whether they need improvement. The minimum standards and guidelines for child development centers in Sri Lanka (2013), National guidelines on child day care centers in Sri Lanka (2019) and curriculum for General Childcare courses, were developed. In addition, handbooks on positive discipline for primary school teachers and parents, handbook on psychosocial first aid for children in emergencies (2009) and the parental skill development handbook, were developed. Further, the NCPA provides psychosocial support and advice on a request basis and conducts awareness in various target groups. ‘Sithuvili Siththam’, is an all-island art, poster and cartoon competitions based on thematic areas of child protection and aimed to address all types of abuses exploitations, neglect & violence.

The psychosocial division of the NCPA is involved in different assessments using various tools, and provides treatment/intervention (eg: Brief Interventions, Counselling, child abuse recovery programmes victims) and prevention programmes such as positive discipline(ශික්ෂා), Diriya (දිරිය), and prevention programme for underserved children in the costal line(සියපත් සුරැකුම). In addition, the media including the social media programme of the NCPA does different exhibitions, press releases and discussions to raise awareness among children & the general public on child protection. Similarly, the school child protection committee programme also involves awareness creation among school children and teachers.

Role of the Police Service:

The Women and Children Bureau (WCB), under the Sri Lanka Police was established in 1998, and it provides services through women and children desks in each of the 605 Police stations and 45 divisions of women and children. They also conduct awareness programmes for school children and parents, social media campaigns and data analyzing. Creation of a new DIG Range specially for child abuse investigation and prevention is a strength for the child protection efforts. The Hotline of the WCB is 0112 444444 to notify cases.

It was observed that the definitions of child abuse in Sri Lanka Police and NCPA are different, and it confuses national data analysis. Some child abuse cases are reported directly to the police, and some are directly reported to the NCPA. Therefore, dual counting of child abuse cases was observed. Some of the challenges faced during the efforts for child protection are non-uniformity amongst stakeholders regarding the definitions of the different types of abuse and neglect, lack of verifiable island wide data and lack of assistance from other agencies to implement child protection activities. Further, challenges are, lack of infrastructure such as video evidence recording, lack of human resources and infrastructure (especially high-tech facility) within the police WCBs, lack of continuing training for WCBs officers, lack of financial support (expenditure for the victim), lack of temporary shelters for victims and lack of law reforms relating to cyber harassments against children.

Recommendations

1. A comprehensive evaluation of the NCPA should be carried out by an expert team, and based on the findings, if necessary, new policy statements should be added (especially regarding cyber abuse). Thereafter, a multi-sectoral National Strategic Plan and an Action Plan should be developed, with a monitoring and evaluation mechanism.

2. NCPA should have an independent National Advisory Committee with members from professional colleges, academics, civil society organizations, and non-government organizations, working to prevent child abuse.

3. Map the island-wide orphanages with their structure and develop guidelines for management of orphanages and include a monitoring and evaluation mechanism.

4. A comprehensive evaluation should be carried out, of the interventions undertaken by the Ministry of Health and other ministries to prevent child abuse, as identified in their respective national strategic plans

5. Use international or nationally agreed definitions for child abuse and develop National Guidelines for the Management of Child Abuse and Neglect.

6. Development a National database on child abuse and perpetrators.

7. It is important to develop partnerships between the Police and the NCPA.

8. Laws should be implemented for media organizations who disclose confidential information on child abuse victims and their families.

9. Establishment of children courts, one per province.

10. Urgent attention should be given to clear the backlog of court cases and for implementation of recommendations already given by the courts.

11. The UNCRC has made recommendations in 2018 to improve the child well-being in Sri Lanka, regarding corporal punishment, sexual exploitation and abuse, child labour, juvenile justice and reconciliation, truth, and justice, with multisectoral collaboration. These components should be analyzed based on the social determinants.

12. Appoint a committee to compile a report on the implementation of the components of the CRC. The committee should obtain relevant data from the CRC monitoring committee of the Department of Probation, which is responsible for monitoring of implementation of CRC recommendations.

13. Explore the possibilities of attaching NCPA officers in the women and children's bureau of the police.

14. Multisectoral partnerships should be strengthened, and NGOs and civil society organizations (CSO) should be represented in the all-national committees.

15. Appoint a committee in the Ministry of Health with experts from various fields, such as pediatrics, forensic medicine, venereology, and the legal department, to monitor interventions identified in the proposed action plan throughout the life course of children.

Sub strategy 3.10-: To expand quality plastic surgical services for needy patients throughout the country

Background

Plastic surgery is a surgical specialty involved in the reconstruction of defects in the face and body tissue in disorders due to illness, trauma or birth. Plastic surgery restores and improves function, as well as appearance. It can involve surgery on any part of the body, except the central nervous system. Plastic surgery includes both reconstructive surgery and cosmetic procedures. Usually, a reconstructive surgery is carried out on abnormalities of the body that may be caused by trauma or due to accidents, diseases, infections, tumors, developmental disorders and congenital (present at birth) anomalies. Cosmetic or aesthetic plastic surgery is performed to repair or reshape normal parts of the body, usually to improve appearance.

Currently, there are 25 Plastic Surgeons in the Ministry of Health, and they provide around 90% reconstructive and 10% cosmetic plastic surgical services. Services are provided at the National Hospital Colombo and Kandy, Lady Ridgway Children's Hospital Colombo, Sirimavo Bandaranayake Specialized Children's Hospital Colombo and Teaching Hospitals : Colombo South, Colombo North, Jaffna, Batticaloa, Peradeniya, Karapitiya and Rathnapura, Anuradhapura and Badulla Provincial General Hospitals and the National Cancer Institute Maharagama. Currently, there is no proper established referral system from other specialist units or from peripheral institutions. There is an emerging demand for gender conversion surgeries and purely cosmetic surgeries. There is a huge gap between the demand for cosmetic surgeries and the service provision, due to constraints of time devoted to reconstruction surgeries. It was noted that multi-disciplinary teamwork is essential to improve the quality of patient care. Considering the cost effectiveness of patient care and service provision, it is important to expand the existing units rather than opening new units. At the moment, the number of occupational therapists and physiotherapists available in the plastic surgery units and plastic surgery clinics is grossly inadequate. A few units (NCTH & SCTH) carry out transgender surgeries.

Recommendations

1. Strengthening logistic facilities and manpower in the existing units is recommended rather than establishing new units.

2. A Circular to be issued to facilitate an early assessment for amputations and a proper referral system.

3. Establishment of a separate plastic surgery unit at the National Cancer Institute Maharagama.

4. Recommend procurement of advanced essential equipment (operating microscopes, image intensifiers) to expand services.

Recomended indicators

1. Percentage of successful implantation of digits and upper limbs out of total digits and upper limb re-implantations.
2. Percentage of properly preserved amputated parts out of parts of the patients transferred for surgeries that need reimplantation

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3. Percentage of thermal burn patients who were given 20-minute water treatment out of total burn patients.

Sub strategy 3.11-: To establish a national system of endocrinology and diabetic care services at different levels

Background

Diabetes Mellitus is a common metabolic disorder in Sri Lanka, followed by thyroid disorders. Under this sub strategy above two conditions are managed by general physicians and endocrinologists. The specialty of endocrinology was commenced in 2009, and doctors who complete MD (General Medicine) part II are eligible to enter the specialty. Clinical endocrinology encompasses the diagnosis and management of disorders of the endocrine system. Endocrinologists provide treatment, diagnostic and laboratory analysis and conduct basic and applied research in a wide range of hormonal and metabolic conditions. These include diabetes and its complications, thyroid, pituitary and adrenal disease, gonadal disorders and infertility, neuroendocrine conditions, benign and malignant glandular tumors, disorders of growth, genetic and congenital glandular dysfunction, lipid and nutritional abnormalities, menopausal disorders, osteoporosis, and metabolic bone diseases. There are 26 endocrinologists and 2 pediatric endocrinologists working in the public sector in the year 2022.

Policies and Strategic Plans

The National Policy and Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases and the Multi-sectoral Action Plan, are the guiding documents for diabetes care in the country. Over the last few decades, urbanization, industrialization and adoption of an open market economy with liberal marketing strategies have led to lifestyle changes which have resulted in obesity, and over-weight due to unhealthy eating habits. The consequences have been an increasing prevalence of cardio-vascular diseases and diabetes mellitus. In this background, Sri Lanka has brought in fiscal policies and regulations to promote healthy diets.

In 2016, Sri Lanka has adopted a policy of imposing taxes on sugar-sweetened beverages (SSB) to reduce the affordability of SSBs, and in 2016, Sri Lanka mandated a “traffic light” labelling system with a symbolic

colour code to educate public when making food choices, as measures to reduce consumption of unhealthy food. To improve the food environment for school-aged children, the Healthy Canteens in Schools programme was initiated as a joint project between the Ministry of Health and the Ministry of Education.

Current Burden of Diabetes Mellitus

Diabetes Mellitus (DM) is a major Non-Communicable Disease (NCD) with a high mortality and morbidity. DM could lead to complications, other NCDs or complications in other NCDs. People with DM require continuous care and support to manage their condition and to avoid complications. The consequences of suboptimal management of DM result in serious complications, as diabetes is a major cause of blindness, kidney failure, myocardial infarction, stroke and lower limb amputations. According to the "Global Health Observatory" of the WHO, Diabetic has reached the 2nd place of Disability Adjusted Life years, and accounted, to 2241 DALYs per 100,000 population, in year 2019. DM is the 2nd leading cause of death accounting for 58.5 per 100,000 population in year 2019 and the number one cause of non-traumatic lower leg extremity amputation.

According to the government hospital admission data in 2019, the case fatality rate of diabetes (ICD-E-10-E14) was 0.67 per 100 cases, and there were 106,622 live hospital discharges. The hospital admission rate for the government sector was 492 per 100,000 population, and the death rate was 3.3 / 100,000 population in 2019.

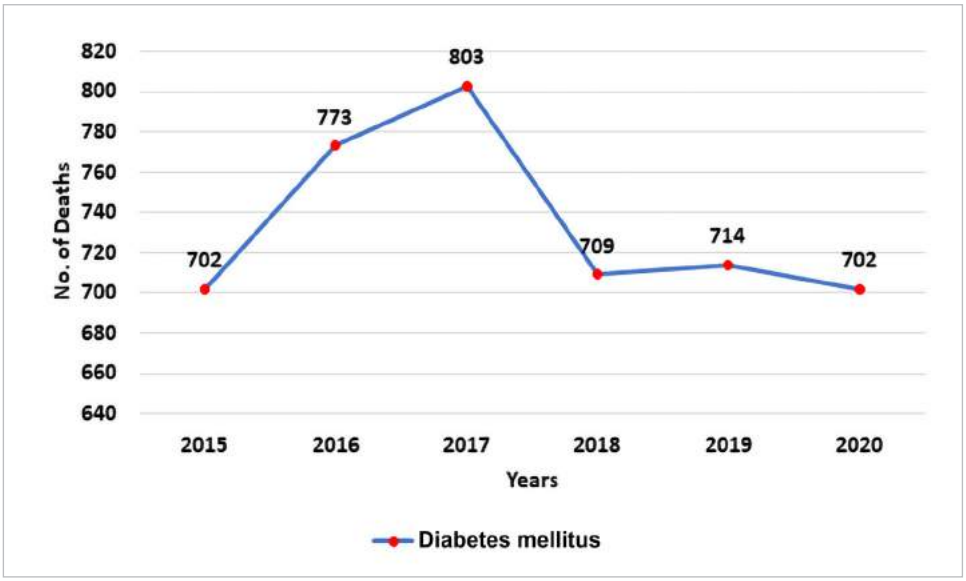

Figure 132: Number of deaths due to Diabetes Mellitus in Government Hospitals from 2015 to 2020

Several surveys conducted in Sri Lanka during the past few years estimated the prevalence of diabetes mellitus to be ranging from 2.5% to 12%. According to the STEP survey 2014 of Sri Lanka, the DM Prevalence was 7.4%. The 2021 STEP survey revealed that 15.6% of the adult population were diabetic. Lifestyle changes and the resulting higher rates of obesity and physical inactivity are the major contributory factors for this increasing prevalence of DM.

DM Risk Reduction at Population Level

There are several risk factor reduction programmes conducted in the country by different government intuitions, NGOs, CBOs and workplaces. The scientific evidence relating to the consumption of sugar sweetened beverages (SSBs) disclose the negative health outcomes, and it continues to accumulate over the years. the WHO guideline on sugar intake for adults and children (2015) recommends reducing the intake of free sugars to less than 10% of the total energy intake and approximately 12 teaspoons of sugar per day, to avoid poor health outcomes including overweight, obesity and poor dental health.

Taxation of Sugar Sweetened Beverages is one of the main population-based options proposed by the WHO to influence consumer behaviours and to reduce the dietary risk of NCDs. The other options include implementing of:

- recommendations on marketing of foods and non-alcoholic beverages to children.
- school and other settings-based interventions to reduce intake of salt, sugar and fat.
- food labelling, specifically interpretative front of pack labelling on pre-packaged foods and promoting product reformulation.
- mass media campaigns to raise awareness and advocate for healthy dietary behaviours.

  These actions are most effective when used in an integrated manner to address all the underlying drivers and barriers to a healthy diet.

To decrease affordability of SSB as a way of decreasing consumption, taxes have to be increased. Differentially affected SSB prices from other goods and services would sustain this process. Excise taxes could ensure differentially affected SSB prices as general taxes, such as VAT do not differentially affect prices, affect prices, of all goods in the same proportion. Currently, in Sri Lanka, there are no excise taxes on SSBs.

Diabetes Mellitus Care at Different Settings

The policy of the GoSL is to offer free promotive, preventive, curative and rehabilitative health-care services through all levels of the healthcare delivery system (primary, secondary and tertiary care). The public sector of healthcare is organized in two streams: preventive services focusing mainly on promotive and preventive health, and curative services which mainly focus on outpatient and inpatient care.

Health promotion and prevention

At the primary healthcare level, diabetes related promotive and preventive health services are provided through 338 health units, known as Medical Officer of Health areas,nn and Healthy Lifestyle Clinics. These centers at each district are assigned to a new cadre of medical officers, called Medical Officers of Non-Communicable Diseases (MO/NCDs). The MO/NCDs are under the direct supervision of the Regional Director of Health Services and the NCD Unit of the Ministry of Health.

Screening for Diabetes Mellitus at different levels

People can develop Type 2 DM (T2DM) without symptoms. Some have symptoms without recognizing them as being related to diabetes. Up to 20% of people with T2DM may be undiagnosed. They may have diabetic complications such as eye disease (diabetic retinopathy) by the time they are diagnosed, or may suffer a Cardiovascular Diseases (CVD), without any warning. In this background, the strategy adopted in Sri Lanka to detect undiagnosed diabetes, is by screening for elevated blood glucose levels. Therefore, opportunistic screening is available at primary healthcare institutions for early detection of diabetes, to enable initiating with the aim of improving glycemic contrl, and consequently, to reduce or delay the onset of complications.

The Ministry of Health in Sri Lanka initiated the Healthy Lifestyle Centres (HLCs) in 2011, to address the lack of a structured non-communicable disease (NCD) screening service through the primary healthcare institutions. The National Diabetes Mellitus screening programme is conducted in 900 HLCs for both male and female persons above the age of 35 years. The objective of the HLCs is to reduce the risk of NCDs including DM, of people more than 35 years old by detecting risk factors early and improving access to specialized care for those with a higher risk of CVD. The screened clients are referred to medical clinics for further investigation and continuous management. The PHC institutions are expected to conduct HLCs on at least one weekday, from 08:00 to 16:00, with the participation of a maximum of 20 clients. People can attend HLCs without any referral. The NCD Bureau has published guidelines for screening for

diabetes at the primary healthcare level. Lack of trained human resources for diabetes care including diabetes nurses in hospital settings, can be considered as gaps in service provision. The Public Health Nursing Officers (PHNOs) is a new cadre introduced at the primary care level. In addition to assisting at the HLCs and medical clinics, they provide community-based care (injections, wound care) to patients who are in need.

Diabetic screening of antenatal mothers has been included into the antenatal service package of the Family Health Bureau. The post prandial blood sugar level is done among all pregnant mothers at the booking visit in the MOH clinic or in hospital clinics. Based on the results, further investigations and management will be carried out. At a POA of 24 weeks, all the antenatal mothers will undergo oral glucose tolerance test (OGTT), and further investigations and management will be carried out. The mothers with a past history of gestational diabetes and with risk factors of developing gestational diabetes will be monitored closely. Further to that, the private sector provides screening facilities, and some insurance packages also include screening for diabetes.

In-patient and out-patient services

Diabetic patients are treated as in- patients based on the necessity and out- door clinic patients, at all levels of healthcare services. The NCD unit developed clinical practice guidelines for DM, in collaboration with the Ceylon College of Physicians and the Sri Lanka College of Endocrinologists. The aim of this guideline is to guide all the medical officers involved in the management of DM in Sri Lanka.

As there is no diabetic patient register available in Sri Lanka, it is not possible to get real time data on patients with diabetes. Therefore, it is not possible to measure effectiveness of treatment for diabetes. The data available is on care provided for patients with DM at curative care institutions, especially at outpatient clinic setting and at inward settings. Indoor morbidity and mortality data of hospital admissions is available through the Indoor Morbidity and Mortality Report (IMMR). The outpatient clinic return provides data on the number of patients attending medical clinics for diabetic management. In addition, some data on newly detected diabetic patients is available at Healthy Lifestyle Centers.

Essential Medicines for Treatment of Diabetes Mellitus

A list of Essential Medicines for DM in Sri Lanka is identified, and include: Glibenclamide (5 mg), Metformin hydrochloride (500 mg) tablets, Intermediate-acting insulin: Isophane (protamine suspension) insulin; human 100 IU/ ml in 10ml vial and Biphasic insulin: Mixed insulin (soluble 30% + isophane 70%); human 100 IU/ ml in 10ml vial for drugs for diabetic care. Other than insulin, all other drugs are available at all levels of care (primary to tertiary care).

These drugs are provided free of charge through the government sector. However, in the event of the drugs prescribed in a state sector consultation not being available, the patients are expected to purchase the drugs from a private pharmacy through out-of-pocket expenditure (OOPE). However, healthcare costs in the private sector are mostly borne by the patients through OOPE. With the prime objective of ensuring availability and access to medicines and thereby reducing the OOPE, the government regulated the prices of 48 commonly prescribed groups of medicines by setting a price ceiling through a notice, by the Extraordinary Gazette on 21 October 2016, revised in December 2017. These 48 medicines included 18 NCD drugs, which included two drugs for DM management, and they were identified in the circular 02-174/2013.

Management of Complications due to Diabetes Mellitus

Diabetes is a chronic disease with many long-term micro and macro-vascular complications causing heavy morbidity and mortality. It is one of the leading causes of chronic renal diseases, non-traumatic lower

limb amputations, blindness and coronary heart disease, thus draining a larger portion of the national health budget. Therefore, it is important to detect vascular, neuropathic and nephrotic complications early, in order to take timely actions and reduce the long term cost of morbidity. Management of diabetes is a multi-disciplinary approach, in which general physicians, general surgeons, vascular surgeons, obstetricians, endocrinologists and nephrologists, neurologists have to work as a team.

Recommendations

1. Enhance population level strategies such as increasing tax on SSB and ensure that a M&E mechanism is in place.

2. Introduce a SBCC strategy to address healthy lifestyles (including public awareness on food labelling, front of pack labelling on pre-packaged foods and promoting product reformulation).

3. Promote school, workplace and settings-based interventions to reduce the intake of salt, sugar and fat and increase physical activities.

4. Increase utilization of HLC by improving public awareness and community level health promotion.

5. Streamline the data management system from the field and the hospital level.

6. Establishment of an electronic database for longitudinal monitoring of DM patients.

7. Increase the cadre of PHNO for provision of home-based NCD, palliative and elderly care and foot care.

8. Establishment of specialized GDM clinics at each Base Hospital and above, with an endocrinologist.

9. Train healthcare staff on risk stratification of diabetic feet and timely referral / wound care/ amputation prevention / diabetic limb salvage.

10. Improve the coordination between public and private institutions.

11. Improve accountability in service care provided by regular monitoring and evaluation.

Under this sub-strategy, Diabetic foot and wound care, which is one of the most neglected entities, is described. Diabetic nephropathy and Diabetic retinopathy are described in relevant **sub strategies 1.7 & 2.7, respectively.**

Diabetic limb salvage service

Background

Diabetic foot ulceration (DFU) in Sri Lanka leads to significant morbidity, mortality, financial burden and poor quality of life. The impact of diabetes mellitus on the lower extremity is immense. Globally, every 30 seconds, a limb is amputated due to complications of diabetic foot disease. The few studies done in Sri Lanka have shown that the majority of amputations in diabetics are directly related to preceding diabetic

foot disease. Foot care and wound care services are of utmost importance for preventing amputations in diabetics.

In Sri Lanka, it is estimated that one in four patients with DM has a lifetime risk of developing a diabetic foot ulcer (DFU), and around 40% have the risk of recurrence within the first year. There is a 25% lifetime risk of a major lower limb amputation for a patient with a diabetic foot ulcer. Furthermore, 80% of all major lower limb amputations in Sri Lanka have had a preceding ulceration. Studies have demonstrated that 65% of major lower limb amputations (MLLA) in Sri Lanka are due to diabetes and its complications. The 5-year mortality following a MLLA due to diabetes is a staggering 70%.

There is no organized diabetic foot ulcer and amputation prevention service in Sri Lanka.

Services

In the current context, Sri Lankan diabetic clinics have incorporated the foot care service and provide risk stratification (based on WHO and national guidelines on diabetic foot risk stratification). Low-risk and moderate-risk diabetic feet are managed at dedicated endocrinology clinics, and it should remain as it is. However, there is no clear consensus on when and where to refer a high-risk diabetic foot and the ulcerated foot. In the absence of a dedicated clinician, these patients are managed in different settings such as, within curative institutions most are managed as part of the general outpatient clinics, some endocrinology clinics, general surgical clinics and at vascular clinics (only tertiary care centers). In reality, the general observation is that these patients are managed mostly in nurse-led outpatient dressing rooms and privately run community-based clinics (non-allopathic/allopathic) managed by untrained/ self-trained personnel. This lack of a dedicated pathway and clinical accountability has contributed to the increased morbidity and mortality amongst this patient cohort.

An established diabetic foot ulcer and amputation prevention service can have a significant benefit on the healthcare service as well as on quality of life of patients. This could lead to reduction of hospital stay, by accelerating wound healing, preserving functional outcome of patients, providing earlier return to normal activities of daily living and workforce, minimizing ulcer recurrence, and reducing the risk of MLLA and mortality. A successful diabetic foot care and wound care service can have a significant economic benefit to the patient as well as to the government.

A National Strategic Plan needs to be developed by all relevant stakeholders towards establishing a comprehensive dedicated limb salvage, service in Sri Lanka. The plan should capture new technology available for wound healing and limb salvage from the community grassroot level to the highly specialized tertiary care level ,with referral and back referral pathways.

Foot rehabilitation services should be established with public-private partnerships for manufacturing and supplying appropriate footwear to prevent both progression to high-risk diabetic foot, and to maintain the healed foot in remission.

The first dedicated multidisciplinary diabetic limb salvage service was commenced in April 2021, named “Paa Saviya”, towards incorporating the many important stakeholders to provide a holistic approach to the management of the DFU. Early results have demonstrated that this concept is indeed feasible and successful in the Sri Lankan setting.

Challenges

- Lack of a National Strategic Plan
- Lack of trained health care staff on wound care/amputation prevention/diabetic limb salvage

- Lack of central coordination between existing public and private wound care institutions, with lack of accountability in the service provided.
- Social, financial, and psychological impact on patients with chronic ulceration and their care givers.
- Modern wound care products, are helpful to optimize wound care. Sri Lanka is heavily dependent on importing wound care products leading to loss of foreign revenue. This reliance has led to unavailability of products during financially challenging situations.
- A proportion of patients will require a major lower limb amputation. There is a need of an amputation care pathway for rehabilitation and recovery of the amputee.
- Lack of data or mechanism for data collection on limb related morbidity in diabetic and non-diabetic population in Sri Lanka

Recommendations for the foot care programme

- Development of a National Strategic Plan to provide a dedicated limb salvage service. It should encompass commissioning, service design, foot screening, foot protection, multi-disciplinary foot care service, management of diabetic foot emergencies, management of the patient undergoing major amputation, national diabetic foot audit and training to provide a comprehensive diabetic limb salvage service.
- Developing a national-level, evidence-based, guideline on prevention, risk stratification, treatment, monitoring and follow up of diabetic foot ulceration in Sri Lanka that encompasses a multidisciplinary diabetic limb salvage strategy.
- Establish the multidisciplinary diabetic limb salvage service as a “hub and spoke” model to reduce morbidity and mortality due to NCD at all teaching hospitals. The Colombo “Paa Saviya” centre should be developed further as the ‘hub’ center of excellence, whilst 32 ‘spoke’ centers throughout the country will be established to provide nation-wide ‘benchmarked’ care for diabetic limb salvage.
- Enhance the existing community-based outreach programme through empowering PHNOs.
- Establishment of a referral pathway from all levels of care (primary to tertiary) to ‘spoke’ centers for:
    - High-risk diabetic foot and Ulcerated diabetic foot
    - Non-diabetic foot and leg ulceration (i.e., lymphoedema, pressure-related, venous)
- Develop a MoH/PGIM certified wound care training programme (certificate programme / Diploma / Degree) to train healthcare workers on diabetic foot ulcer care and amputation prevention. This also includes appraisal / annual accreditation of competency.
- Develop effective data capture through an electronic / paper-based database towards quality improvement. Data should be included in annual health statistics of the MoH.
- Encourage research into the locally developed technology for wound care dressings/ cleansing solutions/compression devices, to expedite wound healing whist minimizing the cost of wound care and loss of foreign revenue.

- Quality improvement of offloading devices and footwear devices for appropriate use among diabetic ulcer patients.
- Improve general public awareness on the availability of accredited wound care/diabetic limb salvage centres in the country to promote a 'foot friendly' culture and lifestyle.

- Conduct research & identify new developments in the diabetic foot care.

Indicators

- 10% reduction of major lower limb amputations due to diabetic foot disease.

- 15% (n=32) of hospitals (DGH and above) to provide a multidisciplinary dedicated diabetic limb salvage service,

- 10% reduction in average number of in-hospital stay of diabetic patients due to chronic leg / foot ulceration related complications,

Thyroid Dysfunction

Prior to 1995, due to the high prevalence of iodine deficiency, Sri Lanka became an endemic country for goiters. The timely introduction of an evidence-based universal iodization of salt (initiated in 1995) programme was successful in overcoming this situation, resulting in a reduction of goiter prevalence in Sri Lanka from 18.2% in 1986 to 3.8% in 2005. The prevalence of autoimmune thyroid diseases (AITDs) was found to be between 16-20%. In a regional study done in 2014, thyroid dysfunction was present in 21.1% of patients with type 2 diabetes (subclinical hypothyroidism: 9.4%, overt hypothyroidism: 6.1%). It was noted that there is no national level disease burden data for thyroid and other endocrinological disorders in Sri Lanka.

Hypothyroidism is a syndrome that results from abnormally low secretion of thyroid hormone from the thyroid gland, leading to a decrease in the basal metabolic rate, and multisystem dysfunction. The most severe form is known as myxoedema. Due to the lack of specificity of the clinical manifestations, the diagnosis of hypothyroidism is based primarily upon Thyroid Function Tests, which include Thyroid Stimulation Hormone and Free Thyroxin (FT4). All the patients diagnosed with overt hypothyroidism will require levothyroxine (LT4) replacement therapy. A Clinical Practice Guidelines was developed by the Sri Lanka College of Endocrinologist, to assist healthcare professionals in the management of thyroid diseases.

Newborn screening for hypothyroidism

Congenital hypothyroidism is the most common preventable cause of mental retardation. Screening programmes enable this potentially devastating disease to be detected at a very early stage and allows treatment to be initiated promptly, before any significant damage is caused. Within the first few days of life, drops of blood are collected from a newborn's heel on to a filter paper and sent to an identified laboratory for analysis. Early detection and channeling resources to provide appropriate services to the most deserving infants is the objective of the screening programme. Every effort has been made to ensure that every newborn receives quality appropriate services within the scope of the screening programme. The screening programme was initiated in the Southern Province in 2010 and was scaled up island-wide since 2015. Efficient data collection and communication between parents and the medical service providers needs to be improved to link the screening program directly to the family unit and bring about timely follow-up of infants diagnosed with congenital hypothyroidism.

Recommendations

1. All hospitals need to have access to endocrine and biochemical tests.

2. An internet short message system (SMS) is proposed for communication between the parents and medical personnel to link the screening programme directly to the family.

Sub strategy 3.12-: To develop an effective system to reduce mortality and morbidity due to Thalassemia.

Background

Thalassemia is a genetic blood disorder which results in defective hemoglobin production, and it shows a spectrum of clinical manifestations. There are three major subtypes of beta thalassemia - thalassemia major, thalassemia minor and thalassemia intermedia - depending on the degree of clinical severity and genetic makeup. The most severe type of this disease manifests in infancy and causes profound anemia, leading to transfusion dependency to maintain life.

In Sri Lanka, homozygous beta thalassemia (β-thalassemia major) is the most common severe form of Thalassemia. There are over 2000 patients diagnosed to be having severe beta thalassemia, and it is estimated that there are approximately half-a-million beta thalassemia carriers in the country (Premawardhana et al., 2019). About two thirds of thalassaemia patients have beta thalassaemia major, and haemoglobin E beta thalassaemia is the other most common disorder in Sri Lanka. It is highly prevalent in the Northwestern, North Central and Central provinces. it is highly prevalent especially in the Kurunegala District of the Northwestern province. However, at present, a significant number of thalassemia cases are reported in other districts in different proportions. In the current context, with regular blood transfusions and iron-chelation therapy, or bone-marrow transplants, the life expectancy of the children with thalassemia has improved.

According to the available data, it was predicted that more than 2000 patients would require regular treatment for the disease at any given time, and that this accounts for about 5% of the current health expenditure. The lifetime treatment cost for a single patient with beta thalassemia major is estimated to be around Rs. 10 million. The annual cost per patient with beta thalassemia major is 2602 US $. (Reed Embelton et.al., 2015). This is in addition to the indirect costs incurred by the family, and the loss of productivity of the affected. Palliative care without a prevention programme is bound to escalate the cost of care due to prolongation of life and accumulation of patients. Therefore, this disease has become a public health problem to the Sri Lankan Government. There are two dedicated Thalassemia centers in Sri Lanka: Thalassemia unit in Teaching Hospital Kurunegala and North Colombo Teaching Hospital Ragama, attached to the Professorial Medical Unit, Faculty of Medicine, University of Kelaniya. In addition, special wards / units for thalassemia patients are available in NHSL Kandy, TH Anuradhapura and PGH Badulla. A steady improvement can be seen in the quality of care in a few designated centers, with multi-disciplinary care being provided by hematologists, pediatricians, endocrinologists and nursing officers. Availability of consultant hematologists and consultant paediatricians in every District General Hospital is a strength for the thalassemia management. The most appropriate, successful and cost-effective method to reduce thalassemia births is pre-marital screening for thalassemia and preventing marriage between two carriers of thalassemia.

Screening for Prevention:

A National Thalassemia Prevention Programme, launched in 2005, seeks to promote the concept of 'safe marriages' through voluntary teenage screening for persons over the age of 15 years. The Directorate of Non-Communicable Diseases (NCD), Ministry of Health, has initiated a National Thalassemia Screening Programme targeting premarital adolescents and adults on voluntary basis. The prevalence of thalassemia can fall significantly by a good screening programme, although the effects of screening depend on the choices made by informed individuals. There are many strategies for screening programmes, and the choice of strategy varies with social attitudes, costs and opportunities within the health system. In the district of Kurunegala, after the introduction of a screening programme, the number of cases reported to the National Thalassemia Center in Kurunegala has declined significantly (Statistics unit, National Thalassemia Center, Kurunegala). But, the current prevention programme seems to be ineffective in reducing thalassemia births, and evidence suggests that the number of annual births remain between 45-60 per year due to inadequate coverage of screening among adolescents. (Premawardhana et al., 2015).

Table 43: Number of Thalassemia screening tests and number of traits of thalassemia identified in different centers from 2018-2019

District	Year	Total number of screenings done	Thalassemia traits	
			No.	%
Colombo	2018	2491	41	1.6
	2019	2079	45	2.1
Anuradhapura	2018	4596	867	18.86
	2019	990	74	7.4
Kurunegala	2018	36025	1825	5.07
	2019	8792	389	4.4
Kandy	2018	8872	215	2.42
	2019	9830	420	4.27
Ragama	2018	5262	158	3.0
	2019	2836	46	1.6
Badulla	2018	-	-	-
	2019	420	-	-

The adolescent screening programme was not conducted during the year 2020 & 2021 due to the COVID 19 epidemic.

Therapeutic services for Thalassaemia

Significant improvements in the treatment of thalassaemia patients in Sri Lanka began to occur in the mid-1990s. Lifting the restriction of access to blood transfusions without replacement in 1995/1996 was an important milestone, and considering the wide prevalence of the disease in the country, more chelator drugs have been made available to patients. Despite these advances, there are major issues faced by thalassaemia patients in Sri Lanka. Overall, the survival of beta thalassaemia major remains poor in the country. The mean age of the cohort of patients with thalassaemia major in Sri Lanka was 13.5 years in 2015. This compares adversely with the figures of Cyprus, Italy, Greece and Iran, where mean ages are around 50 years. The lack of uniformity of care among the 2000 thalassaemia patients spread out over 27 hospitals is one of the major reasons for this. In some hospitals, less than five patients are being treated, and in a survey done in 2015, these patients seemed to have very high iron levels. (Premawardhana et al., 2019). Even though the mean age of the beta thalassaemia major patients remains at a disappointingly low level, there is a significant number of thalassaemia patients (including the majority of those with

haemoglobin E beta thalassaemia) who have reached adulthood. It's disappointing that there is only one specialized adult care unit for thalassaemia patients in Sri Lanka. The rest of the centres are still managed by paediatricians/haematologists.

Notable advances in the thalassaemia field in Sri Lanka

HPLC and capillary electrophoresis-based diagnosis for thalassaemia are now available in both the government and private sector widely. Kurunegala, Ragama, Medical Research Institute, Anuradhapura, Badulla, Kandy and Matara have state sector facilities. Genetic diagnosis for thalassaemia, including mutation screening for beta and alpha thalassaemia, are available at the Molecular Medicine Unit of the University of Kelaniya since 2009. Such facilities are also available in well-established genetic laboratories in the private sector in Colombo.

Pre-natal diagnosis using amniocentesis has been practiced and is used for diagnosis of the thalassaemia status of a fetus of carrier couples in selected cases. The technology was first used in Sri Lanka in 2006, and is practiced in a limited scale. There are foetal medicine experts who can carry out the procedure safely, and a few genetic laboratories in the private sector are able to do the rapid diagnosis of the foetal samples.

Liver and cardiac iron measurement using MRI based technology (T2*) is available at the Lady Ridgeway Hospital for over 10 years. Liver iron measurement using T2 (Ferriscan) is available only in one private sector hospital.

Bone marrow transplantation (BMT) for thalassaemia patients has been successfully carried out in the private sector for over 10 years. The current cost for an uncomplicated HLA matched BMT is around 8 million LKR. In 2021, the Lady Ridgeway Hospital has started its BMT programme for thalassaemia patients.

Recommendations

1. A thalassemia patient register should be introduced.

2. The services at specialized units such as Kurunegala, Ragama, Anuradhapura and Badulla centres should be strengthened, and patients from adjoining regions should be encouraged to travel to these centres. Patients could be given concessionary travel (e.g., travel pass) to travel to the closest center. New centers could be developed in Kandy, Karapitiya, Batticaloa and a few other major hospitals.

3. Most thalassaemia centers (expect Ragama) are managed by a specialist pediatrician, though more than 30-40% of the patients are now passing the adolescent age. These centers should have the services of physicians with interest in thalassaemia, and specialist endocrinologists, hematologists and psychiatrists who should ideally be serving long term (end posts), to prevent abrupt change of management policies of patients.

4. Resource allocation (including medications) should be centralized and coordinated. This will allow all patients to have equal access to treatment.

5. Quality assurance and a reliable supply chain for chelators and other essential drugs should be maintained for thalassaemia.

6. Specialized facilities like the MRI liver and heart scan(T2*), currently available only at the LRH, should be made available at least in a few more dedicated centers.

7. The Bone marrow transplant programme established at the LRH should be further strengthened.

8. A mass media campaign for public awareness on prevention of thalassemia through screening should be made available.

Sub strategy 3.13-: To develop and implement a national programme for screening and managing the children with neurological disabilities including Autism

Background

The Inclusive Early Childhood Development Programme (IncluDe) Sri Lanka focuses on system development to provide services for children with neuro developmental disabilities including autism spectrum disorders. The target is to detect developmental disabilities as early as possible and provide early interventions, which would significantly improve the quality of life of those children. The estimated prevalence of childhood disabilities is around 10% worldwide, and there is no epidemiological database in Sri Lanka including prevalence data for childhood developmental disabilities. The world figure shows that cerebral palsy incidence is 2-2.5 per 1000 live births, and in lower middle-income countries, it can go up to 5-8 per 1000 live births.

The national screening programme for childhood neurodevelopmental disabilities consists of three pathways: (1) neonatal care pathway, (2) the public healthcare pathway, (3) primary care physicians, GP and other clinicians' pathway. The high-risk infants who are either premature, low birth weight or subjected to perinatal insults to the developing brain, who are more vulnerable for developmental delays and disabilities, are screened when they are discharged from neonatal units. This category of children needs closer scrutinization and follow-up. These infants are screened and followed up by the neonatal care teams through the 'Neonatal Care Pathway'. Simultaneously, they will receive the services from the public health pathway as well, enabling a rigorous screening process.

The Public Health Pathway' provides the systematic screening of all children born in the country by the public health staff. The PHM is trained to screen the children for developmental delays and disabilities, and the systematic screening process commences from the age of 2 months. The children are screened until they are 5 years of age, at ten different screening points: 2, 4, 6, 9, 12, 18, 24, 36, 48 and 60 months. The Public Health Pathway has a collaborative arm with the education sector, where preschool teachers can screen and refer the children to the PHMs. Any child who becomes screen positive will be referred to the MOH, who will do a comprehensive assessment and refer the child to the multidisciplinary team (MDT), at the Child Development Intervention Clinic (CDIC) of the district, or to Pediatric Clinics. This is the main pathway for early detection of developmental disabilities.

Some of the children born in the country may miss the screening from the above two pathways. To capture those children and to screen them for developmental delays and disabilities, the 'Primary care, general practitioner and other clinician pathways' was identified as an opportunistic screening pathway to supplement the public health and neonatal pathways.

From any of the above pathways, the screening positive children will be directly referred to the CDIC of the district. The CDIC will function with the multi-disciplinary team (MDT), who are trained in many disciplines to manage children with developmental delays and disabilities. The MDT is headed by a Consultant

Community Pediatrician/General Pediatrician, and comprises of a Medical Officer Child Development, Nursing Officers, Speech and Language Therapists (SLT), Physio Therapist (PT), Occupational therapists (OT), Psychologist and an Educational Therapist (ET). They will be responsible to evaluate each child, develop individualized intervention plans, link with social services, educational services, counselling and other necessary services and refer the child to the MOH CDC for home-based follow-up and community management. Hence, this becomes a multisector collaborative care model.

Current situation of the Child Development Intervention Clinic

The IncluDe programme was commenced in Colombo in 2020. Further to the Colombo programme, a Kandy programme was commenced in 2021, and the Gampaha district programme commenced in 2022. It is also planned to commence in Kalutara and Batticaloa districts in the year 2022. A National level Child Development Intervention Center has been planned to be constructed in the Angoda hospital premises. The budget was approved by the Cabinet, but the allocations have still not been received.

Currently, the MoH has partnered with the Ministry of Higher Education to establish a state-of-the-art Child Development Intervention Center (CDIC) with full training capacity to provide services for children with disabilities. In this unique model, there is a private public partnership, where the private sector is contributing towards the management of this center. The “Ayati Center” which was opened in 2022 is such a private and public partnership center, between the North Colombo Teaching Hospital, Faculty of Medicine, University of Kelaniya and the Ayati Trust.

The cadre for the Community Pediatrician posts was approved with job descriptions. National guidelines for management of common childhood development disabilities have been developed. Human resource is the main barrier, including the unavailability of board-certified Community Pediatricians at present, and the lack of the approved cader of speech therapists, physiotherapists and occupational therapists in the Health Ministry. In addition to that, logistic facilities including specific equipment are not available for the requirement at the CDIC.

Recommendations

1. Establish a Child Development Intervention Center (CDIC) for each district. Establish public private partnership.
2. Identify cadre positions and develop capacity of human resources in the district level CDIC through capacity building programmes.
3. Conduct out-reach clinics from the district level CDIC and establish telehealth facilities.
4. Establish a system to gather data for monitoring and evaluation indicators and epidemiological data for neurodevelopmental disabilities.
5. Strengthen screening pathways by capacity building of the human resources.
6. Public and patient involvement and engagement in strengthening the care services for childhood neurodevelopmental disabilities.
7. Create parent support groups and enhance parent/ caregiver skills to manage children with neurodevelopmental disabilities.
8. Develop linkages with other non-health organizations to provide support across the life course of these children.
9. Develop private public partnership to provide rehabilitation services.

Sub strategy 3.16-: To ensure the reduction of morbidity and mortality due to all types of common respiratory diseases.

Asthma and Respiratory Allergies component

Asthma is one of the most common chronic respiratory illnesses encountered in the community. Management of asthma occurs at all levels of healthcare service provision, from the primary healthcare institutions, up to the tertiary healthcare institutions. Availability of adequate numbers of trained healthcare workers, as well as the availability of essential asthma medication, are some of the strengths of asthma care in Sri Lanka. Asthma management guidelines for secondary and tertiary care health institutions in Sri Lanka, are being developed. In 2019, amongst a total of 177,225 live hospital discharges, the case fatality rate of Asthma (ICD- J45-J46) was 0.32 per 100 cases. The number of public hospital admissions due to asthma was 815 per 100,000 population, and the death rate of asthma was 2.6 per 100,000 population in 2019. Currently, specialized respiratory physicians are available in all hospitals (DGHs and above) within the country, and they have the basic essential investigations including spirometry available in such stations, to differentiate between Asthma and COPD.

Chronic Obstructive Pulmonary Disease Component

Chronic Obstructive Pulmonary Disease (COPD) is a chronic respiratory disease which requires care of patients with involvement of both curative and palliative services. Pulmonary rehabilitation facilities are also available to a certain extent in some hospitals where respiratory physicians are available. Asthma care is aimed at achieving control towards a return to the functionally normal status of the patient, while reducing the risk of exacerbations and drug toxicity, the irreversible nature of COPD dictates a residual level of disability. The aim is to minimize the impact and improve the quality of life at the current level of disability.

Currently ,our management strategies are focused on diagnosing the symptomatic patients and providing pharmacotherapy as a part of the curative intent. These patients are managed collectively amongst all levels of healthcare services with available resources, which may lead to all patients not receiving comprehensive care. The basic medication required for COPD management is limitedly available in the hospital system, and its availability is not universal and consistent.

Interstitial lung diseases (ILD)

Interstitial lung diseases are a heterogeneous group of lung diseases which have a spectrum of disease patterns, ranging from mild to severe that can lead to disability. **Idiopathic pulmonary fibrosis (IPF)** is the most common disease of this type. There are also dozens of known causes of ILD, including: autoimmune diseases (in which the immune system attacks the body) such as lupus, rheumatoid arthritis, sarcoidosis, and scleroderma.

Most patients with ILD are mismanaged due to the lack of awareness of the disease entity amongst the general public and healthcare providers, and due to inadequate facilities for diagnosis and management. Screening for ILD amongst at risk occupations lacks within the system. The availability of respiratory physicians and radiological facilities across the country have significantly improved the case detection of ILD, but further advancements in ILD care have to be envisaged.

Recommendations

1. Establishment of a surveillance system on the disease burden of Asthma, COPD and ILD, and their prevalence in Sri Lanka.

2. To develop a screening programme to identify Asthma in school children and in occupational settings (Asthma, COPD).

3. Propose a structured care pathway for the diagnosis and long-term management of Asthma, COPD and ILD.

4. Establish a specialized unit in asthma and allergy care to manage complicated cases and difficult asthma cases, in collaboration with the Medical Research Institute.

5. Conduct clinical audits in these fields.

Sub strategy 3.17-: To establish a multi-level and multi-sectoral Disaster Preparedness and Respond System in Sri Lanka.

Background

Sri Lanka has a multi-level and multi-sectoral Disaster Preparedness and Response System. The Sri Lankan health system is essentially identified as a key stakeholder in the disaster management framework in the country. The Disaster Preparedness and Response Division (DPRD,) of the Ministry of Health, thus, is the national focal point for health response coordination and preparedness. The Disaster Preparedness and Response Division (DPRD) of the Ministry of Health was established in 2008, and it has been in the forefront in the health response during every disaster in the country and in disaster preparedness activities, to further strengthen the resilience of the health system.

Disaster epidemiology of Sri Lanka is characterized by floods, landslides, cyclones, droughts, windstorms, tsunami, coastal erosions, epidemics, industrial accidents, chemical accidents and internal conflicts. Climate changes related disasters account for 96% of the disasters in Sri Lanka, and the country has been ranked as the 23rd most climate change affected country in the year 2019, based on the Global Climate Risk Index, in 2021. Disasters not only result in loss and/or harm to human lives and damage to the infrastructure, but also result in severe individual, household and social economic loss, which in turn drastically affects the development of the country. Nevertheless, the trend of disasters is increasing, demanding for immediate action for prevention and mitigation.

National Policies, Strategies and Action Plans

Following the Indian Ocean Tsunami in 2004, the disaster management framework evolved in Sri Lanka, with the adaptation of the Disaster Management Act No. 13, 2005, monitored by the National Council for Disaster Management. The National Policy on Disaster Management came into action in the year 2010. It articulates the agreed overarching principles and preferred outcomes for disaster management in Sri Lanka, including policy directives to 1 reduce human and economic impacts of disasters, and coordination. Overall disaster management is at present overseen by the State Ministry of National Security and Disaster Management through its four institutions: Disaster Management Centre (DMC), Department of Meteorology, National Building Research Organization (NBRO) and the National Disaster Relief Services Centre (NDRSC). The DMC is vested with the responsibility to facilitate emergency response, recovery, relief, rehabilitation and reconstruction in the event of any disaster. The NDRSC coordinates safety centre management and emergency relief, including award of compensation for damages at district and divisional levels, in coordination with all other agencies.

The Sendai Framework (2015-2030) recognises that the State has the primary role to reduce the disaster risk, but that responsibility should be shared with key stakeholders including local governments and private sector stakeholders. With a national vision of “Towards a Safer Sri Lanka” and a wider mission of “effective disaster management for safety and resilience of lives and properties”, the National Disaster Management Policy (2013) was developed, and it provides guidance for participatory, multi-agency,

multi-stakeholder engagement, in line with national and international standards for effective disaster relief and response. The Ministry of Health is an important stakeholder in disaster preparedness and management. Political support for disaster preparedness and management activities in the country is guaranteed from the highest political level, through the National Council, which supports and monitors the disaster management activities in the country. The National Council for disaster management is chaired by HE the President, and the Minister of Health is a member. Also, the Steering Committee on Disaster Management chaired by the Secretary Health and represented by a multitude of stakeholders, further strengthens the DPRD activities.

As a policy, following any major disaster, HE the President usually appoints a Presidential Task Force including relevant stakeholders, such as the disaster management centre, Tri-forces and Police, Ministry of Health, Ministries of Transport, Trade, Foreign Affairs, Aviation, Media, Fisheries, Agriculture, Immigration, Ports and Shipping, Education and Higher Education, Department of Postal Service, Pharmaceutical Corporation, Suwa-Seriya Ambulance Service and the Private sector, NGOs, UN Agencies including UNICEF, WHO, IOM and World Bank, in order to coordinate and monitor the national level disaster management activities.

Health sector response

The DPRD activities of the Ministry of Health are directed by the National Act and the National Policy of Disaster Management in the country, and also focus on the preparedness activities through the strategic framework for disaster/emergency preparedness 2022-2025. This strategic framework also has identified strategies based on the Sendai Framework for disaster risk reduction 2015-2030. It includes, the Safe Hospital Initiative of the World Health Organization and the Nationally Determined Contributions (NDCs) identified to reduce the greenhouse gas emissions. The Strategic Plan has identified the structural, non-structural and functional integrity of healthcare institutions, human resources development for disaster management, stakeholder coordination for disaster management, information management and research related to disaster management, community participation for disaster management and results-based monitoring and evaluation. The Ministry of Health conducts the after-action reviews following disasters, in collaboration with the relevant stakeholders. Such an after-action review was conducted following the Easter Sunday bomb attacks in 2019. Further, an intra-action review was conducted during the COVID-19 pandemic response in 2021.

The Ministry of Heath coordinates with the PDHS, RDHS, sub-national HEOC, national disaster focal points network, MOHs, hospital administrators, hospital and regional disaster management committees, regional network of the disaster management centre, GA, GN, CSOs, NGOs, INGOs, private sector and the community, for the health response during the disaster period.

Many districts have developed the regional disaster management plans following hazard identification and risk assessment, including Colombo, Kalutara, Gampaha, Galle, Matara, Hambanthota, Rathnapura, Kegalle, Jaffna, Mannar, Kilinochchi, Mullaitivu and Vavuniya. There is a regional network for disaster management, with identified focal points from each of the 26 Regional Director of Health Services divisions. There are eight sub-national health emergency operation centers in Sri Lanka: Trincomalee, Puttalam, Kalutara, Rathnapura, Badulla, Jaffna, Kegalle and Polonnaruwa.

The DPRD of the MoH is involved in the capacity building of health staff on Hospital Preparedness for Emergencies (HOPE), in collaboration with the Asian Disaster Preparedness Centre. It contributes to the in-service training of Medical Officers of Health, Public Health Inspectors, Public Health Midwives, and Public Health Nursing Officers on health sector disaster management. In addition, it offers training in environmental health in emergencies for preventive health staff. The DPRD coordinates with the Post Graduate Institute of Medicine in offering the Post Graduate Diploma in Health Sector Disaster Management. Around 150 graduates have qualified up to now. Every year, as a part of the diploma training,

hospital preparedness and response plans are prepared, and disaster drills are conducted, supported financially by the DPRD. These officers are mobilized to manage disasters as and when necessary.

The DPRD of the MoH is the National Contact Point for the Biological Weapons Convention (BWC) of the UN. In this capacity, the DPRD is involved in the implementation of the BWC, in collaboration with health and non-health stakeholders. Some of the confidence building measures that are been implemented include, the development of a National Inventory of Dangerous Pathogens, promotion of biosecurity and biosafety practices and capacity building of health and non-health staff. In addition, The DPRD is responsible for coordinating the health response and preparedness for Chemical, Biological, Radiological and Nuclear events in the country.

The DPRD has a separate budget line for its activities, and the DPRD also has an arrangement with the National Health Development Fund for quick disbursement of funds in emergencies. Good coordination and collaboration between the Ministry of Health and other stakeholders including, National Disaster Management Centre, other relevant governmental and non-governmental organizations, academia, international organizations such as UN agencies, USAID and Asian Disaster Preparedness Centre, can be observed as strengths, while inadequate institutionalization of the disaster management activities at different levels and lack of instruments for adequate disaster training can be identified as challenges related to disaster management activities.

There is no epidemiological data management system in the DPRD, and the following epidemiological indicators are recommended:

Indicator 1-Percentage of Hospitals that are green and healthy:

$$\frac{\textit{Number of Hospitals that are smart (safe and green*)}}{\textit{Total number of secondary and tertiary care Hospitals in the country at the end of January in each year}} \times 100$$

*Smart hospitals are assessed using the safe hospitals toolkit and the green hospital toolkit

Indicator 2-Percentage of healthcare quality and safety programmes at hospital level

$$\frac{\textit{Healthcare institutions that have strengthened disaster management activities through the healthcare quality and safety assessment}}{\textit{Total number of secondary and tertiary care Hospitals in the country at the end of January in each year}} \times 100$$

Recommendations

1. Appoint a disaster management medical officer at the regional level or delegate the work to an already assigned medical officer (Environmental, occupational health & food safety).

2. Establish a comprehensive and updated health sector disaster management information system to gather disaster epidemiological data at the MoH level.

3. Develop a National Action Plan/Operational plan for the health sector in implementation of disaster management.

4. Establish a comprehensive and multi-sectoral biosafety biosecurity system in Sri Lanka.

Implementation of Bioweapon Convention in Sri Lanka

The Bioweapon Convention (BWC) is a disarmament treaty that bans biological and toxin weapons by prohibiting their development, production, acquisition, transfer, stockpiling & use, and targets the destruction of those before joining the convention. The convention is comparatively short and comprises of only 15 articles. There are three main areas covered by the BWC.

1. Prevents the use of microorganisms and their toxins as weapons.

2. Promotes the peaceful uses of dangerous pathogens and the products of modern biotechnology, provided that their use is safe and not hampered.

3. Builds the capacity to detect and respond to disease outbreaks and bioterrorist attacks among state parties.

Certain micro organisms can be deadly and highly contagious. These can be used as weapons of mass destruction. This form of warfare had been documented throughout history-bioterrorism/biological warfare. A biological weapon can cause tragic loss of lives and harm crops and livestock. The economic consequences of such an event could be devastating. The civilized world has condemned its use by the implementation of treaties (agreements). Diseases caused by biological weapons would not confine themselves to national borders and could spread rapidly around the world. All states are potentially at risk, and all would benefit from joining the BWC. Sri Lanka signed the Bioweapon Convention on April 10th, 1972, and ratified it on November 18th, 1986. With the recent occurrence of public health emergencies of international concern and due to the experience of several bioterrorist attacks globally, it is important to expedite the implementation of BWC in SL.

Role of Ministry of Health

The BWC will be implemented by the Disaster Preparedness and Response Division (DPRD), the Ministry of Health. As the national focal point, all activities related to BWC will be coordinated and implemented by the MoH in collaboration with stakeholders, and it will communicate with the relevant international organizations and facilitate information exchange on universalization efforts. The Directorate of Quarantine and the Epidemiology Unit of the Ministry of Health are the co-focal points of the International Health Regulations (IHR) (2005), which provide the legal frameworks to ensure the implementation of BWC in the country.

The National Advisory Committee on Biosafety and Biosecurity (NACBB) was established in 2018, to develop and implement a comprehensive multi-sectoral biosafety biosecurity system in Sri Lanka, together with a monitoring and evaluation plan in order to achieve biological safety in the country. It consists of technical experts from the agencies responsible for human, animal and plant health, import and export control and the environment. The National Policy on Biosafety and Biosecurity has been drafted by the NACBB. It includes all the policy statements required to satisfy 15 articles of the BWC. The National Biosafety and Biosecurity Act will be formulated after the policy document is approved by the Cabinet of Ministers. A working group for the preparation and implementation of NIDP was established by the Secretary of Health with multi-sectoral participation. Several meetings have taken place to discuss inclusion and exclusion criteria of pathogens to the NIDP, selection of labs, best biosecurity practices, dual-used items and database and its security. Funds for the implementation process were identified by the European Union Council Decision 2019/97.

Within the MoH, there are several directorates which have been identified to be involved with the implementation process. The Quarantine Unit and health authorities at the point of port entry,

Epidemiology Unit, Regional Epidemiologist, Laboratory Services, Medical Research Institute including consultants and medical laboratory technicians, National Institute of Infectious Diseases-microbiologist, curative healthcare sector including hospital administration, Infection control/Directorate of Environmental and Occupational Health, Health Information Unit and International Health Unit were identified as stakeholders. In addition, the Department of Animal Production and Health, Ministry of Fisheries and Aquatic Resource Development, Department of Agriculture, Security authorities, Airport and aviation and port authorities, Sri Lanka Customs, Central Environmental Authority, academia and legal sector were also included.

A Joint External Evaluation of International Health Regulations (IHR) was carried out in 2017, where biosecurity and biosafety of the country were assessed extensively and identified as priority actions. A National Action Plan for Health Security (NAPHS) 2019-2023 was developed to ensure health security through preventing, detecting and responding to health threats. Actions for Biosafety and Biosecurity priority areas were included in the NAPHS. The import-export regulations for dual-use items, the Quarantine and Prevention of Disease Ordinance (1987), Food Act (1980, amended in 1991), Notifiable Disease List (last gazette in 2014), National Immunization Policy, National Medicinal Policy, National Environment Act (2000), Veterinary Surgeons and Practitioners Act, Disaster Management Act no.13 (2005), Animal Disease Act (1992), Plant Protection Act (1999) and Seed Act (2003), Civil Aviation Authority Act (1979), Sri Lanka Ports Authority Act (1979)and Sri Lanka Disaster Management Act (2005) were other important acts and policies for BWC in Sri Lanka.

The national biosafety framework policy according to Cartegenia protocol, has been developed. Regulations to monitor biosafety standards related to genetically modified organisms (GMO) and living modified organisms (LMO) referring to plants and animals also developed. The Biosafety Manual for Medical Laboratories has been developed by the Sri Lankan College of Microbiologists. Guidelines to protect dangerous pathogens from unauthorized access are included.

A national awareness programme on Biosafety and Biosecurity was conducted in 2018 by the DDG laboratory services in all provinces. Continuous awareness-raising and capacity-building programmes on DPR are being conducted by the DPRD unit, targeting consultants, medical technologists, and academic and non-academic staff of universities. The DPRD conducts physical and human capacity development in relation to preparedness and response to chemical, biological, radiological and nuclear (CBRN) emergencies, along with all health and non-health stakeholders.

The BWC Implementation Support Unit of the United Nations Office of Disarmament Affairs and the DPRD co-organized a workshop in June 2021 on the introduction of BMC and its Confidence Building Measures (CBMs) for Sri Lankan authorities. Another workshop was held in Dec 2021 on Multi-Sectoral Stakeholder Platforms and Best Practices by the United Nations Office for the Coordination of Humanitarian Affairs.
The National Notifiable Disease Surveillance System, multi-sector disease surveillance, detection and diagnosis and emergency response will help for early detection of outbreaks or events in humans, animals and plants to minimize the consequences of possible bioterrorist attacks.

Recommendations

1. Establishment of a multi-sectoral BWC working group or national steering committee for BWC implementation, with terms of reference.

2. Finalize the draft National Biosafety and Biosecurity Policy and formulation into legislation.

3. Develop a National Action Plan/Operational plan for the implementation of BWC after the policy is approved.

4. National Advisory Committee to review the National Health Security Act and make relevant recommendations to the Secretary Health.

5. Establish a comprehensive and multi-sectoral biosafety biosecurity system in SL Laboratory sector to ensure physical, information, transportation and personnel security, export and import guidelines for DP

6. Develop regulations and or guidelines for biosecurity and biosafety for different contaminant levels.

7. Establishment of Biosafety and Biosecurity requirements for labs holding DP,

8. Appoint Risk Assessment and Bio Safety committees at a national and regional level.

9. Develop a Training Plan after identifying the training needs and develop capacity of those working in biological science and related professionals in the private and public sectors.

10. Develop a Plan and conduct education programs and voluntary codes of conduct to promote a culture of responsibility for those with access to biological agents and toxins relevant to the t.

11. Educational programmes for life scientists on dual-use research and biosecurity.

12. In order to train on biological attack management, SOPs for the prevention and response to biological attack need to be developed.

13.. Training of staff from multiple sectors on the enhancement of physical resources/supplies capacity to prepare and respond to biological attack, in multi-stakeholder coordination platforms.

14. Regular training programmes are important to maintain the efficacy of chemical, biological, radiological and nuclear (CBRN) preparedness programmes.

15. Develop a CBM coordination mechanism to document CBM and submission.

16. Strengthen disease surveillance, detection of outbreaks and emergency response in all sectors through the development of sectoral guidelines, SOPs and capacity building.

17. Develop a Risk Communication Plan.

18. Develop a network of national and regional level stakeholders and link to international authorities for regular updates on new developments.

19.. Ethics on dual-use research should be developed, since the advances in biotechnology could be misused due to the dual-use nature of the life sciences, and risk assessments and evaluation of mitigation methods.

STRATEGY 4

STRENGTHEN EVIDENCE-BASED SERVICE DELIVERY TO SUPPORT JOURNEY ALONG THE CONTINUUM OF CARE

Sub strategy 4.1-: To ensure Patient Rights, Public Confidence and Patient/Client Satisfaction at all public and private health institutions.

Patients' rights

The legal interests of persons who access medical treatment is simply known as patient rights. patient rights encompass legal and ethical issues in the provider-patient relationship, including a person's right to privacy, the right to quality medical care without prejudice, the right to make informed decisions about care and treatment options, and the right to refuse treatment. These sets of rights, responsibilities and duties under which individuals seek and receive healthcare services, are more crucial in a Human Rights Law perspective. Because patients' rights are often not explicit, the composition of the set of rights varies from country to country and over time. Patient rights are one of the major components of human rights created for people to receive competent care without discrimination.

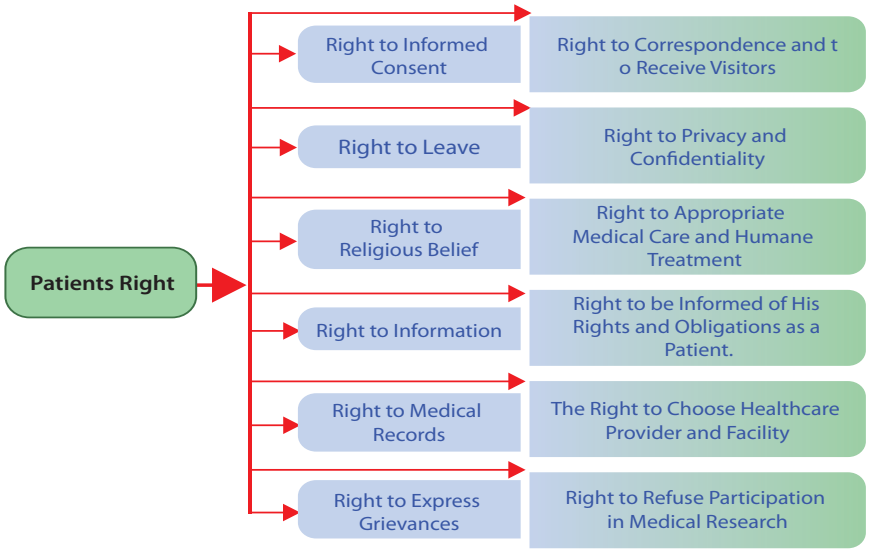

Figure 133 : Components of patients' rights

The rights of patients are included in the Constitution of the Democratic Socialist Republic of Sri Lanka and are protected by a variety of laws directly or indirectly, for equal treatment of all citizens in Sri Lanka. While the Human Rights Act applies to the entire nation, each nation is often covered by distinct legal documents. "No choice about me, without me," which places the patient at the centre of the healthcare system and bestows both rights and obligations, serves as the overarching theme throughout.

Patients are made aware of their rights, through information available in a written and online form, as well as through conversations with healthcare professionals. Patients and their family members are also accountable for their health. Patients of all ages and types are covered by the rights of patients, which apply to both physical and mental health. Rights of different populations such as people living with HIV, migrant workers, plantation sector workers, youth, patients seeking mental health services and internally displaced people are addressed in relevant national policies.

The National Health Service (NHS) Constitution in England explains how patients' rights are put into practice. In contrast, neither the Sri Lanka's proposed patient rights and duties charter nor its open discussion with stakeholders, has been approved by the country's parliament. As a result, very little of the general public is aware of their rights as patients, apart from a few patient rights groups. The NHS Constitution outlines a patient's rights and obligations. Access to health services, high-quality care, being attended to by staff who are appropriately qualified and experienced, making decisions about medications and treatment, protection from abuse and neglect, respect and confidentiality, and the right to voice complaints if they are unhappy or something goes wrong, are all included in this list of rights.

Right to Appropriate Medical Care and Humane Treatment

When considering access to healthcare in Sri Lanka, although the health services are provided free of charge, most hospitals have long waiting lists for certain procedures and surgeries, and there is no guarantee that the position on the list will be considered within a specified waiting time, due to various reasons. With such delays, patients who can afford to pay for expensive health services, are driven towards the private sector. Compared to other nations in the region, Sri Lanka has a history of being able to deliver high-quality healthcare with low-cost models and meet WHO criteria in a number of categories, including nutrition, immunization, maternity care and child health.

Right to information, right to informed, consent, Right to privacy and confidentiality

Patients have the right to accurate information about their health and available treatment, delivered in a way they can understand, as well as the choice to accept or reject any therapy, assessment or care. There is big gap identified in this area due to managing a large number of patients per day in many hospitals. Most of these are not carried out effectively in Sri Lanka. Frequently, consent is gained for procedures and surgeries without adequately informing the patient and family. Healthcare Providers have forgotten that a competent adult has the right to know the state of his sickness and to participate in the treatment decision-making process. In addition, there is a lack of respect for patient's relatives.

In the meantime, confidentiality is frequently violated as well, but patients have no legal backing because there is no effective structure in place to defend their rights. However, some institutions provide all necessary information regarding the disease status in a confidential manner with repeated counselling sessions, by maintaining the privacy. The Public Health Midwife provides all necessary information regarding health of pregnant mothers during field visits, and to some extent on child health. Similarly, the National STD/AIDS Control Programme provides people living with HIV, information regarding the illness and treatment options available, through a series of counselling sessions. But, in the field of Oncology, there is a gap identified in some places for breaking bad news when there is end-stage cancer. Although breaking bad news has been included into the medical curriculum, there is no guideline for end of life care in the government hospital practice. Even access to palliative care is a right, but many lack knowledge on palliative care, and some end of life patients are found to suffer from pain. There are no specific and continuous capacity building programmes for health staff about patient rights, except for staff who are dealing with STD/AIDS. Regular capacity building programmes should be conducted by professional Colleges on breaking bad news.

The right to choose healthcare provider and facility

Patients can access both private and public hospitals in any geographical locality depending on their wish. There is no system in place where patients can register to be treated by a specific General Practitioner or Health Institution. Instead, there are private channeling clinics where patients can consult a specialist of their choice.

Right to refuse participation in medical research and right to leave

Patients have a right to participate in the planning and implementation of their medical care, as well as the right to be informed of any safety lapses that may have occurred while they were receiving treatment, for which they should be offered an appropriate apology and level of assistance. The latter can occasionally be difficult because there are various definitions of what constitutes an "event," and there is a fine line between providing patients with the right information and making them anxious. Involving patients and the public is becoming more popular in developed countries in both healthcare delivery and research. However, patient involvement is taking place when developing policies,strategic and action plans in certain specialties. In the field of HIV/AIDS, key population groups who are most at risk of developing HIV/AIDS, are involved in decision making processes. Youth and youth organizations

are involved when developing policies related to youth. The institute for Research and Development, a leader in Sri Lankan health research, has taken steps to incorporate the idea of Patient and Public Involvement and Engagement (PPIE), in research. Ethical clearance is required for most of the research work. It is a standard practice that patients/participants can refuse their participation in research at any time and leave without being deprived of any health service the person has been involved in.

Right to religious belief

Religious and cultural views on the beginning of life can influence attitudes towards reproductive medicine, abortion, contraception and neonatal care. Views on dying, death and the after life can influence attitudes towards pain relief for terminally ill people, means of determining the moment of death, brain death, organ donations and care for the corpse.

The inclusion of relatives/family is particularly relevant in religious communities, where high emphasis is often placed on family bonds and responsibilities. With due attention to confidentiality and the patient's wishes, where the family and relatives are included in care, it is vital that staff involved are aware of some level of the patient's religious attitudes towards disease, suffering, dying, death, religious practices and rites, as well as their views on family responsibilities and traditions, in order to ensure sensitivity and respect when administering care to the patient. Staff should also be aware that an individual's level of compliance with their religious belief may well vary according to their perception of their illness, and that relatives and/or next of kin may have differing views on religion, practice and observance.

Although, Sri Lankan laws allow the right to the highest attainable standard of wellbeing, abortion is only permitted to save the life of a woman. Social barriers to accessing contraceptives among unmarried young people leave a disproportionate impact on the health of particularly young women. The criminalization of abortion may serve to solidify stigma associated with sexual activity among young people. Worldwide evidence shows that legal restrictions on abortion do not reduce abortion rates.
The criminalization of abortion causes women to turn to illicit abortions, which often result in increased maternal morbidity and mortality. Amendments to the Sri Lankan abortion law is moving slow due to the influence of some religious groups.

Right to correspondence and to receive visitors, right to express grievances and right to be informed of rights and obligations as a patient

In Sri Lanka, there is currently no way to document instances of risk or harm brought on by medical personnel, merely because there is no structure in place to record and follow up on such an occurrence. So far, few complaints have been made to the Police. Public complaints made to the MoH, are directed to an investigation panel consisting of a group of experts within the Ministry and relevant institutions. Based on the Establishment Code, a preliminary and a detailed inquiry will be conducted, and appropriate measures will be taken at the institutional or national level.

A long-standing problem that may have an impact on the standard of care delivered by healthcare professionals, as well as patient satisfaction with care received, is the lack of concern and ignorance regarding patient rights. Therefore, it is crucial to address patient rights to strengthen and improve Sri Lanka's current healthcare system. the Right to Information Act, No. 12 of 2016, published by the Parliament of the Democratic Socialist Republic of Sri Lanka as a supplement to Part II of the Gazette of the Democratic Socialist Republic of Sri Lanka of August 05, 2016, allows any person to access even health information including the bed head ticket (BHT) or investigation reports.

Patient satisfaction

Patient satisfaction is of the utmost importance and is a commonly used indicator for measuring the quality of healthcare in the world. Patient satisfaction has an impact on clinical outcomes, patient retention and medical malpractice claims. It affects the timely, efficient and patient-centered delivery of quality healthcare. Patient satisfaction is, thus, a proxy but a very effective indicator to measure the success of doctors and hospitals. In broad terms, it can be defined as how individuals are treated and the environment in which they are treated, encompassing the notion of an individual's experience of contact with the health system. The concept of patient experience is surprisingly complex and generally linked with patient satisfaction. As reimbursement and performance policies have become more normative within healthcare, the patient experience has become a metric to measure payment systems for quality.

Recommendations

1. The Patients charter should be developed to protect patients' rights.

2. The Medical Ordinance should be amended with incorporating a separate chapter on patient rights, with the support of the Sri Lanka Medical Council (SLMC), Sri Lanka Medical Association (SLMA), and MoH.

3. Review the Patient Rights Charter with patient rights and responsibilities, which was drafted in 2008, and submit it for Cabinet approval.

4. Conduct periodical surveys, special surveys, and reports, provide regulations, circulars, guidelines, introduce disciplinary bodies, penalty of violation, training/rehabilitation, compensation schemes for victims and introduce other methods of grief.

5. Formulate/upgrade a feasible system/standards to prevent patient right violations and a standard protocol of conduct to prevent patient right violation. Introduce methodology to address respective disputes.

6. Upgrade/modify laws, guidelines to support victims of patient rights violation, justice for victims of patient right violators. Identify and introduce methodology to notify issues.

7. A transparent system is to be established to carry out inquiries of professional misconduct, negligence, and breach of patients' rights, by a committee from a pool of experts representing health and non-health sectors. Establish an Ombudsman system within the MoH to promote and protect patients' rights. Ombudsmen are independent, free and impartial – so they don't take sides. However, it is recommended to resolve the complaint within the organization before complaining to an ombudsman.+

8. A focal point to be identified to collect data on patient satisfaction and experience and improve the quality of care delivered. In addition, measures to be taken to increase awareness of the general public on patient rights, responsibilities and right to information, by providing information available as both online and printed material, and in consultation with healthcare staff.

9. Training of all health and non-health staff in the MoH on patient rights and safety to improve the quality of care given. It is critically important to raise awareness amongst health staff, of the need to take religion or belief into account when dealing with patients and colleagues.

10. Improve accountability at all levels of care to improve quality patient care, by reducing the workload of medical and para-medical professionals.

Sub strategy 4.2-: To implement incorporation of customized outreach primary curative services including Pre-Hospital Curative Care into the health system.

Currently, customized outreach primary curative services are delivered by the Public Health Midwife (PHM) and the Public Health Nursing Officer (PHNO). The Public Health Inspector (PHI), is also involved in some primary level curative activities, in addition to duties of preventive work. In addition, Pre-Hospital Curative Care for emergencies is delivered by the "Suwaseriya" ambulance service.

The PHNO in the Primary Medical Care Units supports screening services and provides domiciliary care for high-risk clients and the elderly. Their role is to work with individuals, families and communities to prevent and control non-communicable diseases and provide comprehensive nursing care in the community. Working in multidisciplinary teams, the nurses act as researchers and care providers for vulnerable people in the community, including older people and those who need palliative care. Currently, 100 PHNOs are attached to PMCUs. Public health nurses are trained to carry out many activities in the patients' homes, including the care of indwelling catheters, naso-gastric tubes, nutrition aids and wounds. The care offered is based on the individual's needs, including those of older people and those who are dying. They are able to carry out a full physical assessment and a general health check-up. An analysis of the effectiveness of the public health nursing officer has revealed a number of benefits, as patients are not required to travel to hospital for minor procedures, such as catheter care, These services are free at the point of delivery and also reducing the out of pocket expenditure (OOPE).

The PHM and the PHI are two health workers who work in the community. The PHM is the "front-line" health worker providing domiciliary care to women and children within the community and is the link between the community and institutional healthcare. She is mainly responsible for the health of women in the reproductive age group, pregnant women, children and adolescents, through local clinics and domiciliary visits. Her responsibility includes identifying maternal and neonatal danger signals and arranging immediate referrals to the nearest healthcare institution and follow-up in the community. In case of an emergency, she is also trained and equipped to perform home deliveries. In addition, she is involved in the provision of contraceptives such as OCP and condoms to eligible families. The PHI takes part in communicable disease outbreak control activities in the community. Disease notification, contact tracing, quarantine-related activities and sending patients to hospitals in case of an emergency and providing directly observed treatment short course (DOTS) for tuberculosis and following up for compliance, are a few pre-hospital care services provided by the PHI.

1990 "Suwaseriya" ambulance service

In 2015, the Deputy Minister of National Policies and Economic Affairs presented a proposal to the Prime Minister to establish a modern emergency medical service with an ambulance network. With the support of a generous grant from the government of the Republic of India, the very first ambulance service named "1990 services" was launched in Hambantota on 27th July, 2016.

"1990 Suwa Seriya" delivers high-quality pre-hospital emergency healthcare to people across the island. The "1990 Suwa Seriya" Foundation was established by an Act of Parliament in 2018, and provides the services for Primary Healthcare, Epidemics and COVID Disease Control. It provides island-wide, free pre-hospital emergency care to all Sri Lankans, with an average response time of 15:32 minutes. Going beyond providing a basic emergency service, '1990 Suwasariya' has embraced new technology in providing this remarkable service, including a locally developed real-time vehicle tracking system monitored by the central command and control center, and an ambulance navigation and routing system for faster reach to the patient location. Importantly, all cases are followed up with the patient's contacts 48 hours after the incident, and a 24/7 police post is stationed within the control center for immediate communications with the respective police stations. The service is accessible to any person, by calling the hot-line number 1990.

Starting from 88 ambulances in two provinces, it has grown to a 24-hours emergency medical service with 297 ambulances that covers the entire island, with a passionate team of almost one thousand three hundred and ninety members. The services provided by Suwa Seriya include aiding aid accidents, disease and emergency situations, rescuing and assisting people in emergencies promptly and competently, and rehabilitating people after illness and injury. This service provided tremendous service during the COVID pandimic.

Recommendations

1. Continue capacity building of PHMM and PHII with hands-on training on management of indwelling catheters, colostomy bags and naso-gastric tubes (both categories of healthcare workers should be trained, as there are gender issues at times)

2. Additional training on managing emergencies (e.g., PHM-during a home delivery)

3. Ensure PHMM are equipped with emergency maternity kits.

4. Strengthen the service of Suwa Seriya, with provision of continuous training on basic and emergency life saving measures, first aid, medications and handling of emergency equipment.

5. Train health volunteers at the community level for pre-hospital care/ basic first-aids (schools, youth groups and CSOs).

STRATEGY 5

DEVELOP NEW STRATEGIES TO REDUCE OUT-OF-POCKET SPENDING AND REDUCE FINANCIAL RISK

Sub strategy 5.1-: To regulate the private health sector to ensure quality service and financial risk protection of the patients.

Sri Lanka offers free-of-charge health services at all levels of healthcare delivery for a large number of specialties through a well-developed government healthcare system, by acknowledging the rights of people as enshrined in the Constitution of the Democratic Republic of Sri Lanka. This privilege is being offered to non-citizens with a minimal payment for some services. At the same time, Sri Lanka has offered its citizens, as well as non-citizens, to have their own choice to select private health service establishments scattered throughout the country, ranging from small-scale, part-time GP practices to very sophisticated private hospitals, of which different specialist services are available with high-tech facilities. Private laboratories also range from small laboratories with basic tests to large scale laboratories that offer highly specialized tests. Other private health services expand from home care nursing services to ambulatory emergency care services where "doctor on-call" facilities with fully equipped ambulances are available.

The MoH has a responsibility to ensure that the private sector provides quality services, and needs to regulate the private health system for financial risk protection of the patients at the same time, while ensuring patient rights. Therefore, the responsibility of private sector regulation has been entrusted to the Directorate of Private Health Sector Development (PHSD) of the MoH established in 1998, as well as to the Provincial Councils by the 13th Amendment to the Constitution. the Private Hospitals and Nursing Homes Act which existed from 1940s, was replaced by the Private Medical Institutions (Registration) Act No. 21 of 2006(PMIR Act). It aims to develop and monitor quality standards to be maintained by the registered Private Medical Institutions, and acts as a method of evaluation of standards maintained by such Private Medical Institutions. The Private Health Sector Regulatory Council (PHSRC) is a Council established to exercise, perform and discharge its powers, duties and functions under the same act.

The PHSRC also aims to ensures and achieve that all private medical institutions adopt minimum qualifications for recruitment and minimum standards of training of personnel, and ensures the quality of patient care provided by them. The PHSRC is composed of 28 members, chaired by the Director General of Health Services, with the Director – PHSD acting as the secretary. It also has the nine PDHSs representing each province, the Registrar of the Sri Lanka Medical Council and other relevant stakeholders. It is empowered to investigate any complaints against private medical institutions and to regulate the fees charged for different services, ensuring adaptation of National Guidelines in order to keep up the standards, as well as obtaining information and data for the central database.

Preparation of standards and guidelines for private hospitals, medical centers, full time & part time general medical practices, full time & part time dental surgeries, medical laboratories, private ambulance services, home nursing care, homes for palliative care & long-term care, human resource development institutions and complain handling procedures, is completed. The MoH is in the process of publishing them as gazette notifications after necessary modifications, and five of the guidelines are in the final stage of enactment. These will ensure that quality services are being offered to citizens. However, it was noted that there is no proper hospital grading system for the private sector, and introducing such a system is being discussed by the MoH with the technical guidance of the WHO at the moment.

As there are a number of private nursing schools, and more will be established to cater to the inadequacy of private sector nurses in Sri Lanka, maintaining the quality of nursing education is a huge challenge. The Directorate of PHSD, in collaboration with the National Apprentice and Industrial Training Authority (NAITA), is conducting training courses to private nurses and dental assistants, and only after passing of an exam, the nurses are registered as private sector listed nurses. These refresher/gap filling courses help to bridge the gap between education quality and vocational standards of private sector nurses that will

help to ensure patient care quality. However, these trainings are implemented in an ad hock manner. The availability of other paramedical professionals is very limited, such as medical laboratory technicians and radiographers, as private education institutions in these fields are scarce.

The private hospital license applications are directed via the relevant provincial directors to the PHSRC, and the license has to be annually renewed. It is mandatory that all Private Healthcare Institutes are registered under the PHSRC. However, it was observed that not all hospitals, including part-time health care institutions, were registered. The application process is shown below.

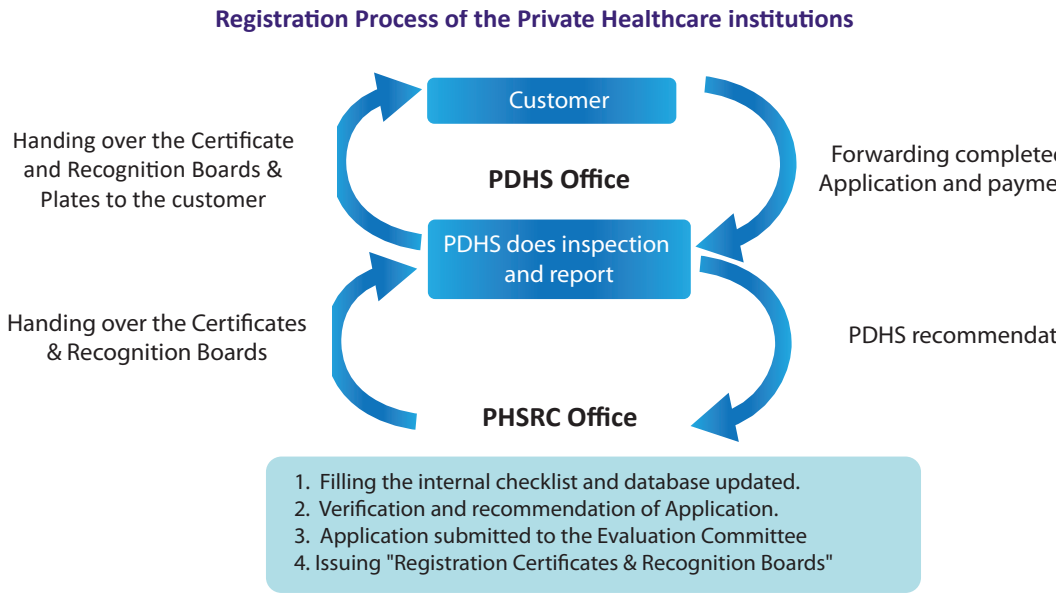

Figure 134: Registration Process of the Private Healthcare institutions

It was noted that there is no system to assure quality or to request approval for substantial changes of services (such as establishment of a new radiology facility or a new transplant unit) during the year, after obtaining the annual license by the private hospitals, although a few hospitals inform changes occasionally. This gap is only partially filled by hospital investigation visits, which are made to investigate requests made to the "President Fund " from patients admitted to private healthcare institutes.

As a share of total health expenditure, private health expenditure has been increasing in Sri Lanka. The percentage of domestic private health expenditure which was 45.5% in 2000, has risen to 55.8% by 2016. The out-of-pocket expenditure accounts as the largest contributor to private health expenditure, and is increased from 40% to 50.1% of total sector expenditure between 2000 and 2016. However, according to a UNICEF study in 2019, comparatively, Sri Lanka is in a better place compared to lower-middle income countries and some South Asian countries, with regard to the private health expenditure and out-of-pocket health expenditure as a share of total health sector spending. After identifying the gaps by the Directorate of PHSD of the MoH has issued circulars for the financial risk protection of patients. Developing costs for various procedures, is in the pipeline, The Consumer Affairs Authority (CAA), also has published gazette notifications (Act, No. 9 of 2003) and some of the important circulars for the private health (Maximum Price caps for Rapid antigen (Rs.2000) and PCR (Rs.6500) under the Consumer Affairs Authority Act, no 09 of 2003 section 20(5), Maximum cap of 2000 Rupees for private channeling fees of consultants and 500 rupees for hospital fees - PHSRC circular dated 31/03/2013). Due to variations of prices resulting from multiple economical and other contributing factors, financial risk protection of patients presents a significant challenge, specially in the current economic situation and global circumstances.

A variety of health interventions and procedures are available from different levels of private care for a range of unregulated prices, and there is no proper local classification system for medical and surgical

procedures and diagnostic interventions. The WHO International Classification of Health Interventions (ICHI) is a common tool that is developed for reporting and analyzing health interventions for clinical and statistical purposes. There is an opportunity of adopting it to the private sector of Sri Lanka, along with ICD 11 criteria. The costing methodologies of private hospitals also differ from one another. Therefore, introduction of a standard costing methodology is important. Currently, there is poor data flow from private sector to the national health statistics, and this lack of data underestimates the true burden of diseases and epidemiological and demographic profiles of patients, and affects planning of strategies to overcome socio-economic and health challenges.

Furthermore, to secure patient rights, a complaint handling system was established by the PHSRC but it was observed that internal complaint handling of private health institutions is not developed properly, and there are long delays due to poor manual complaint handling system, and due to understaffing of the PHSRC.

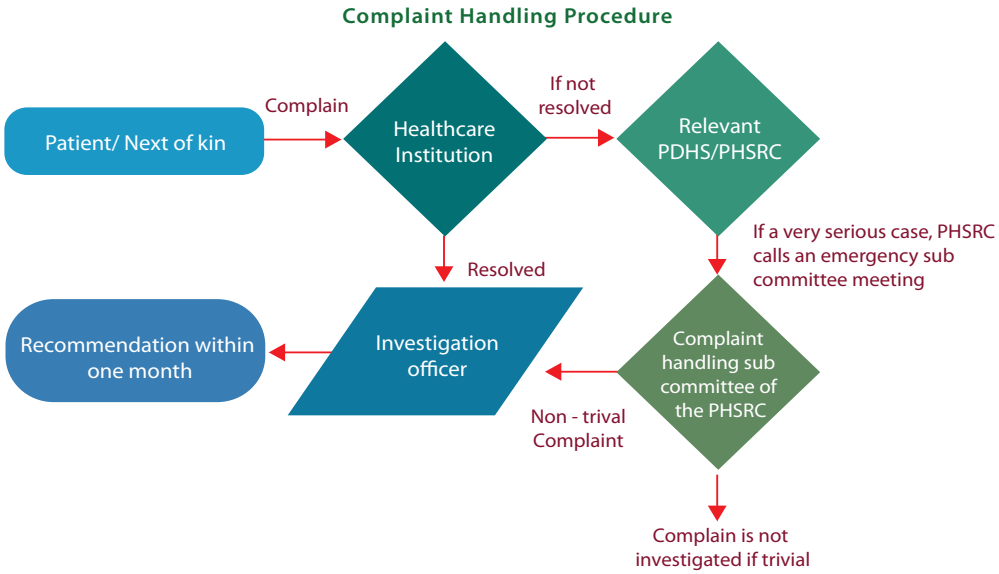

Figure 135 : Complaint handling system related to Private healthcare

The Ministry Investigating Team (Flying Squad) has powers to investigate private institutes also, along with public institutes, from 2016.

Recommendations

1. Establish a proper private healthcare institute grading system.

2. Accelerate the process of revising and enactment of the standards for all levels of private healthcare.

3. Introduce a system to request approval for substantial changes of supplied services during the year ,after obtaining the annual license by private hospitals.

4. Need to incentivize education institutes to increase the availability of nursing and paramedical professionals for the private sector, with quality education and training, together with proper regulatory mechanisms in place.

5. Development of a classification code for health procedures and introduction of a standard costing methodology to the price regulation process. The insurance agencies also can collaborate for these regulations. Price control is still a challenge, and there should be a proper protocol in place with consideration of multiple factors.

6. The Directorate of PHSD should have more authority in investigation and monitoring of the private sector and observation of adherence to national treatment guidelines.

7. The regulatory mechanism for handling complaints against institutions, reducing offences committed by institutions and enforcing relevant penalties, should be strengthened.

8. Need to establish a flow of epidemiological and pricing data of the private health sector to the national level.

9. Strengthen and monitor the registration process of all private healthcare institutes under the PDHS.

Sub strategy 5.2-: To provide certain costly devices (such as Cardiac Stents, Intra Ocular Lenses for Cataract patients, Infusion pumps for Thalassemia children) at the expense of the Government.

Background

The healthcare delivery systems are very much technology dependent, and some medical interventions need high-cost medical devices. Since the Government of Sri Lanka is committed to provide quality care to all who seek care at government health institutions, it is necessary to use the correct and quality devices recommended by the experts in the relevant specialties. It was observed that there are stock-out situations of some of the devices in public hospitals. With limited financial resources and increased expectations of the public for a better healthcare service in Sri Lanka, many challenges are being faced in making the right medical equipment available in proper working order at all times in hundreds of public hospitals in the country. The MoH spends a large amount of money for high-cost devices required for different specialties.

Policies and Strategies

In 2015, the MoH has taken a policy decision to provide quality intraocular lenses, coronary stents, and cochlear and prosthetic implants free for all patients seeking medical treatment from state hospitals. The gazette notification on reducing the prices of coronary stents has been issued under the National Medicines Regulatory Authority (NMRA) Act Number 05 of 2015. Following the price reductions, the maximum retail prices of a bare-metal stent and a drug-eluting stent were brought down to Rs. 24,000 and Rs. 105,000, respectively. Steps have also been taken to reduce the high prices of coronary stents, where the prices of normal and medicated stents were reduced by Rs. 51,000 and Rs. 245,000, respectively. A bare-metal stent costed Rs. 75,000 earlier, offering a saving of Rs. 51,000 for patients, following the reduction. The prices of drug-eluting stents had been reduced by Rs. 195,000, from Rs. 300,000 to Rs. 105,000. Sri Lanka also became one of the countries in the world to carry out cochlear implant surgeries free of charge, which usually costs millions of rupees. Locally produced infusion pumps for thalassemia children are provided by the Sri Lanka Navy free of charge, based on the MoH requirement.

There are no guidelines or a suitable monitoring of a governance framework to determine introduction, utilization and management of healthcare devices, for better performance of the healthcare delivery system to practice it on a demand basis. Further, it has resulted in poor performance of healthcare devices and wastage of resources, by undermining the quality of the healthcare service.

Recommendations

1. Establish a good governance framework with Health Technology Assessment which is absent in the healthcare system in Sri Lanka.

2. A group of experts should be appointed to evaluate the requests made for procurement of high cost devices.
3. Dialysis services should be made available as Public Private Partnership.
4. Local Purchase procedures to be simplified for high cost items, based on the requirement and expert evaluation.
5. Additional services (i.e. night surgeries) should be expanded to cover specific interventions with long waiting lists (Cataract surgeries), with alternative incentive schemes for the staff.
6. Policies and strategies to be developed on the procedure or mechanism for better management of high-cost healthcare equipment in a transparent and accountable manner, to upgrade quality healthcare delivery and to minimize wastage of scarce public resources.

Sub strategy :- 5.4 To provide all diagnostic services (including medical laboratory investigations) within the government hospitals, free-of-charge for the patients

Diagnostic services facilitate the provision of timely, cost-effective and high-quality care, in safe and secure environments. It includes the clinical services of Pathology & Laboratory Medicine, Radiology and Nuclear Medicine. Therefore, the diagnostic services could be categorized broadly into laboratory and imaging services.

Policies and Strategic Plans

The National Health Laboratory Policy was approved by the Cabinet of Ministers of the Democratic Socialist Republic of Sri Lanka, in 2006. Subsequently, the National Health Laboratory Services Act has been prepared, with Medium Term & Long-Term Strategies and monitoring Indicators.

The national policy is to ensure timely availability of reliable and valid diagnostic and analytical laboratory support, to protect and promote the health and wellbeing of the people from communicable and non-communicable diseases or any other public health concern, in an organized, equitable, sustainable and cost-effective manner, to ensure that a good quality laboratory service is provided to the people of Sri Lanka by the state, as well as the private sector, through achieving and maintaining laboratory standards accepted nationally and internationally, and work towards accreditation of all laboratories and promote the rational and safe use of laboratory technology by healthcare professionals and consumers.

Laboratory Services

The Government of Sri Lanka identifies the health laboratory service as an essential component in the healthcare service, and a Deputy Director General (Laboratory Services) is appointed to oversee this service. As per the National Health Laboratory Policy, the government is committed to essential laboratory service across all levels of public health sector, through a network of state and private health institutions. The Ministry of Health is responsible for establishment and enactment of essential and relevant legislation, and also for providing technical and managerial guidelines for maintenance of laboratories in compliance with nationally and internationally accepted standards. All the laboratory services of governmental hospitals are provided free-of-charge for the patients. Sri Lanka has a well-established, three-tiered, state-sector hospital system that has extensive island wide coverage. At present, all tertiary care institutions, 98 percent of secondary care institutions, and but only 5.4 percent of primary care institutions have functioning laboratories. This means that a large number of patients who access the primary care institutions are referred to larger hospitals or private facilities for basic investigations.

In order to harmonize with the National Health Laboratory Policy, a Concept Note and Guidelines were Prepared by the Division of Laboratory Services of the Ministry of Health, Sri Lanka in 2019, for strengthening laboratory services in Primary Healthcare Institutions. The main objectives of strengthening laboratory services in Primary Healthcare Institutions are to provide the highest possible laboratory facilities at the primary care level and to reduce the number of patients visiting secondary care institutions, bypassing the PMCI level, and to reduce over-crowding as well as out-of-pocket expenditure (OOPE), and reduces the financial risk to the patient. The guidelines have emphasized the need to provide a basic investigation package in the specialties of haematology, microbiology, biochemistry and histopathology, to establish sample collecting centres to collect blood samples and forward them to the Apex Hospital laboratories for analysis, and the final reports to be sent back to the PMCIs in a timely and coordinated manner, and to ensure that equitable, cost-effective and sustainable services are provided to the community.

Uninterrupted provision of the above laboratory tests in required numbers at each level is a real challenge for the government health sector. Unavailability of reagents and sudden malfunction of machines are the most frequent challenges that are faced by the healthcare institutions in providing laboratory services. Still, hospitals at their level, make arrangements for patients to get their laboratory tests free of charge during the above scenarios. Further to this, the supply management chain is disrupted due to poor coordination at the Medical Supplies Division at the central level at and the Provincial/District/ Hospitals and the respective Regional Medical Supplies Divisions. Inadequate and maldistribution of laboratory staff, underutilization of machines and repairing of mal-functioning equipment are another set of challenges to be sorted in providing laboratory services to the public. Unavailability of a proper monitoring system or a proper mechanism at the national level to coordinate with the Provincial/District/ Hospital level regarding donations of equipment, has made under-utilization of equipment and human resources, thereby failing to provide the services required.

Diagnostic imaging

Diagnostic imaging is extremely important in arriving at an accurate diagnosis in a short duration and to follow up an illness or a fracture. The most common types of diagnostic imaging include X-ray, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), 3D Mammography, Dual-Energy X-ray Absorptiometry - DEXA scan, Ultrasound and Positron Emergency Tomography / Computed Tomography PET/CT scan. According to the World Health Organization, diagnostic imaging is crucial for any type of hospital, independent of size, location and type of resources available. In settings where resources are sparse, it is very important that they are used efficiently, and that patients in most need can have access to the necessary diagnostic tools in a most efficient and timely manner in the medically justified way.

Government hospitals including Base and above categories have basic imaging facilities of X-ray and Ultrasound scans, along with radiographers and technical experts such as Consultant Radiologists. Selected District Hospitals have advanced diagnostic imaging facilities and National Hospitals and Teaching Hospitals are equipped with modern advanced imaging facilities, At the moment, patients from primary care and secondary care institutions are referred to these tertiary care institutions for advanced diagnostic imaging services. In providing the diagnostic imaging services free of charge to the public, all the above-mentioned challenges are faced by the government institutions. On top of that, due to limited resource availability, the waiting lists for these patients are long. The larger hospitals have grave challenges as they have to deal with referrals from other hospitals.

The ongoing primary care reforms will provide better chances for the patients to acquire free of charge diagnostics tests from the government sector closer to their homes and reduce the out of pocket expenditure during this economic crisis situation in the country. As the apex hospital has a demarcated

draining area and an empaneled population, it will be much easier to cater that population, limiting the waiting lists. The apex hospital at the level of tertiary care will be equipped to provide most of the diagnostic tests free of charge for the patients. The specific diseases such as cancer, needing expensive specific diagnostic tests, will be made available by the proposed Center of Excellence model. However, public awareness of the systems available to them at their own localities to avoid by-passing these institutions, and regular monitoring of the service provision of each state-of-the-art institution, should be put in place.

Recommendations

1. Conduct activities related to laboratories aligned with the National Laboratory Policy.
2. Implement Primary HealthCare Reforms and "the cluster-care" model.
3. Develop packages of standardized investigations and identify infrastructure, equipment and human resources which should be available in different levels of institutions and make them available either in-house/clustering/PPP.
4. Introduce guidelines on laboratory standards, SOPs and protocols to maintain quality of care.
5. Encourage to obtain accreditation.
6. Develop scaling up plans for government hospital laboratories of all healthcare levels.
7. Consider cost-effectiveness in introducing certain diagnostic tests into the government sector.
8. Strategically engage the private sector (i.e., PPP) wherever appropriate on approval of the DGHS, for such services
9. Develop a mechanism to provide high-cost Investigations (i.e., CT, MRI) using insurance schemes.
10. Support the proposed Laboratory Information Management Systems by conducting a comprehensive situation analysis and identifying gaps to ensure collection of all laboratory related data. Ensure that the analyzed data is used for national and international reporting and strengthening of services of individual laboratories.

STRATEGY 6

ENSURING A COMPREHENSIVE HEALTH SYSTEM THROUGH A BETTER RE-STRUCTURING INCLUDING HUMAN RESOURCE MANAGEMENT

Sub strategy 6.1-: To improve the planning and monitoring system of the health sector to ensure quality universal health coverage

Sub strategy 6.2-: To rationalize the development and management of human resources for health, with special emphasis on improving the post-graduate training of doctors

Sub strategies 6.1 and 6.2 are amalgamate

Background

One of the main foundations of a health system is human resources (HR). The MoH employs over 140,000 people (as of the end of 2020) between the line ministry and the provincial health services, and it offers a comprehensive range of health services in Sri Lanka, including promotion, prevention, treatment and rehabilitation. According to data from 2015, skilled workers made up 58 % of the entire health workforce. This group includes doctors (specialists and grade medical officers), dentists, nurses, midwives, public health inspectors, pharmacists, medical laboratory technologists and other paramedical categories. The central ministry takes the lead role in deciding the number, recruitment, training, deployment and optimal level of personnel management. The MoH has to ensure that human resources are available to fulfill the identified cadre positions of each category of workers. The appropriate number of human resources should be available at the appropriate time. The health workforce should be supported to work as a team, while having the motivation, knowledge, skills and correct attitudes to efficiently perform the tasks assigned to them, to achieve the individual institutions' goals, thereby reaching the national objectives and goals.

Founded by the Medical (Amendment) Act No. 40 of 1998 of the Sri Lanka Medical Council (which replaced the Ceylon Medical Council), is a statutory body which was established to protect healthcare consumers by ensuring the maintenance of academic and professional standards, discipline and ethical practice by health professionals who are registered to practice medicine in the country. It is primarily responsible for the registration of human resources. A Nursing Council was founded under the Sri Lanka Nurses Council Act, No. 19 of 1988, and it performs duties related to the nursing profession that are comparable to those of the Medical Council. It is also possible to register in a different register with the Sri Lanka Medical Council for all Professions Supplementary to Medicine (PSM) and Paramedical Categories that have received certifications of proficiency from the Ceylon Medical College Council. the health worker density that was in 2016 and their SDG targets in 2030, are shown in the figure below. To achieve this targets, the MoH has taken some steps to increase the cadre requirements.

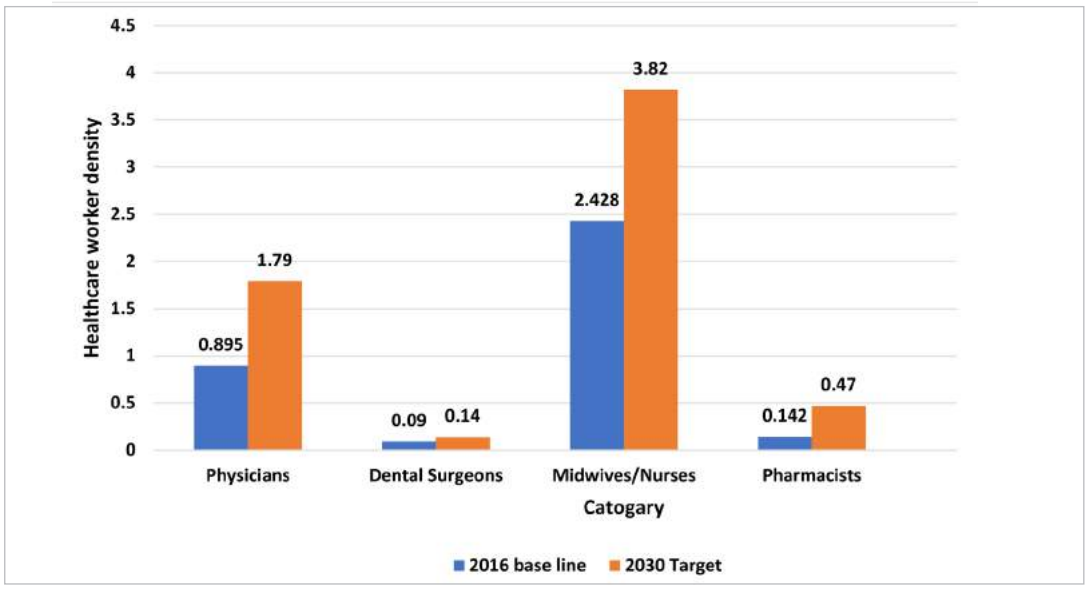

Figure 136: Healthcare worker density in 2016 per 1000 Population, in Comparison to the SDG target

It is observed that there is a gradually increasing trend in the density of health workers during 2016-2021 period. A situation analysis was carried out by the MoH in 2019 prior to the development a declaration along with the recommendation of the relevant head of the institution as per the letter to Director, PGIM, and all PDHS, RDHS and Heads of Institutions dated 09.05.2013 by the DGHS. Candidates who are accepted for specialized training are released to the PGIM with full pay. For MD programmes, after completing their local training, those who apply for foreign training must sign a bond pledging to return to Sri Lanka following their overseas training. The bond varies based on the fact whether the foreign appointment is a paid position or not.

In 2019, the MoH has projected cadres for the medical consultants for 2025, and this can be utilized for calculating and planning post graduate courses, with special emphasis on improving the a postgraduate training of doctors. However, there is no such proper cadre projections or a postgraduate requirement analysis available for nurses and other categories. Staffing norms were decided taking in to account the development status of the hospitals, future health development plans of the Ministry, geographical locations of the hospitals, epidemiological disease patterns and the population size to which the hospital caters. However, there are no proper service assessments done scientifically. Also, postgraduate training for these categories of healthcare workers is not properly systematized. Moreover, there are only five universities offering the Nursing Degree, and standard private education institutes are also limited.

In the current system, some issues were identified, including gaps in pre-service training of health professionals, skill mixing, workload management, availability of career paths for professionals, Continuing Professional Development (CPD) in the health sector, allocation of human resources particularly in rural and remote areas, balance between generalists and subspecialists, analyzing the needs of the private sector requirement, regulation of unregistered healthcare providers, coordination of health worker migration and in the assessment of future HRH requirement. Currently, job descriptions are not available for most of the staff categories. However, there are Schemes of Recruitment (SOR) available with admini strative DDGS. for trainees Furthermore, application of area-specific allowance rates, which is seen in the United Kingdom's National Health Service, is not observed in the Sri Lankan context.

The WHO Global Code of Practice on the International Recruitment of Health Personnel was stated at the sixty-third World Health Assembly - WHA63.16 May 2010. Due to the current economic situation in the country, skilled health workers are migrating based on the government policy. However, this out migration of health workers needs to be streamlined.

In May 2014, the sixty-seventh WHA adopted resolution WHA67.24 on Follow-up of the Recife Political Declaration on Human Resources for Health: renewed commitments towards UHC, and as a result, in 2016, the Global Strategy on Human Resources for Health: Workforce 2030 was published. Human resource management has used traditional strategic HR functions over the last decade that are limited to determining staffing norms without proper workforce projections, which was identified as a critical gap. It was highlighted worldwide, the importance of staff projections that can be the basis of recruitment and training plans in the health sector. The 2016 WHO Global strategy on human resources for health: Workforce 2030 highlights that the projections of future workforce requirements should be informed by reliable and updated evidence, based on population needs, labour market analyses and scanning of scenarios. Projections can support the development, implementation, monitoring, impact assessment and continuous updating of workforce plans and strategies. In 2019, the WISN (Workload Indicators of Staffing Need) study was carried out by the Planning Unit of MoH for PMCUs with support of the WHO. It is acknowledged throughout the aforementioned document that health workers are essential to the operation of health systems; therefore, increasing access to health services and recognizing the right to the enjoyment of the highest standard of health depend on their availability, accessibility, acceptability and quality. Despite significant progress, there is still a need to increase political will and mobilize resources for the workforce agenda, as part of larger efforts to strengthen and adequately finance

of the Human Resources Strategic plan for the period 2020-2030, which assessed factors such as, geographical, demographical, epidemiological, socio-cultural and economic, under eight action fields (HRH management, HRH information system, emergency preparedness, social dispute resolution, finance, education and policy), and it reported that the MoH employs 20,381 doctors full-time, including 2,512 medical specialists, and 33% of them work part-time in the private sector. However, 3050 medical professionals worked full-time in the private sector, either as general practitioners (GPs) or in the private hospitals. However, there's no proper strategy to fulfil the private sector's health workforce demands. It also revealed that about 320 doctors work for the defense sector, and 625 doctors work for the university system.

Once a doctor completes the mandatory internship of one year in a recognized government hospital, they have several career pathways, such as, joining the MoH as medical officers, or the university system as academicians, or the defense forces as military doctors, or the private sector as medical officers, or migrating to another country. On average, 1200 of the 1450 interns who complete their internship programme are engaged by the MoH, while 220 either move abroad or look for work in the private sector. The remaining 30 people pursue careers in the military or in higher education.

The PostGraduate Institute of Medicine (PGIM) offers postgraduate and specialist training for doctors working in the public sector, and on a per quota basis for the defense and private sectors. This training, which includes both local and foreign training, is supported by the MoH. Out of the total medical officers, 11% of them were medical specialists. There are around 80 MD specialist training courses being offered right now, along with 21 PG Diplomas, 11 Masters and a few other short courses. All applicants who intend to apply for any of the courses as an initiation of postgraduate studies at the PGIM, should produce a declaration along with the recommendation of the relevant head of the institution as per the letter to Director, PGIM, and all PDHS, RDHS and Heads of Institutions dated 09.05.2013 by the DGHS. Candidates who are accepted for specialized training are released to the PGIM with full pay. For MD programmes, after completing their local training, those who apply for foreign training must sign a bond pledging to return to Sri Lanka following their overseas training. The bond varies based on the fact whether the foreign appointment is a paid position or not.

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The WHO Global Code of Practice on the International Recruitment of Health Personnel was stated at the sixty-third World Health Assembly - WHA63.16 May 2010. Due to the current economic situation in the country, skilled health workers are migrating based on the government policy. However, this out migration of health workers needs to be streamlined.

In May 2014, the sixty-seventh WHA adopted resolution WHA67.24 on Follow-up of the Recife Political Declaration on Human Resources for Health: renewed commitments towards UHC, and as a result, in 2016, the Global Strategy on Human Resources for Health: Workforce 2030 was published. Human resource management has used traditional strategic HR functions over the last decade that are limited to determining staffing norms without proper workforce projections, which was identified as a critical gap. It was highlighted worldwide, the importance of staff projections that can be the basis of recruitment and training plans in the health sector. The 2016 WHO Global strategy on human resources for health: Workforce 2030 highlights that the projections of future workforce requirements should be informed by reliable and updated evidence, based on population needs, labour market analyses and scanning of scenarios. Projections can support the development, implementation, monitoring, impact assessment and continuous updating of workforce plans and strategies. In 2019, the WISN (Workload Indicators of Staffing Need) study was carried out by the Planning Unit of MoH for PMCUs with support of the WHO. It is acknowledged throughout the aforementioned document that health workers are essential to the operation of health systems; therefore, increasing access to health services and recognizing the right to the enjoyment of the highest standard of health depend on their availability, accessibility, acceptability, and quality. Despite significant progress, there is still a need to increase political will and mobilize resources for the workforce agenda as part of larger efforts to strengthen and adequately finance health systems. This is because the health workforce will be essential for achieving health and wider development objectives in the coming decades, with a particular focus on the SDGs for 2016–2030, under current threats of pandemics and socioeconomical crises.

It also observed that, locally as well as internationally, investment in the health workforce is less than the expected, which has an adverse effect on the workforce's and health systems' sustainability. Continuous shortages are brought on by chronic under-investment in health worker education and training, as well as a mismatch between education programmes and population requirements. There is a need to reevaluate the efficacy of previous policies and adopt a paradigm shift in how to plan, educate, deploy, manage and reward health workers, in order to address persistent difficulties with the health workforce among these macro trends.

Despite having a sizeable health workforce that is somewhat comparable to other Asian nations, according to the 2018 World Bank study on UHC, Sri Lanka lags well behind nations with modern health systems. In Sri Lanka, there is only a single physician and two nurses for every 1,000 people. In developed countries, these ratios are over three times greater. Health workforce statistics show severe shortages in some staff categories, including pharmacists, physiotherapists and medical laboratory technologists, as well as in some medical specialties, including dentistry, cardiology, oncology, geriatrics and others, despite the recent steady growth in key health staff. There is also a need to develop a family physician model for the primary care; this initiative is currently gaining momentum. Urban areas, particularly the Colombo and Kandy districts, receive a disproportionate share of the health workforce, whereas remote regions like Mullaitivu and Monaragala are understaffed.

The methodology used to disperse human resources for health around the nation is not streamlined so far. The equity in distribution of healthcare professionals in the country is limited to doctors, relying heavily on post intern merit lists and annual transfer protocols, rather than having a proper strategic plan for all health professionals. Even for nurses, after their first and second appointments, there is no transfer scheme operating. Certain provinces receive a disproportionate amount of government health spending, whereas the provinces, like Eastern and Sabaragamuwa, receive the lowest per capital allocation.

In terms of facilities, secondary and tertiary hospitals receive a sizable portion of funding. Less than 15% of the funding goes to primary care in the curative system, although this is where managing chronic diseases cost-effectively might lead to the greatest improvements in health. So, in contrast to widespread belief, Sri Lanka does not devote a significant portion of its budget on primary and preventive care, and no proper criteria is established to divide human resources for these fields. Moreover, currently, the MoH doesn't possess a human resource deployment policy for central or provincial levels. Therefore, the MoH should focus on optimizing and harmonizing each category of health workforce to accelerate progress towards UHC and the SDG, understand and prepare for future needs of health systems, harness the rising demand in health labour markets to maximize job creation and economic growth, build the institutional capacity to implement this agenda and strengthen data on HRH for monitoring and ensuring accountability of implementation of both national and global strategies.

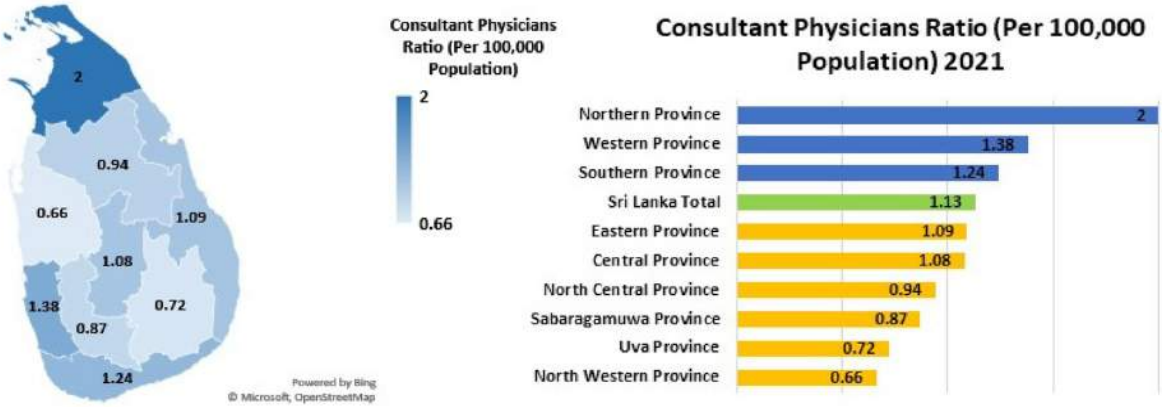
Skill mixing and Task shifting

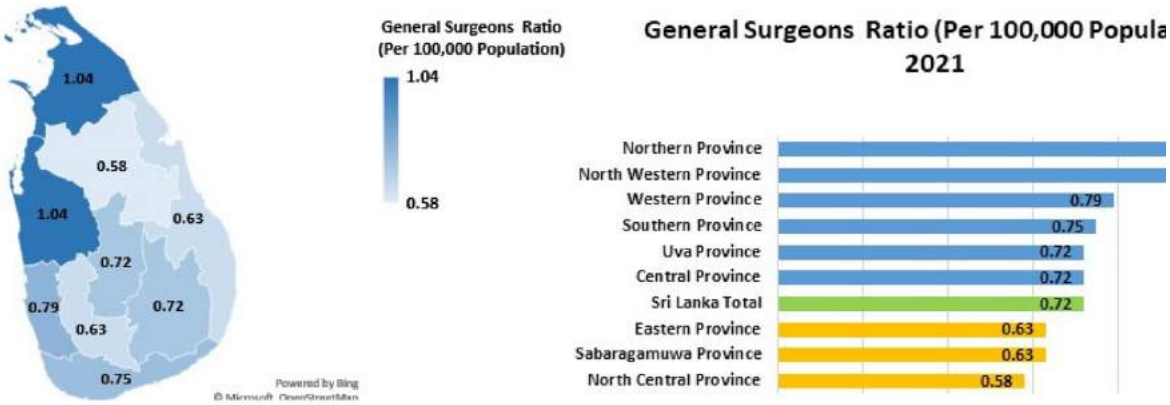
Skill mix is the combination or grouping of different categories of workers that are employed in any field of work. In the context of healthcare provision, it can be applied to broad (e.g., national) macro level planning or to the micro level in the context of local service delivery. Skill mixing is important to provide quality healthcare and to provide services especially in primary health sector reorganization. It has been identified by the MoH to develop a structure in an approved manner. It was also noted that, for some supportive health staff categories such as Public Health Field Officers, skill mixing is a good strategy to increase work efficiency. For example, regarding vector borne disease control, by bringing all officers in the field officer category attached to Malaria, Filaria and Dengue Control Programmes to one common vector control activity, these resources can be used effectively, solving staff shortage issues as well, in order to strengthen the overall vector control activities.

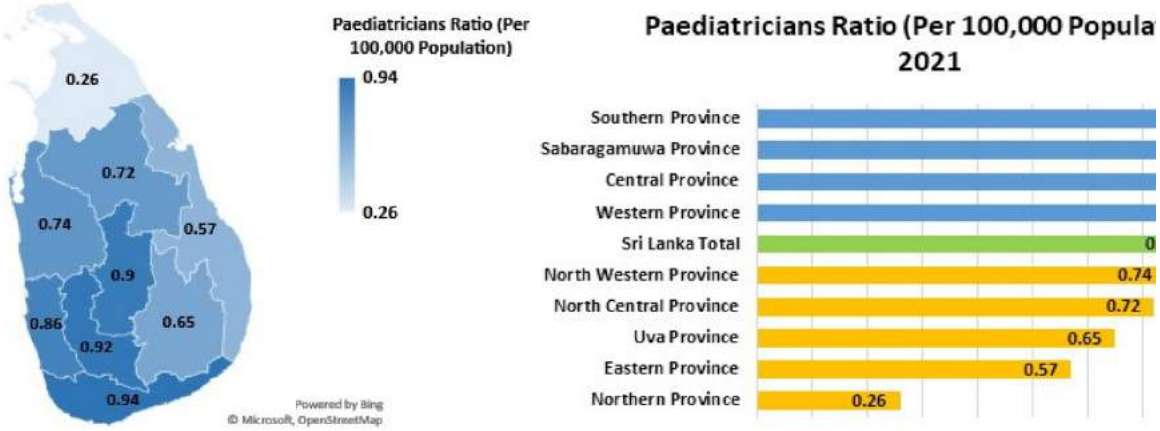
There is also room for task shifting to make better use of the current staff. The budget for operational expenditures is distributed to each hospital by the MoH and its provincial counterparts, mostly based on its past budget, which is more closely correlated with the number of beds and employees, than with demand, disease burden and productivity. Furthermore, task shifting among different categories of health staff was practiced, such as PHNS obtaining pap smears at MOH offices and trained workers doing HIV rapid test under the key population project, thereby sharing the workload of the health system.

The Post Graduate Institute of Medicine (PGIM), offers postgraduate and specialist training for doctors working in the public sector and per quota basis for the defense and private sectors. This training, which includes both local and foreign training, is supported by the MoH. Out of total medical officers, 11% of them were medical specialists. There are around 80 MD specialist training courses being offered right now along with 21 PG Diplomas, 11 Masters and a few other short courses. All applicants who intent to apply for any of the courses as an initiation of post graduate studies at the PGIM, should produce a declaration along with the recommendation of the relevant head of the institution, as per the letter to Director, PGIM and all PDHS, RDHS and Heads of Institutions dated 09.05.2013 by the DGHS. Candidates who are accepted for specialized training are released to the PGIM with full pay. For MD programmes, after completing their local training who those apply for foreign training must sign a bond pledging to return to Sri Lanka following their overseas training. The bond varies based the fact whether the foreign appointment is a paid position or not.

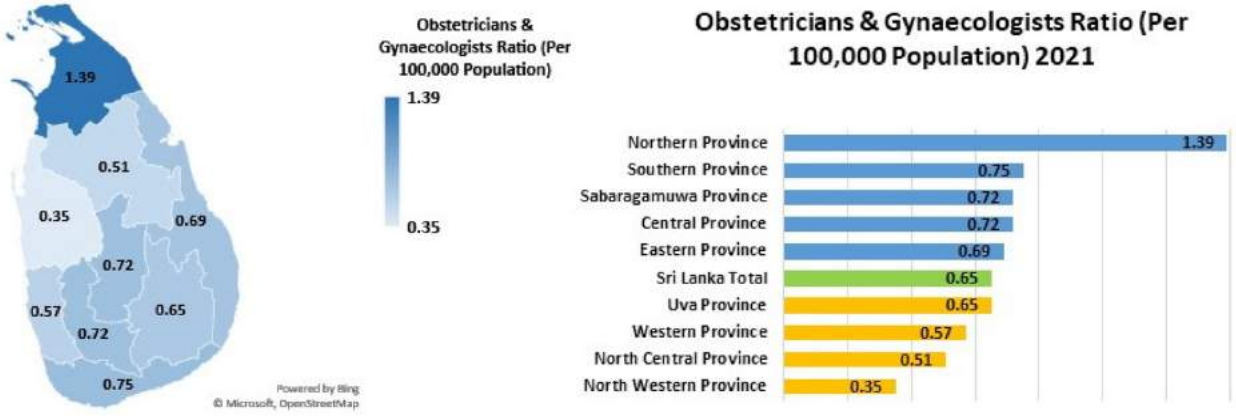
The following pictures show major specialists in public sector ratio per 100,000 population, 2021

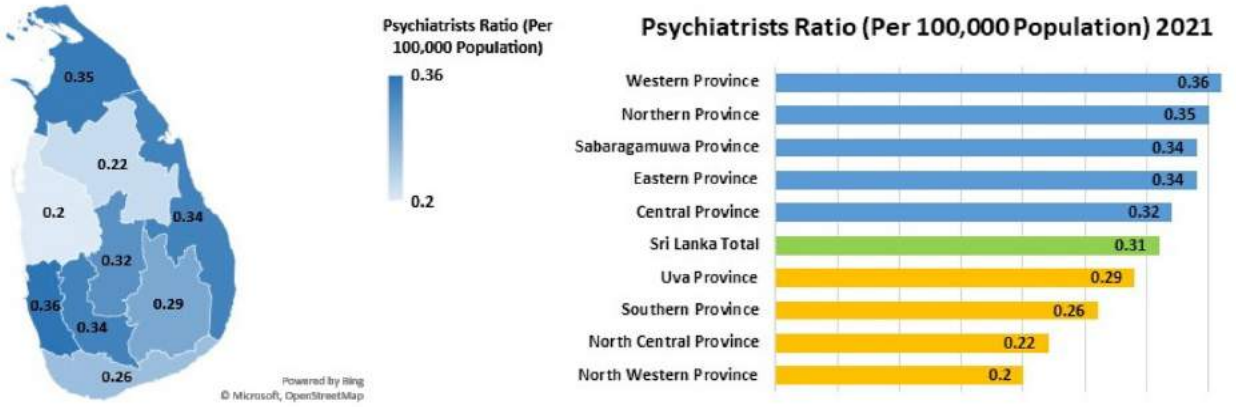


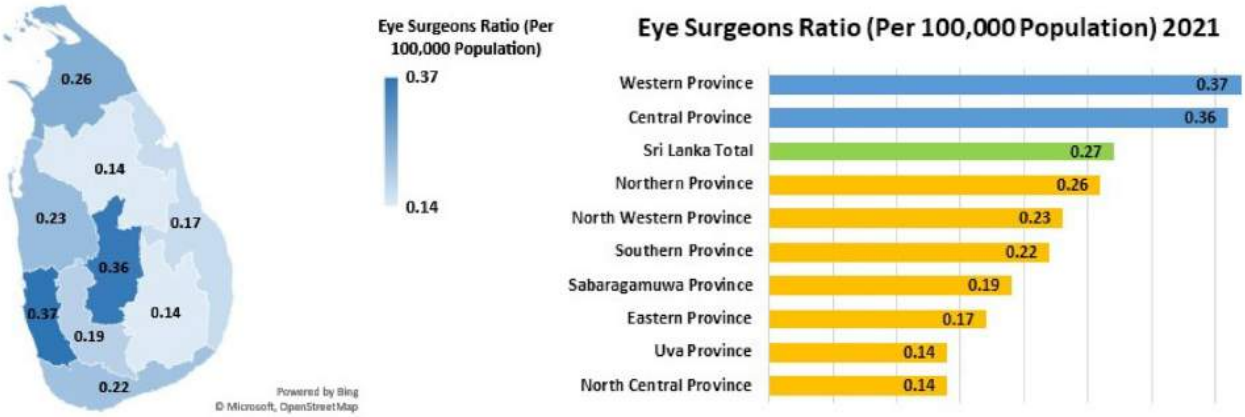


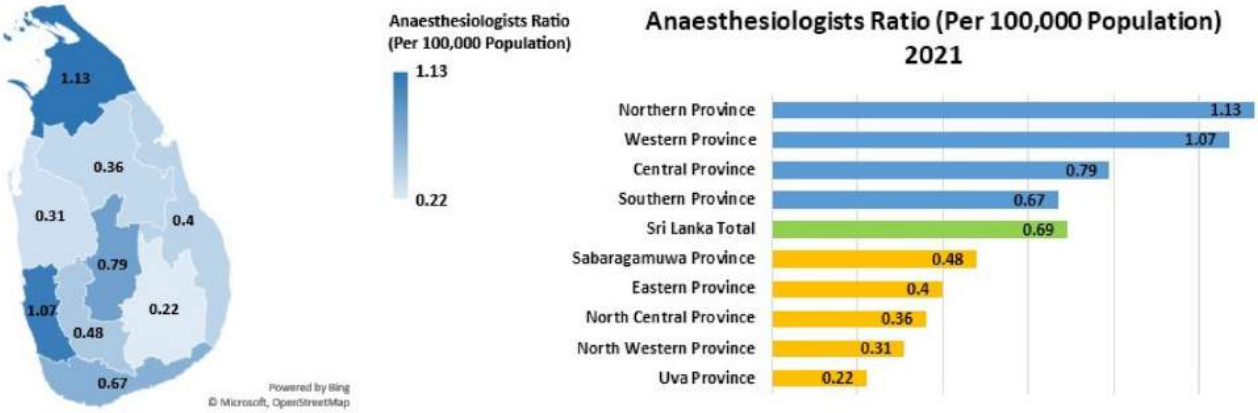


The following pictures show major specialists in public sector ratio per 100,000 population, 2021









Distribution of all specialists of public sector in each districts, 2021 is included in annex V

Recomendations

1. To overcome the HR challenges, it is recommended to carry out a comprehensive situational analysis of HR in the curative and preventive sector, based on the workload and available infrastructure facilities.

2. In order to improve human resource planning, management and development, it is necessary to strengthen the currently available Human Resource Management Coordinating Unit within the Health Ministry. This unit should facilitate HR planning, deployment, creation of cadre norms, coordination of post-graduate training for all employee categories, and the development of staff projections for all healthcare categories, with the help of the provincial level HR cells.

3. Cadre norms should be created after proper assessment of service needs for all categories of healthcare staff.

4. Ensure that job descriptions are available to all staff categories.

5. Develop a national human resource policy that takes evolving healthcare requirements into account.

6. Develop a transfer scheme for all staff categories including nurses, PSM and Paramedical categories, with a transparent and more efficient system to operate in the provincial and line ministry level.

7. Introduce skill mixing and task shifting strategies for identified staff categories for a more efficient service in all levels. In a hospital setting, allocate one MO to cover both Mithuru Piyasa and Yowun Piyasa activities. Similarly, a single MO can be allocated to cover the Cancer Early Detection Centre and the HLC, if they are to be introduced in hospitals in future.

8. Develop better digital systems with up-to-date HRH databases that offer a thorough process for recruitment, deployment and transfer for all health staff.

9. Boost health HR to support the best possible use of the nation's primary healthcare system, with increased availability of and better HR allocations to health facilities island-wide, including Primary Medical Care Units, and improve shared care cluster management involving family physicians.

10. The introduction of financial and non-financial incentives, such as better working conditions and accommodation options, as well as allowances for those employed in underprivileged areas, will aid in achieving a fair distribution.

11. Coordinative mechanisms to be established for partnerships with international HRH, and implement policy modifications to open doors for short-term emigration in order to minimize brain drain.

12. Create strategies to pinpoint the private sector's demands for various health services and plan to match the demand of local private sector employment for healthcare professionals.

13. Improve the processes for registering and regulating adequately qualified and competent healthcare professionals.

14. For all staff types, it is recommended to expand undergraduate education to cater national needs, and also improve & organize post-graduate training to enable easy career progression.

15. Ensure equitable personnel distribution by coordinating recruitment, training and deployment methods.

16. Service bond to all PG trainees including diploma holders following training, to ensure that trained staff are utilized for the benefit of the health system.

17. Due to the current economic crisis, encourage production of skilled health personnel considering both local and foreign job markets.

18. Encourage lateral entry in undergraduate training by introducing a private education portion within state universities without compromising free education opportunities.

Sub strategy 6.3-: To expand the Education & Training Division with a view to increasing the training capacity of nurses and other paramedics to match the demand in govt and private sectors and also the overseas employment opportunities available for Sri Lankans.

Background

The Education, Training and Research (ETR) Unit of the MoH is headed by the Deputy Director General Education, Training and Research (DDG/ETR). The primary responsibility of the unit is to formulate and implement policies and regulations related to health professionals' pre-service education and in service training, and development of professional capacity, in addition to research related activities which comes under its purview. There are four directorates functioning under the purview of the DDG/ETR, three of which, namely, Director (Training), Director (Nursing Education) and Director (National Institute of Health Sciences), are directly responsible for education and training, while Director (Research), is responsible for performing work related to health research.

Pre-service training programmes

The ETR unit coordinates, provides technical guidance, and monitors all the pre-service training programmes conducted by the MoH for all health professional categories. The health professionals who are being trained by the universities come under the purview of the Ministry of Higher Education. The categories in focus are the nurses, Professions Supplementary to Medicine (PSM) and Paramedical categories. Radiographers, Pharmacists, Medical Laboratory Technologists, Physiotherapists, Occupational Therapists, Speech Therapists and Audio Technologists are categorized under Professions Supplementary to Medicine, while Public Health Inspectors, Public Health Midwives, Ophthalmic Technicians, Electro-Cardiographers, Electro-Encephalographers, Health Entomology Officers, Prostetists and Orthotists, School Dental Therapists, Public Health Laboratory Technicians, Dental technicians and Dispensers are categorized under the Paramedical categories.

All the pre-service training programmes have designated institutions for professional training, other than the midwives. There are 16 Nurses Training Schools (NTS). The training programmes conducted by the MoH for PSM and Paramedical categories have one training school for each, other than the MLTs and Pharmacists, who have three and two training institutions, respectively. PHIs have one designated school for training at the NIHS while other locations for the training are as three at Provincial and one regional training centers. The preservice midwifery training takes place in two phases, the first 12 months at the NTS and the last 6 months either at the NIHS or at a Provincial Training center or at two of the identified MOH settings. Of the institutions identified for training, only the National Institute of Health Sciences (NIHS) comes under the direct administrative purview of the DDG/ETR, while all other institutions are administratively covered either under the relevant authorities of the central or provincial ministry of health services. Provision of resources for infrastructure facilities is done by the ETR unit as well as the relevant institution, with which the training institutions liaise with for administrative purposes.

The intake for training is carried out by the relevant administrative authorities in the MoH, in coordination with the Human Resource Development Unit and the ETR Unit of the MoH. The period of the pre-service

training for each category varies from 1 ½ years to three years. The health professional trainees recruited by the Ministry of Health receive a training allowance during the training period and are legally bounded for an identified period of service. All the pre-service training programmes are conducted in English, other than midwifery. The latter is conducted in local languages of either Sinhala or Tamil. All trainees who are successful in the training are offered a higher diploma or a diploma and are employed in the department. Also, discussions are taking place with the Ministry of Higher Education to upgrade some of the health professionals' training programmes, to degree awarding programmes, by affiliating to a university. The statutory body for licensing of all the health professionals other than the nurses to practice in Sri Lanka is the Sri Lanka Medical Council, while for the nurses, it is the Sri Lanka Nursing Council. Both have their own constitution for the registration of the candidates. The training capacity of the MoH is limited, and in some instances, not adequate to fulfill the needs of the service. There is no system established for training of health professionals to cater to private and overseas employment through the MoH or vocational training centers and private institutions. The absence of a training calendar for intake of trainees for pre-service training is identified as an obstacle for overcoming the existing cadre deficiencies. The number of trainees recruited for pre-service training programmes conducted by the MoH by category, is given in the table below.

Table 44: Annual intake of Health Staff Categories from 2015-2021

Service	Category	Annual Intake						
		2015	2016	2017	2018	2019	2020	2021
Nursing	Nurses	3606	868	1383	2300	2241	2614	3625
PSM	Medical Laboratory Technologists	301	0	134	0	0	113	187
	Pharmacists	254	75	226	0	249	120	0
	Physiotherapists	44	0	0	87	15	0	0
	Occupational Therapists	34	0	43	0	51	0	0
	Radiographers	74	13	50	0	35	0	26
	Public Health Midwives	210	654	552	0	847	269	0
	Public Health Inspectors	193	0	269	0	0	305	0
	School Dental Therapists	31	0	52	0	32	50	0
PARA	Health Entomology Officers	14	0	24	0	0	15	29
	Ophthalmic Technicians	38	0	14	0	18	0	0
	Prosthetists and Orthotists	5	0	9	0	0	8	14
	Electro-cardiographers	82	0	88	0	43	0	58
	Electro-Encephalographers	24	0	16	0	18	0	17
	Public Health Laboratory Technicians	21	103	0	61	0	0	60
	Dental Technicians	5	3	5	0	0	12	0
	Total	**4936**	**1716**	**2865**	**2448**	**3549**	**3506**	**4016**

**PSM: Professions Supplementary to Medicine, Para: Paramedical*

Source: ET&R Unit, MoH

In general, mass-level recruitment was done mostly for nursing, which is on average around 2500 annually.

- The second category is midwives, which depends on the availability of the physical space for the students, in the training institutions. That affects the service demand.

Other than the preservice training, the ETR unit is responsible for conducting in-service post basic training programmes. Establishment of the Continuous Professional Development Programmes for health professionals comes under the purview of the ETR unit.

Post-basic Training Programmes

Different kinds of diploma awarding programmes are conducted by the Post-Basic School of Nursing in Colombo, either integrated to career promotion, such as in-ward management, nursing education and Public Health Nursing, or for service promotion, such as Emergency nursing and ICU Nursing. Other than for nursing, no formal post-basic training programmes are conducted for any other paramedical categories for career promotions or otherwise.

Orientation and Induction Programmes

The ETR Unit conducts orientation programmes for non-professional workforce of the health services, such as Saukya Karya Sahayake (SKS), Management Assistants (MA) and Development Officers (DO), prior to their deployment to the relevant workplace.

In-service Training Programmes

Many in-service training programmes are conducted for identified categories in the health workforce in the health institutions at different levels of the health system, by using funds allocated from GoSL and donor agencies to the relevant national programmes which are responsible for the related service, and also the health institutions. Most of these are conducted in an ad hoc manner and not systematic, and also not monitored or evaluated at the individual level workforce-based performance.

On request, the ETR Unit either conducts training programmes at the national, provincial or district level, or even at the Teaching Hospital level on selected circumstances. Also, it provides funds to the head of the health institution to conduct the in-service training programmes after reviewing the training proposals for eligibility, based on the training need identified by the relevant institutions. The Unit has identified focal points from most of these institutions for coordinating and reporting on expenditure, but there is no mechanism established to assess or monitor the equity in coverage at the individual or in geographic distribution. Also, in collaboration with the National Institute of Language Education and Training (NILET), it coordinates the training programme conducted for the health workforce on second language.

Continuous Professional Development Programmes

There is no nationally acceptable standardized Continuous Professional Development (CPD) programme available for any of the health professionals in the health system, although a few attempts for the development of such for medical doctors were noted. Absent or irregular in-service or CPD programmes have a negative impact on the quality of the service delivered by the health workforce. Currently, the unit is in the process of developing a CPD policy and a system for the health professionals.

Recommendations

The strategic approach to be implemented to address the gaps and recommendations to ensure the quality of training is given under six criteria :

Streamlining of governance and funding for pre-service training

1. Some of the pre-service training programmes, do not have an identified regulatory system with an identified faculty composition and tasks to address the matters related to the training. Thus, establishment of a governance system for each of the training programmes, based on a national guideline, is identified as a necessity to enhance the quality of the training.

2. The absence of identified annual financial allocation for management of training institutions, or training programmes is noted, and there should be identified financial allocations for each of the training programmes/institutions based on the identified criteria.

3. All the training programmes, to be categorized based on the Sri Lanka Quality Framework.

4. A quality assurance system to be introduced to enhance the quality of the training.

5. The absence of an inbuilt process monitoring system and process indicators are to be identified, to monitor implementation of the training, and also to have an accountable and transparent system for each training programme.

6. There is a lack of collaboration between the training institution and the health institutions where the clinical training takes place, and steps are needed to be taken to enhance the collaboration. It is recommended to establish a coordinating mechanism between the training institution/school and the relevant health institutions.

7. The training provided by vocational training institutes and private hospitals for health-related fields such as caregivers, childcare, elderly care and nursing assistants and assessment, should be standardized by the Education, Training and Research Unit of the Ministry of Health, to cater to private and overseas employment opportunities.

8. The non-professional health workforce (SKS, MA, DO) who work in the health sector need to receive an organized training through a structured pre-service and/or in-service training programme.

9. A Nationally maintained and managed Learning Management System to be established for all the pre-service health professionals training programmes.

Curriculum

1. It is highlighted that certain training programmes which have more than one training school do have differences in implementation of the same curriculum. It is recommended to address this issue and streamline the training programmes.

2. A curriculum revision should be done to address the national health needs, with intersectoral collaboration, regularly and periodically, such as every 5 years. Medical professionals' involvement in training and developing curricula is encouraged to give a practical approach to patient-centered care.

3. All pre-service trainings should be conducted in English medium to match the needs of local as well as international standards.

4. A mandatory CPD Policy, in relevance to salary increments, is recommended for healthcare professionals.

5. In-service training programmes have to be streamlined and monitored at the institutional and individual level. It is recommended to explore the possibilities of having distance learning mechanisms to deliver the training sessions, especially of the hybrid type, where the online components are integrated with face-to-face sessions, specially for hands on practice for skill development.

Trainer

1. Trainer capacity enhancement has to be addressed more systematically.

2. A CPD programme is to be established for the tutors.

Trainee

1. There is no system established to address student supportive systems to look after the wellbeing of the students. It is recommended to form a grievance handling and student supportive system and counselling services to improve student health and wellbeing.

Infrastructure

1. A few of the training programmes do not have an identified training institution, and it is strongly recommended to address this issue and to ensure having designated training institutions with necessary facilities for each of the training programmes, to improve the quality of the training.

2. Gaps have to be identified in the availability of necessary equipment for training to conduct effective training. Training schools are not audited for the availability of infrastructure facilities. There should be a mechanism for monitoring for availability of basic and minimal requirements to be identified through frequent audits.

Monitoring & Evaluation:

3. Mid-term assessments and course-end examinations are to be standardized according to the curriculum blueprint.

Sub strategy 6.4-: To establish a National Health Performance Monitoring System that will track health systems' performance.

Background

Health Planning is the process of defining community health problems based on evidence, identifying needs and resources, establishing priority goals, and setting out the administrative action needed to reach those goals. National health policies, strategies and plans lay out the context, vision, objectives and priorities for health within the country's broader development context. Evidence for developing policies, strategies and action plans are gathered from the data available from routine data collection systems, special surveys and national level surveys for national and institutional level planning. Fund allocation for implementation of developed plans is mainly from the government budget and from external donor funds. Development partners provide technical and financial support for some of the planned activities, based on the priorities and gaps that have been identified by the MoH, and according to the areas of their mandate.

However, in emergency situations, the MoH makes policy decisions and develops strategies and action plans by appointing Task Forces and Expert Committees, to face the imminent challenges such as the recent global epidemic of COVID 19, to prevent diseases from entering the country across international borders, and in the past during the Tsunami disaster.

The goal of measuring the health performance of a country is to identify the elements that affect how well the health system performs in terms of its overall objectives of protecting against financial risk, improving health status, and meeting public expectations, in order to achieve identified strategies of the National Health Policy, and monitor the health system performance at the national level using the identified national indicators.

Indicators relevant to the preventive, curative and rehabilitation sectors are included in the National level Health Performance Monitoring Indicator Framework (2015). There are clinical indicators of all four major specialties (2017), Health Performance Monitoring Indicators (2018) and internationally identified indicators. However, it is understood that there is an under-representation in many of the curative sector indicators.

Monitoring the programme performance of the preventive sector takes place at different levels, by National level Directorates/Units, Provincial & District level health authorities as well as in hospitals and at the MOH level. From the National level to the grassroot, institutional monitoring is implemented by different assigned categories. Many Directorates and units have sub-national policies, strategic plans and five-year strategic plans with monitoring frameworks and results frameworks. The sub-national policies and strategic plans are developed based on the data available at the respective institution, programme reviews, evidence from special surveys such as the Demographic & Health Survey as well as national level documents (Central Bank Reports, etc.) and data from partnering institutions within the MoH and outside. Many preventive programmes have identified the M & E process and implement it. The results framework monitoring is implemented according to the process, output and outcome indicators of the annual action plans. This process is mainly implemented in the preventive sector. The curative and rehabilitation sectors lack a robust M&E system, although some specialties have identified indicators. There is no centrally led database to monitor curative, preventive and rehabilitation sector performance indicators.

Sustainable Development Goals

Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meets their own needs. The 193 member states of the United Nations reached consensus to adopt this universal, integrated and transformative agenda, to build a more sustainable world by 2030. This development agenda is titled, "Transforming our World: The 2030 Agenda for Sustainable Development" and contains 17 Sustainable Development Goals and 169 targets.

In 2017, the Government of Sri Lanka established the Sustainable Development Council as the responsible government institution for coordination, facilitation, monitoring, evaluation and reporting on the implementation of the 2030 agenda, under the Sri Lanka Sustainable Development Act, No. 19 of 2017. This was further complemented by the Secretary to the President issuing a circular (Circular No. PS/SP/SB/22/2019) on 3rd March 2019 on "Sustainably Developed Sri Lanka", to every central and provincial ministry, directing for mainstreaming the sustainable strategies to their work and formulating programmes and projects under the identified strategies. There are 400 agencies responsible for achieving SDG goals.

Goal 3 is the most relevant to health. There are 46 indicators related to health, and 38 indicators of them are coming under Goal 3. Of the 38, the Ministry of Health is responsible in fulfilling 31 indicators, and 16 are to measure UHC.

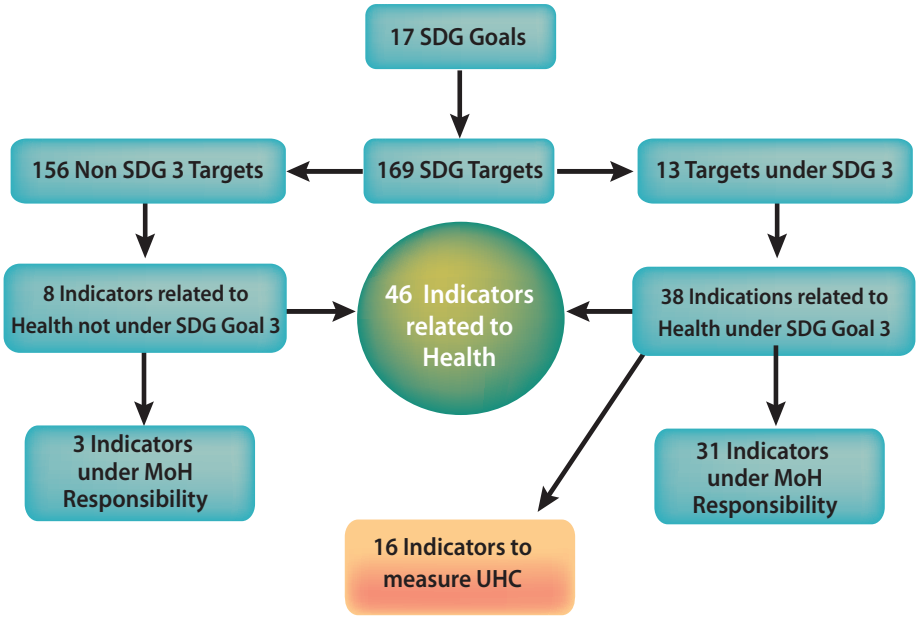


Figure 137 : Health Related SDG indicators in Sri Lanka

Sri Lanka's National Action Plan for Achieving SDG is executed by the relevant directorates and institutions in the National Strategic Framework. In accordance with their various areas of responsibility, it is suggested that they create their own programmes and activities to implement and track the actions indicated in the National Strategic Framework, in the short, medium, and long term. Similarly, provincial-level directors will also develop their own plans and strategies to meet the SDG goals, in line with the National Action Plan. This National Health Policy review included all health-related SDG indicators under relevant sub-strategies. The MoH collects data on the progress from the relevant Directorates and the units every six months. All ministries including the MoH report to the Sustainable Development Council (SDG) once in six months.

SDG achievements in 2022

Sri Lanka moved forward and was ranked in the 76th position out of 163 countries in the SDG country ranking in 2022, compared to its ranking at 87th in 2021. The SDG index score for Sri Lanka is 70, placing it as a front-runner in achieving the SDGs, and the Spillover Score was 93.7. However, when each SDG is individually assessed, Sri Lanka is "On track or maintaining SDG achievement" only in four SDGs, including no poverty (SDG 1), quality education (SDG 4), and climate action (SDG 13) and responsible consumption and production (SDG 12). The SDG 3 on good health and well-being showed a moderate improvement, together with Goals 2, 6, 7, 9, 11 and 14. Gender equity (Goal 5) is stagnating, together with Goals 8, 16, 17 and 15. No trend information is available to see the reduced inequalities (SGD 10). In all other SDGs, including SDG 10 on reducing inequalities, and SDG 5 on gender equality, Sri Lanka is facing either major, significant, or moderate challenges.

Universal Health Coverage

Universal health coverage (UHC) implies that all people receive the quality health services they need, without experiencing catastrophic health spending due to healthcare costs. It includes the full range of essential health services, from health promotion to prevention, treatment, rehabilitation and palliative care. Progress towards reaching SGD Target 3.8 on UHC is tracked using two separate metrics: specifically, SDG indicator 3.8.1 on the coverage of essential health services and SDG indicator 3.8.2 on catastrophic health spending.

SDG 3.8.1 coverage of essential health services is defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious

diseases, non-communicable diseases, service capacity and access, among the general and the most disadvantaged populations. The indicator is measured as an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage.

The UHC Service coverage index (SCI):
Summary of tracer indicators and computation

Reproductive, maternal newborn and child health

1. Family planing
2. Antenatal care 4+ visits
3. Child immunization
4. Care seeking for suspected pneumonia

Infectious disease control

1. TB effective treatment
2. HIV treatment
3. Insecticide-treated nests
4. At leat basic sanitation

Noncommunicable disease

1. Normal blood pressure
2. Mean fasting plasma glucose
3. Tobacco nonsmoking

Service capacity and access

1. Hospital bed density
2. Health worker density
3. IHR core capacity index

Figure 138 : Indicators for the UHC index

Table 45 UHC index of Sri Lanka from 2000 to 2018

Year	2000	2005	2010	2015	2017	2018
UHC index	45	48	55	60	64	67

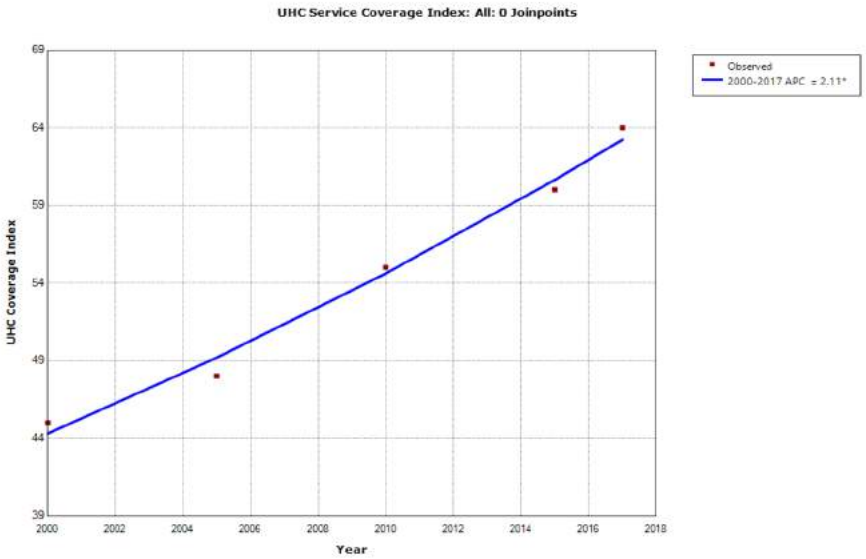


Figure 139: Trend analysis of the UHC index of Sri Lanka from 2000 to 2018

The above graph shows the trend line of the UHC index of Sri Lanka from 2000 to 2018, and it shows a significant increase of improvement of UHC Index, with a +2.11 annual percent increase from 2015 to 2017.

For the SDG indicator 3.8.2, the financial protection monitoring relies on household budget surveys, household income and expenditure surveys, household living standard surveys and socioeconomic surveys, that are typically conducted every two to five years. The Sri Lankan population with household

spending on health >25% of total household budget was 0.9% in 2015. The figure was 5.5% in 2012. According to the 2019 household income and expenditure survey, conducted by the Census and Statistics Department, revealed that the average monthly household expenditure on health and personal care was 7% and 6.5 % in 2016 and 2019, respectively.

Sri Lanka has streamlined the UHC process by developing the Policy on Health Care Delivery for UHC in 2018. It focuses on many strategies to achieve UHC. The following picture shows the strategies described under the UHC policy. The action framework for the implementation of the UHC policy was developed as a policy implementation tool for the five-year time duration (2018-2024). The MoH is responsible for closely monitoring the implementation status of the action framework of the policy, and it is assigned to different sections. Therefore, it is an urgent need to establish a mechanism for capturing the progress of implementation of this policy through a better-established mechanism.

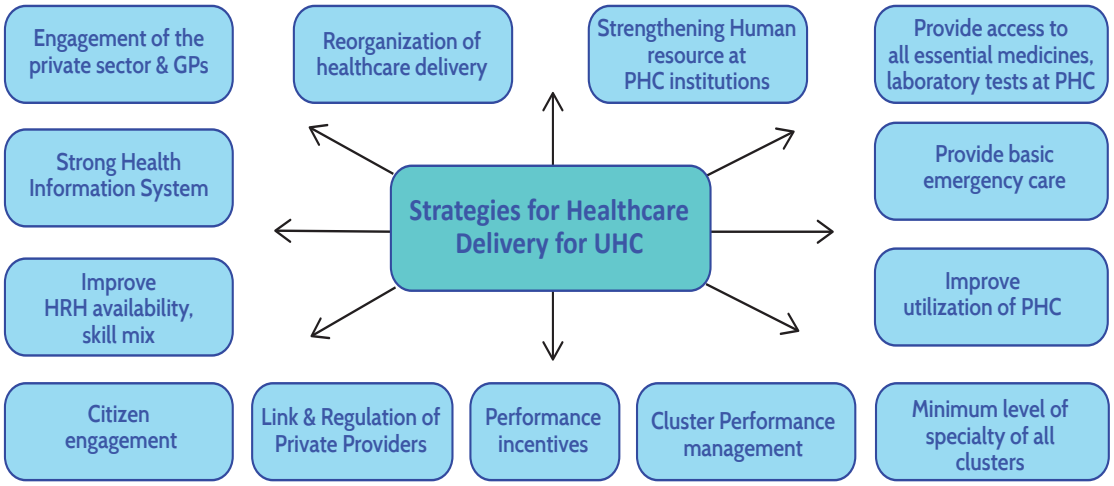


Figure 140 : Strategies for healthcare delivery for UHC

The progress of the subject specific relevant UHC areas has been described under each sub-trategy.

Health System Enhancement Project

The ADB-funded Health System Enhancement Project (HSEP) was launched in 2018, and it will support the establishment, implementation and monitoring and evaluation of cluster systems that were introduced in four provinces to cover 9 districts as a pilot project. The MoH introduced different tools for monitoring the primary healthcare delivery activities in the country. Some examples of those tools are, review and adaptation of the PHC supervision circular (General Circular No 02 166/2015 of November 30, 2015) and development of a mechanism for supervision in the cluster linked facilities for the identified services. The MoH monitors the cluster performance using the results monitoring framework adopted from the results framework in the policy. As per the circular, a comprehensive comparative evaluation should be carried out by 2023, to assess the performance of the cluster-based reforms introduced to strengthen the primary care for ensuring UHC in the selected area.

The progress of the large projects such as HSEP and PSSP has been monitored by the MoH, with the Provincial and District level and the Project Management Department of the Ministry of Finance. Finally, the work performance report of the MoH should be submitted to the Parliament of the Democratic Socialist Republic of Sri Lanka. That report includes the financial and physical progress of all activities of the MoH, including the progress of the implementation of UHC.

Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)

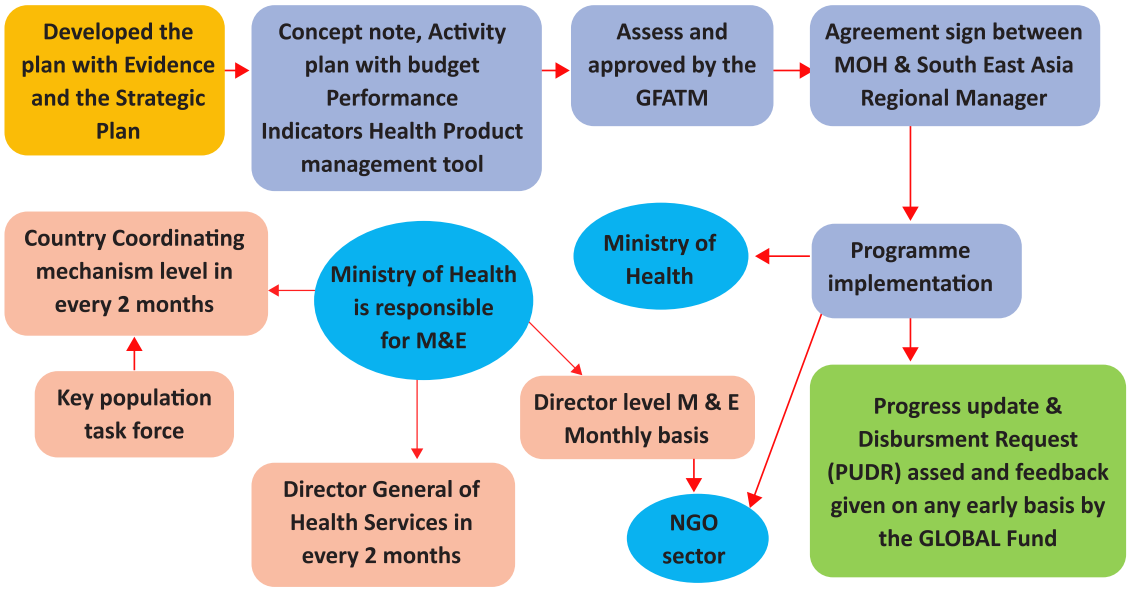


Figure 141 : Planning & Monitoring process of the GFATM

The Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) is an international financing and partnership organization that aims to "attract, leverage and invest additional resources to end the epidemics of HIV/AIDS, tuberculosis and malaria to support attainment of the SDG's. Sri Lanka received support from GFATM funds from 2003 onwards and it has helped to achieve the status of elimination of malaria in Sri Lanka. Currently, the GFATM supports the HIV/AIDS component to end AIDS in Sri Lanka by 2030 and to prevent and control transmission of tuberculosis, The project planning process involves evidence-based development of strategic plans and activity plans with monitoring indicators. The above figure shows the approval process and the monitoring process. Compared to the other funds the GFATM has comprehensive monitoring as well as country level coordinating mechanisms, which support the relevant stakeholders including key population groups and the NGO sector. In addition to that, monitoring involves the continuous oversight of ongoing activities through the Local Funding Agent (LFA) - PricewaterhouseCoopers company. On completion of each project cycle, an end-of-term evaluation is done for the systematic examination of the outcomes of a programme against its stated objectives, and the end-of-programme evaluation by international and local experts.

Development partners like WHO, UNICEF and UNFPA give partnership for Sri Lanka to ensure providing technical and financial support to implement strategies relevant to achieving UHC directly and indirectly in healthcare services, based on evidence as well as their mandate. UNICEF and UNFPA's annual action plans are submitted to the Department of National Planning to obtain approval following the MoH approval. All their planned activities are in line with the National Health Policy and the relevant disease specific sub-national policies. Monitoring is done at the central and provincial level once in six months.

Recommendations

1. The Health Performance Monitoring Framework should be updated with new indicators covering all the aspects.

2. A capacity building plan should be developed for preventive, curative and rehabilitation sector officials, and regular training should be conducted on data management including SDG reporting indicators.

3. Performance monitoring of curative and rehabilitation sectors need to be strengthened as there is a huge data gap identified.

4. A centrally led monitoring system should be established to update the Health Performance Monitoring Framework. This should be centrally coordinated by reforming the Directorate of Healthcare Quality & Safety to a Bureau under the DDG MS1.

Sub strategy 6.5 : To improve international relations in healthcare with an emphasis on International Health Governance

The Ministry of Health works in partnership with different international agencies and development partners such as GFATM, WHO, UNICEF, World Bank, ADB, JICA and UNFPA, to improve the healthcare in keeping with their mandate, aligning with the National Health Policy, National Health Master Plan and institutional strategic plans, adapting to the needs of the country. In addition, all activities of international relations in healthcare are carried out under an evidence-based global and local context to improve the health of the people. Sri Lanka is in line to the global health domain along three political spheres: Global Health Governance, Global Governance for Health and Governance for Global Health.

Figure 142: The global health domain

Governance constitutes the constellation of mechanisms a society uses to effect collective action towards common goals. Effective collective action requires coordinated policy and collaborative approach to implementation. Although the purview of sovereign states and intergovernmental organizations like the WHO were instrumental in influencing global health policy, it is now being influenced also by an ever-increasing number of non-state and non-intergovernmental actors with a range of mandates, interests, resources, means and degrees of accountability.

In this context, WHO, GFATM, World Bank, ADB and JICA and other development partners are operating health related activities, different projects and implement the programmes, with the stakeholders of the MoH. All these activities include, capacity building, health system strengthening which includes technical partnership, both infrastructure and human resource development and international knowledge exchange on technical matters. National project review meetings are conducted with the chairmanship of the Secretary Health, DGHS or DDG-Planning.

International Health (IH), Unit of the MoH is the focal point coordinating different activities with international organizations and foreign countries relating to International Health and Global Health. They coordinate and act as a facilitator via many varied activities, which are routine/periodic/cyclical and non-routine as the necessity arises, interacting with different stakeholders at various hierarchical levels, such as states, organizations and individuals.

Sri Lanka, as a member country of international organizations, participates on invitation in health-related fora, and is represented by the MoH. For instance, as a member state, Sri Lanka participates in regular meetings of the World Health Assembly of the WHO, United Nations General Assembly, South Asian Association for Regional Cooperation (SAARC) and the Commonwealth, which provides the platform for fellowship, experience sharing, developing associations and goodwill.

Health specific foram such as the World Health Assembly of the WHO are held annually, and the Executive Board of the WHO provides the opportunity to contribute to the Global Health agenda by stating the country perspective on different agenda items via interventions through the delegates who participate, and in turn share the experience gained by reporting back on return. For example, when Sri Lanka was a Member of the Executive Board of the WHO (2017-2019), Sri Lanka was able to move the resolution WHA72.6 "Global Action on Patient Safety" and mandated for the development of a global patient safety action plan. Similarly in 2019, the resolution on oral health: WHA74.5, was passed on Oral Health in 2021. This resulted in consensus to act on these important areas by the WHO member states, and future activities at a global level.

International conventions and treaties

Sri Lanka is a signatory to international health-related agreements. Some are directly related agreements, such as the Framework Convention on Tobacco Control (2003) and International Health Regulations (IHR). The goal of adopting legally binding treaties and associated protocols is also a new development in institutionalizing global governance in the health sector, and the aforementioned two documents, as well as the International Code for the Marketing of Breast Milk substitutes, are such examples.

Some international agreements are indirectly related to health, which could influence and promote health e.g. Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), Convention on the Rights of the Child (CRC), Convention on the Rights of Persons with Disabilities (CRPD), International Convention on the Elimination of All Forms of Racial Discrimination (ICERD). The human rights principles demand that services provided to patients must adhere to the standards outlined in international and regional human rights norms and agreements. These standards can be found in major treaties, such as the International Covenant on Civil and Political Rights (ICCPR), International Covenant on Economic, Social and Cultural Rights (ICESCR), Convention Against Torture (CAT) and the African Charter on Human and Peoples' Rights (ACHPR).

There are international health-related activities that progress over a time which need continued support and participation as a country, and therefore, the MoH via the IH Unit facilitates such activities. There are a wide range of activities, and the relevant health sector directorates are responsible for participating as experts in working groups and implementing identified interventions. A recent example is the working group on disaster preparedness and response, and the inter-governmental negotiating body was responsible in preparing a draft and negotiating a WHO convention agreement on pandemic prevention, preparedness and response. The benefits of these activities go beyond the health sector, for example, preventing future pandemics, and some necessitate intra-sectoral as well as inter-sectoral cooperation. During the pandemic the WHO COVAX platform facilitated obtaining COVID-19 vaccines, which was established to promote equitable distribution of vaccines.

As opposed to the above, there are occasional/diverse invitations for delegates to participate in different international fora, and the IH Unit coordinates processing of all fellowships (for training programmes, consultative meetings, international seminars, workshops and conferences) offered to the MoH. The selection process of nominees takes place through the fellowship committee after obtaining approval of the Hon. Minister, and the arrangement of payments for foreign travel and evaluating the activities planned after the fellowship are done according to a laid down procedure, thereby ensuring transparency and benefit sharing. The MoH via the IH Unit, coordinates the international facilitator role pertaining to preparation and submission of biennial proposals and monitoring of implementation of all activities under funds of WHO, UNICEF and UNFPA. They also provide feedback to relevant officials and agencies on the progress of foreign funded activities, ensuring it is within the donor agency mandate and adopted to the needs of the country by being in line with the National Health Policy, National Health Master Plan and Health Strategic Plan. International Health Unit conducts capacity building programmes in report writing, conducting review meetings for MoH staff and in recruiting short term consultants for various activities as per the terms of reference given by the respective directorates. The IH unit coordinates with the Ministry of Foreign Affairs, local High Commissions and Embassies and foreign missions abroad. The IHU lacks expertise in international global evidence analysis.

Recommendations:

1. Facilitation of international global evidence analysis, and dissemination should be carried out by the IH unit of the Ministry of Health with the respective focal points.
2. Need to be vigilant of global health trends, with a view of exploring funds as grants to overcome those health threats.
3. Promote Global Health Diplomacy.
4. Assess the healthcare trends globally and prepare a report and initiate discussion.
5. Maintain a repository/library of International Health related documents of National importance, such as international regulations/treaties that Sri Lanka has been a signatory, which are beneficial in defining national level policies and strategies in subject areas relevant to these documents, and WHO World Health Assembly and South - East Asia Regional Committee related documents.

Sub strategy 6.6-: To strengthen the translation of research findings into policy and practices, in order to enhance efficient health service delivery

Sub strategies 6.5 and 6.6 are amalgamated.

The main function of the Directorate of Research is to promote quality and ethical research which can be utilized for evidence-based practice. In Collaboration with National Health Research Council (NHRC), Research Unit is providing guidance and streamlining to ensure the quality of research in order to enhance the health of the people.

Provision of the research allowance for the eligible officers (as per the budget proposal 2011), commenced in year 2011. All research proposals submitted for research allowance are reviewed by experts in the field, and the investigators are provided with the opportunity of discussing with the reviewers, and a mentoring process is followed, to improve the quality of the research.

The Health Research Governance Strategy in Sri Lanka was published in 2019 by the Education, Training and Research Unit, in collaboration with the NHRC of the MoH. This strategy will ensure standards of research through administrative, legal and regulatory mechanisms. This will thereby increase the quality,

integrity and transparency of a research. The National Health Research Strategy is currently undergoing validation, and it is to be launched in 2023.The National Health Research Symposium is planned to be conducted once in two years to promote research. the National Health Research Repository was initiated in collaboration with the WHO ,with the intention of dissemination of evidence for evidence-based practice. However, there were concerns on basic methodological errors (sample size, validity of the tools/measurement) and generalizability of the findings, to make recommendations to use as evidence to practice or to change a practice. The main motive of submission of a research proposal should not be to get the research allowance.

Table 46: Number of research proposals submitted, and the number of research allowances approved each year from 2015-2021

	2015	2016	2017	2018	2019	2020	2021
Number of research proposals submitted for research allowance excluding Post Graduate research	315	233	255	206	122	84	71
Number of research proposals approved	280	194	227	168	76	56	39
Percentage	88.8%	83.3%	89%	81.6%	62.3%	66.7%	54.9%

Capacity building programmes on research methodology are being conducted for researchers to uplift their knowledge. Basic research methodology programmes are conducted for paramedical officers, and advanced research methodology programmes are conducted for Medical Officers annually. Capacity-building programmes for members of Ethical Review Committees (ERC), under the MoH are conducted regularly, in collaboration with the NHRC. “The National guideline for establishing ERCs in institutions under the Ministry of Health” is a publication of the Education, Training and Research Unit, and a revised edition is to be published in 2022.

Recommendations

1. Health research priority areas should be identified annually and updated to address the health needs of the country.

2. Most of the research have not been assessed on the quality or validity, which leads to absence of a culture of evidence-based practice. Operational research among the health professionals can be promoted by an allowance as an incentive for more cost effectiveness.

3. The National Health Research Repository should be developed and standardized to ensure that the repository includes all the health system research for the reference of policy makers, health-care workers and researchers, to be used in future practice and policy generation.

4. Online self-learning training programmes to be developed for capacity building of researchers.

Sub strategy 6.13-: To develop comprehensive ICT systems for clinical services, public health services as well as supportive services

Background

A health information system (HIS) is broadly defined as a system that integrates data collection, processing, reporting and the use of information necessary for improving health service effectiveness and efficiency, through better management at all levels of health services.

Sri Lanka is embarking on a new wave of development in the health sector through adaptation of e-Health or Digital Health Technologies. The Health Information Unit (HIU) is the focal point in the MoH for health information system coordination and digital transformation of the state health sector in Sri Lanka. In addition, the Medical Statistics Unit (MSU) is responsible for providing accurate, unbiased, reliable and timely data related to the health sector of the country. The review included a separate topic 'Collecting evidence through the Medical Statistics Unit' to discuss their function, challenges and recommendations at the end of this chapter separately.

National Policy on Health Information

The policy objectives are to ensure that 50% of all health institutions generate, disseminate and use timely and quality health information to support organizational management and development, to make available comprehensive systems for personalized and community-based health information management for shared and continuous care of care recipients at 50% of all Base Hospitals, District General Hospitals, Provincial General Hospitals and Teaching Hospitals, to ensure optimal data sharing and access to health information in relation to all sharable data in health information systems, while ensuring ethical considerations and confidentiality of care recipients, to encourage suitable innovations related to health information management and e-Health in all information processes, while ensuring interoperability of information systems, to ensure security and integrity of all health data/information and to ensure sustainability of all health information systems.

Service provision

The Health Information and Quality Improvement project of the MoH is currently developing the country's Digital Health Blueprint and Enterprise Architecture Plan. It was initiated in 2021 and is witch is completing in year 2024. This is in line with the Digital Health Building Blocks (DHBB), as defined in the WHO National e-Health Strategy Toolkit-2012. The DHBB represent Leadership and Governance, Strategy and Investment, Services and Applications, Standards and Interoperability, Infrastructure, Legislation, Policy and Compliance and Workforce. This national health information architecture will avoid compartmentalization of information, by strengthening coordination among existing health information systems, improved data sharing, improved use of health information for decision making and by enhanced automations.

There are multiple clinical, public health and educational digital health solutions implemented in curative and preventive healthcare institutes. Hospital Health Information Systems (HIS) are digital systems designed to manage healthcare data in a hospital. This includes digital systems that collect, store, manage and transmit a patient's electronic medical record, enabling better hospital operational management and supporting healthcare policy decisions. This enables hospital staff to refer to previous clinical records when the patient comes in for treatment and assist in reviewing data through the care continuation. Therefore, these systems will significantly reduce the need for maintaining paper-based records, and will enable an improved and efficient service to the patients. In this category, the Health Information Management System (HIMS) initiated by the National Cancer Hospital and the Hospital Health Information Management System (HHMIS) developed in partnership with ICTA, are the two main examples of health information systems that are installed in servers located at each hospital. By the end

of 2021, the HIMS has been implemented in 11 Hospitals and the HHIMS in 53 hospitals. The HHIMS system will be implemented in further 30 hospitals by 2022. A further initiative involves the development of a HIS based on OpenMRS to facilitate the Primary care cluster system.

Figure 143 : Implementation of Hospital Health Information Systems in the country

The eIMMR (electronic version of the Indoor Morbidity & Mortality Return) system is implemented in majority of state hospitals to monitor disease patterns of admitted patients. The eIMMR has been implemented in 583 government health Institutions with inpatient clinical care, with a percentage coverage of 94.34%, replacing the paper-based system and also reducing many delays.Furthermore, all MOH offices transfer data related to reproductive health, maternal health, neonatal health, child health and adolescent heath to the Family Health Bureau using the web based eRHIMS system. The eRHIMS is the digital health solution with the widest coverage in Sri Lanka, covering 100% of MOH offices, with report approval level logins to all RDHS and PDHS offices.

Moreover, in Sri Lanka, there are a few information systems that directly catered to COVID-19 related information. COVID-19 Immunization Tracker is for individual level monitoring of the uptake and coverage of COVID-19 related vaccination, by geography, population and risk groups. Also, it coordinates the issuing of the globally verifiable 'Smart Vaccine Certificate' for the vaccine receivers. The National COVID-19 Health Information System (NCHIS), is a system developed to streamline the data management related to laboratory diagnostics of COVID-19, with the objective of making high-quality real-time data available at all levels to take informed decisions. Picture Archiving Communication System (PACS), is a computerized means of replacing the roles of conventional radiological films, where the radiological images are acquired, stored, transmitted and displayed digitally. The PACS is currently implemented in 15 hospitals throughout the country, including the two National Hospitals and eight Teaching Hospitals, and is planned to be implemented to further 15 hospitals in due course. The PACS system will considerably reduce costs and also will be resilient in consumable shortage scenarios, supporting in continuation of healthcare during crisis situations.

Currently, there is a system of providing a unique health related identification number for Sri Lankans, called the Personal Health Number (PHN). Digital health systems in the country use the PHN system to connect the healthcare recipients to their appropriate health records. The PHN is issued to the patient at the point of care according to National digital health standards, and they are first issued when a citizen

registers in a health institute where a digital health information system is installed. PHNs are issued by three clinical information systems in Sri Lanka by 40% of government curative care health institutions, using HHIMS (51 hospitals), HIMS (12 hospitals) and Cloud HIMS for HLCs in Primary care (550 institutes). By December 2021, around 6 million PHNs were issued by HHIMS, 5 million by HIMS and another 0.5 million by Cloud HIMS. The plan is to implement digital Health Information Systems in 112 hospitals in the near future.Furthermore, many private sector healthcare institutes now issue the PHN, too. However, there's no central integration of data currently, so this information cannot be accessed by a different health institution when a patient visits another institution other than his registered institute. To fill this gap, a development process is underway to use the PHN number and share healthcare records between all types of healthcare institutes, using a Master Patient Index. This will enable access to previous records of the same patient in healthcare institutes, minimizing the need to repeat investigations.

Regarding ICT infrastructure, the MoH has a fully equipped health simulation and innovation laboratory, and a physical server is installed at the HIU since 2021, for hosting health information systems which are maintained by different state health sector institutes. Seventy Virtual Machines are created in the server to host clinical, public health and educational health information systems. In relevance to legislation, policies and guidelines to preserve patient privacy in electronic health information, the digital health technologies are updated very frequently to cater to the demanding health needs. The first document on digital health standards was launched in 2016, and it is called as the "National eHealth Guidelines and Standards (NeGS)". The second version (NeGS - v2) was published in 2020, and v2.1 in 2021. The 'Health Information Policy' developed by the MoH was gazetted and published in 2017. Development of the 'Information Security Guideline for Healthcare Institutions' is currently underway. The National Digital Health Steering Committee were initiated in 2016, headed by the Secretary of Health. There are four key technical work groups of the steering committee, named as digital health standards and guidelines, information security, software evaluation & software registry and digital health blueprint.

Also, a 'Healthcare software enlistment guideline' protocol has been developed by the MoH. A web-based software enlistment process will be developed through the digital health blueprint architecture, along with an application to digitalize the enlistment and registration of software applications for the health sector. Moreover, there are human resource information systems maintained at the HIU, as well as at the Directorate of Medical Services. Administrative decisions on annual transfers of medical officers and consultants are done by two HR information systems managed by the Directorate of Medical Services. The Human Resource Management Information System (HRMIS), hosted by the HIU is Implemented in 1526 health Institutes including clinics. Around 130,000 records of individuals of around 300 staff categories are entered to the HRMIS system by the HIU, covering 91.5% of the human resource of the Health Ministry.The Health Ministry has trained and employed specialists in Health Informatics, who are deployed strategically to provide technical guidance and coordination of national, sub-national and institutional digital health initiatives.

Currently, there are no software engineers or technical officers directly related to ICT attached to the HIU of the Health Ministry. Therefore, it is a limiting factor for many new improvements through development of software solutions. There is an essential need to form an in-house software development, customization and maintenance team at the HIU, to cater to the emerging core digital health system needs of the Ministry which can bring down many costs involved, including software procurements from third parties. Moreover, there is no fixed and continuous government capital or maintenance budget for digital health related activities which are coordinated island-wide by the HIU.

The HHIMS offers many advantages to the higher level decision makers in the healthcare administration in Sri Lanka. It can help detect and control emerging and endemic health problems, monitor progress towards health goals, and promote equity in healthcare by empowering the citizen with timely and relevant health-related information, and drive improvements in the quality of service. From the point

of view of the policy maker, it strengthens the evidence base for formulating effective health policies, permitting evaluation of scale-up efforts, and enabling innovation through research, and improves efficient use of resources by way of effective stock controls. From a clinical perspective, the HHMIS improves quality by giving timely access to important clinical information, mobilizing new resources, and ensuring accountability in the way they are used.

Recommendations

Strategic

1. Digital health should be governed by a Governance Framework, and such systems should be expanded to cover all healthcare institutions according to related policies, strategies, digital health blueprint and action plans. Data security, privacy and confidentiality aspects for paper and electronic data systems should be ensured.
2. Ensure interoperability of the HHMIS.
3. Strengthen data agility.
4. The HIS objectives of other health related policies and strategies should harmonize with the national ICT policies, and coordinate with the HIU when defining all other health related policies and strategies.
5. Digital Health system developers and implementers should adhere to relevant standards and guidelines to ensure interoperability of systems.
6. Key digital health architectural components of Health Information Exchange, client, provider and institution registries, terminology services, etc,. should be incorporated and managed at the national level.
7. It is necessary to create directly technical related posts on ICT, such as software engineers, programmers and technical support teams, for the Ministry of Health.
8. It is recommended to allocate a fixed budget for digital health activities from the Government, for maintenance and ICT related activities for smooth continuation of the services.

Programmatic

1. There should be a central integration of patients' records using PHN numbers, to view patient details when a patient visits a different health institution other than the registered one.
2. A National Electronic Health Record should be established to assist continued care of individuals from birth to death.
3. Availability of the PACS system should be expanded, as it will save the cost of consumables such as Xray films significantly.
4. HRMIS system should be rapidly expanded to cover all the human resource of the Health Ministry.
5. Capacity building of staff in data analysis, to strengthen analytic capacity to use specific data for programme and financial performance.
6. Periodic review of legislations, regulations, and guidelines relevant to data systems.

Collecting evidence through the Medical Statistics Unit:

Technical support for collecting, compiling and analyzing hospital statistics is provided by the Department of Census and Statistics. The MSU collects maternal data monthly, inpatient and outpatient data (including clinic data) quarterly and hospital bed capacity and health staff data annually. Annually, over 7 million hospital episodes are reported to the government hospitals in Sri Lanka. The Indoor Morbidity and Mortality Return (IMMR) is the main source of hospital mortality and morbidity data. The MSU collects this return quarterly from all government hospitals. The IMMR uses the 10th revision of the International Classification of Diseases (ICD 10th version). The web application called "eIMMR" has been introduced to collect inpatient data in 2010. Out of the hospitals catering for in-patients, 73% of hospitals captured data using the eIMMR in 2016, and it has improved to 85% of hospitals in 2020. The total number of hospitals reporting, was 591 in year 2020. Due to the lack of infrastructure facilities, 13% of the hospitals send data manually, and 2% of hospitals have not submitted IMMR data either manually or electronically. Until year 2020, the National Hospital of Sri Lanka captured the data manually, but from the 4th quarter of 2021, the NHSL has taken steps to join with the eIMMR. Since uninterrupted computer facilities with internet and trained staff is a must to capture electronic data, hospital administration has to monitor the progress of data capturing activities to continuously collect data using the eIMMR. Further, hospitals which send data to the HIMS and HHIMS systems, automatically transfer data to the eIMMR system. The latest eIMMR version facilitates data analyzing features at the hospital, regional and provincial level. The MSU introduced eIMMR data collection to the private sector in 2018, and 10 major private sector hospitals are responding to this system.

The MSU publishes the Annual Health Bulletin (AHB) after analysis of the hospital data and compiling of the overviews of the other programmes/units. On average, an extra 8 months are given to complete the data collection activities of a year, and provisional data could be issued after 10 months' time. After editing and at tabulating the finalized data, the MSU publishes the AHB in the Ministry website within one and half years' time. There are several issues with reporting the diagnosis in Bed head tickets (BHTs) and delays in sending data to the MSU. Lack of Medical Recording Officers (MRO) to collect, code and computerize the data at the hospital level is another problem encountered very often. In addition, there are not enough facilities at the hospital level to coordinate data collection activities due to lack of computers and other devices, and not enough space to store BHTs.

Recommendations

Strategic

1. All manual data collection activities should be replaced with electronic data collection methods to reduce time taken to capture data, and thereby improve data quality and timeliness.

2. Since data is used for decision making, timely data collection and data sharing should be implemented as a healthy practice.

Programmatic

1. As this is the only source of curative data, hospital administration should pay attention to monitor data collection activities by providing basic needs for data collection.

2. By introducing more electronic data collection methods, time taken to publish the AHB has to be reduced.

3. Appointing trained and specialized staff for handling hospital data and distributing responsibilities accordingly (clearly mentioned roles in duty lists).
4. Monitoring and supervising data collection activities at the hospital level.

STRATEGY 7

DEVELOP STRATEGIC PARTNERSHIP WITH
ALL PROVIDERS OF HEALTHCARE

Sub strategy 7.4-: To collaborate with International Donor Agencies, in improving the health status of citizens of Sri Lanka, according to this National Health Policy

All developmental partners (WHO, UNICEF, GFATM, UNFPA, World Bank, JICA) work with the different institutions of the Ministry of Health. They were especially interviewed as a part of this National Health Policy Review, since the technical and financial contribution made by them strengthens the health services in the country. Majority of these Developmental Partners also work with other non-health governmental organizations, professional colleges, and some of the non-governmental organizations, according to their mandate.

All these activities contribute to the improvement of wellbeing of the population of the country, supporting to attain the vision and mission of the Ministry of Health (MoH). All Developmental partners make their country plans in accordance with their respective global plans, in alignment with the National Health Policy 2016-2025, NHMP and the specific sub-sectoral policies and strategic plans. Many of the Developmental Partners have five-year country plans, with annual or biennial plans. These plans are developed following wider stakeholder meetings, and duplications are avoided. In addition, some agencies develop the country plan considering the evidence of mid-term and end-of-term evaluations.

All developmental partners stated that, with regard to the capacity of staff, the technical team of the MoH has a high degree of capability and is easy to deal with. The high level of technical expertise, cordial partnership and coordination have helped the DP to conduct the activities. The regular review meetings have been useful in monitoring and evaluating the interventions and identifying challenges and actions to overcome such challenges.

It was revealed that there was a mismatch between the programmatic implementation and the financial flow. Some partners also highlighted that the integrations between various sectors within the MoH were not at a satisfactory level, and that the implementation of different guidelines at the grassroot level was also not satisfactory, particularly in the curative sector. Some partners have observed that the nominations for international training are mainly from the central level, neglecting representations from the peripheral level. Also, some partners highlighted the need of better partnership during the planning stage, as well as the importance of meeting the deadlines.

Recommendations

Strategic

1. Develop an “integrated implementation guideline on health wellbeing improvement” from the district level to the grass-root level, by integrating all health matters with a monitoring plan.

2. Partnership with other non-health governmental organizations, NGOs and CBOs to improve the efficiency and accessibility.

3. More partnership is required from the highest level of the country, especially from the Department of Treasury, for programmes of developmental partners.

AREAS THAT HAVE NOT BEEN COVERED BY THE NHP

Prison healthcare system

The Department of Prisons is a department of the Government of Sri Lanka, responsible for incarceration and rehabilitation of convicted criminal offenders and terror suspects, coming under the purview of the Minister of Prison Reforms, Rehabilitation and Resettlement. There are 37 prison institutions distributed in the country. There are four closed prisons, namely, Welikada, Mahara, Agunukolapellessa and Dumbara. Open prison camps are situated in Pallekale and Anuradhapura. Correctional centers for youthful offenders are established in Pallansena and Thaldena. There is one training school for youthful offenders situated in Watareka. There are nine prison institutions designated for drug rehabilitation, situated in Ambepussa, Weerawila, Pallansena, Thaldena, Weerawila, Anuradhapura, Pallekelle, Kaluthara, Kandewaththa and Meethirigala. In year 2021, there were 90,362 un-convicted and 19,856 convicted prison inmates in the prison institutions in Sri Lanka. The Department of Prisons is headed by the Prison Commissioner General. For health services within the prisons, the Prison Commissioner is responsible in providing infrastructure and equipment necessary to provide healthcare for prison inmates. The Ministry of Health has appointed medical officers to be responsible in delivering healthcare to inmates of all the prisons.

International policies, National policies and strategic directions relevant to the prison health system

Prison healthcare is delivered under the governance of the prison ordinance (1877) and the youthful offender ordinance (1944) which is in the pipeline for revisions. Mandela rules (2015), Bangkok rules (2010) and Beijing rules (1985) are the other guiding principles of United Nations, which Sri Lanka is committed to execute, providing minimum standards for prison inmates including healthcare services. The Prison Department has developed the National Strategic Plan on Prison Reforms (2021-2025) and the Short-mid-long-term plan to overcome the overcrowding (2021), with identified strategies for better delivery of healthcare for prison inmates. The National STD/AIDS Control Programme (NSACP) of the Ministry of Health is a key stakeholder in providing sexual health services including prevention and control of STIs and HIV among prison inmates. The NSACP has developed the Prison HIV Prevention, Treatment and Care Policy (2017). Other than that, a contingency plan for COVID 19 was developed for the prison department by the Ministry of Health.

The Prison Department has not been able to identify the level of implementation of these policies and guidelines within the country, but they have considered those in developing their future plans. Proper monitoring and evaluation have not been carried out on the implementation of most of the important strategies, and it is necessary to identify the obstacles in implementing these standards, and acceleration is needed in implementation of many strategies.

Prison health surveillance system

Considering the health surveillance system in the Prison Department, only the HIV screening and TB screening have a complete strong surveillance system in the department collaboration with the Ministry of Health. The Statistics Unit of the Prison Department has developed a Prison Information Management System, which can store individual data of the prison inmates. Health data has not been uploaded to the system. A surveillance system will be important in identifying challenges and making recommendations and decision making to improve health.

Service delivery at the prison health system

Prison health service delivery is mainly structured into three components: Prison hospitals, Referrals for specialized care and Transport of inmates for specialized care. The Prisons Department provides the infrastructure facilities for healthcare delivery, where the Ministry of Health provides the human resource and medicinal products to the prison health system. Director Prison Health is appointed by the Ministry of Health and is stationed at the prison headquarters and overlooks the prison health system. Each

prison institution has a hospital, where Welikada has the largest hospital. For specialized care, inmates will be referred to the nearest government hospital, as the prison hospitals provide only primary care. Lack of ambulances, and other transport facilities and officials to escort inmates under strict security measures is a challenge in providing specialized care outside the prison hospital. There are 40 medical officers approved for the prison department and 42 medical officers are working, but they are unequally distributed and are serving 20 institutions. Dentists are available only in 3 institutions and MLTs are available only in 3 institutions. There is a huge gap in the availability of nursing officers, as well. One of the main reasons for the lack of staff in prison institutions is the maldistribution of the health workforce. Welikada prison hospital is the largest prison hospital in Sri Lanka. It conducts Psychiatric, Medical, Eye, TB and STD/HIV clinics regularly. It has the capacity to conduct several biochemical tests and has a new digital x-ray facility, as well. They have two dental clinics and TB gene xpert facilities for confirmation of TB. Some of the challenges are that they are providing inward care only for the males, as no female nursing officers are available. In addition, there is inadequate space and infrastructure facilities at the prison hospitals.

Considering the maternal and child health care, very few pregnant mothers get imprisoned, and they will be referred to the prison medical officer. Deliveries and specialized care for the pregnant mothers are provided in the government institutions. Nutritional aspects of the pregnant mother and children are not addressed within the prison healthcare delivery. Health education regarding pregnancy, risk factors during pregnancy and information regarding newborn care are not delivered to these women.

Non communicable disease services possess several gaps in the prison health system. Screening is highly inadequate in regard to diabetes, hypercholesterolaemia, cancers such as cervical, breast and oral. Health promotion and risk factor assessments should be introduced in to the system. The nutrition status of prison inmates has not been considered as a high priority, though it has a direct link to the NCDs. Mental health services within the prison are highly inadequate. Only the four main prison hospitals have regular psychiatric clinics, and most of the time referrals are done to the government hospitals,where continuity of care is questionable. Counselling has a major role in prisons, but the services provided are highly inadequate. Regarding communicable diseases, only HIV screening is taking place in an organized manner. There are PHIs to monitor the hygiene, sanitary facilities, water and food quality and to conduct health education sessions, but lack of supervision from higher levels was a gap. Overcrowding is the major challenge in controlling communicable diseases.

Even though there are national policies for Maternal and Child Health, Non-Communicable Diseases and Mental Health, these are inadequately implemented in the prisons settings.

Recommendations

1. A Strategic Plan should be developed on prevention of diseases and provision of healthcare in prisons.
2. Restructuring of the distribution of healthcare workers.
3. Establishment of HLCs for screening of non-communicable diseases (NCD) and identify a cadre for health promotional officers.
4. Upgrade identified prison hospitals to Divisional Hospital A type and allocate Family Physicians for clinics.
5. Establish a Monitoring and Evaluation system for the prison healthcare system and link to the MoH.

Forensic Pathology

Forensic pathology services link fields of medicine and law to assist the administration of fair justice for the Sri Lankan public. Medico-legal services function under the DDG Medical Services I, and the Director-Prison Services is currently appointed to cover up medicolegal service administration from the Ministry of Health.

Currently, there are 40 Consultant Judicial Medical Officers (JMOs) serving in Sri Lanka, along with 20 consultants in university forensic services and academics. All Type A Base Hospitals and above have consultant JMOs, and in other low levels institutes, some have a medical officer trained in Judicial Medicine covering normal cases. The Post Graduate Institute of Medicine trains medical officers as Forensic Pathologists, including Clinical Forensic Medicine, Forensic Toxicology, Forensic Paediatric and Perinatal Pathology, Forensic Histopathology and Forensic Anthropology. In Sri Lanka, there are three forensic psychiatrists, specialized in the sub-speciality of psychiatry. They are available in Colombo, Karapitiya, and Kandy. Colombo metropolitan area is covered by the Colombo Medico Legal Office, and the University of Colombo covers the five adjacent police areas. Many Hospitals are covered by Hospital JMO units, while Teaching Hospitals are partially covered by universities in their respective region.

The only Forensic Toxicology lab is in the Colombo JMO premises, and it shares its services island-wide. It is planned to develop five model Forensic Pathology Centers in Sri Lanka, including a center of excellence in Mulleriyawa and four other multi-disciplinary centers in Colombo, Karapitya, Kandy and Batticaloa. Currently, the main center of each provincial level shares the forensic laboratory facilities with all the hospitals in the provinces. Some laboratory services, X ray facilities and CT facilities are shared by nearby hospitals and an X-ray machine is available in the Colombo JMO office. CT facility isn't available in any center currently; therefore, the imaging is being performed at nearby hospitals for special cases. Although there are some infrastructure gaps in Sri Lanka, services are in par with the global standards in forensic pathology field including many services and expertise.

Almost all medicolegal services are provided in the public sector in Sri Lanka, while a few cases seek private sector management. In such cases, medicolegal admissions are referred to a consultant JMO after informing the Police. During COVID 19 outbreaks recently, Forensic Pathologists has contributed to provide the services without disturbances, and a huge number of autopsies were done as full autopsies. However, to reduce the COVID 19 risk, "limited autopsies" and "verbal autopsies" were also carried out. In addition, autopsies were carried out in already confirmed COVID 19 deaths to identify the proper cause of death.

Currently, the plan is to develop the five-year National Strategic Plan for the country, and the infrastructure and human resources development for this field. All hospitals have "Post-mortem Registries", and although all epidemiological data of autopsies are available in the Police Department, currently, there is no centrally reporting system from the hospital level to the Ministry of Health.

The official publication of the Journal of College of Forensic Pathologists of Sri Lanka is a peer reviewed journal dedicated to the promotion of Legal Medicine in Sri Lanka, to help in administration of justice and to improve the field by knowledge sharing. In addition, the College of Forensic Pathologists has developed several guidelines in various medicolegal aspects to improve the quality of services.

Recommendations

1. Establish a reporting system from the hospital level medico-legal offices to the central level in the forensic pathology field, for planning processes.

2. Establish a permanent Director of Forensic Pathology under the DDG MS I in the Ministry of Health.

3. Develop a five-year National strategic plan for this field with priority activities. The Monitoring and Evaluation plan should be developed parallel to the strategic plan, with indicators

Organ, Tissue and Cell Transplantation

Sri Lanka has experienced a shift in the patterns of morbidity over the last few decades, largely due to epidemiologic and demographic transitions of the population. This has resulted in an increased prevalence of non-communicable diseases and a growing number of patients with end-stage organ failure, leading to poor quality of life and premature deaths. Accordingly, advancements in the medical field and expansion of treatment facilities have focused on improving the quality of life of these individuals and prolonging their life span. Organ, tissue and cell transplantation is identified and practiced as a successful and life-saving therapy for patients with end-stage organ failures, including kidney, liver, heart, lung, pancreas and intestine throughout the world. Organ and patient survival rates continue to improve as a result of advances in donor-recipient selection, better surgical management, rational use of immuno-suppressants and better management of post-transplantation infections and other complications. Organs are obtained from suitable living or deceased donors.

In Sri Lanka, The Eye Donation Society was established in 1955 under the Corneal Grafting Act No38 of 1955, following which the Eye Bank was established in 1961. In recent years, organ transplantation has become available as a successful treatment option with an increasing success rate. The first organ (kidney) transplant in the country was carried out in 1985. As per the available evidence, it is predictable that there could be a high number of potential organ recipients, considering the preventable deaths from chronic kidney and liver diseases. As an example, the number of people who died due to chronic kidney disease of unknown aetiology (CKDu) that could have been saved by kidney transplant is approximately 800 people per year. However, in the year 2017, only 281 kidney transplants were carried out in government sector institutions. The trend of organ transplants conducted in the government institutions over the years from 2014 to 2020. is summarized in figure.

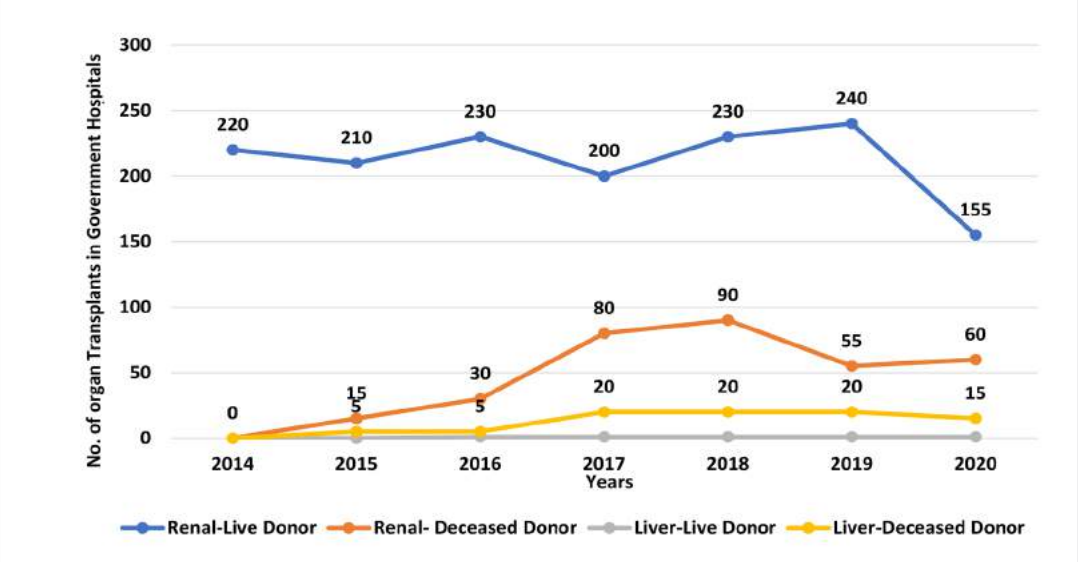


Figure 144 : The Number of organ transplantation from 2014 to 2020

There are nine government hospitals performing transplant surgeries, including two main national centres in Colombo and Kandy. Currently, a greater population of organ donors in Sri Lanka are live donors. It is possible to retrieve nine organs and seventy-five tissues from a single deceased donor. Considering this

scientific evidence, there is a vast potential to increase the transplantation from deceased donors to meet the need for organs. There is one main Parliamentary Act governing the organ transplantation process in the health sector. However, the current Act needs to be revised due to many reasons, including to cope with the new developments in the field. As an example, "Transplantation of Human Tissues Act No 48 of 1987" does not address specific practical issues such as retrieving organs from deceased donors with medico-legal issues, and needing judicial post-mortems. Most deceased donors have significant medico-legal issues, and non-resolution of the judicial post-mortem leads to a wastage of organs from this large group. Hence, there are ethical issues and practical difficulties in the process of retrieving the organs of a deceased person. Therefore, there is a shortage of organs for transplantation, while there is a significant wastage of potentially transplantable deceased donor organs. Further, the demand for organ transplantation in Sri Lanka is limited to transplantation of kidneys and liver at present.

To overcome these obstacles in the field, the Ministry of Health has introduced the National Policy on Organ, Tissues and Cell transplantation in 2021, and it was approved by the Cabinet of Ministers of the Democratic Socialist Republic of Sri Lanka on 1st February 2022. (Cabinet Memorandum No 21/2284/309/133).

Sports and Exercise Medicine

Sport and exercise medicine is a fast-developing field of study that is well known on a global scale. Sport and exercise medicine has become a highly sought-after specialization in Sri Lanka. The postgraduate training programme in Sport and Exercise Medicine (SEM) is a specialty that has been designed to promote wellness, and it helps in preventing and controlling non-communicable diseases that pose a threat to our community as a result of sedentary lifestyles and poor eating habits, and offers services to athletes to help them stay fit and strong throughout their careers and improve their performance in their sport.

The Post Graduate Institute of Medicine initiated the Diploma in Sports and Exercise Medicine in 2007 and the MD in Sports and Exercise Medicine was subsequently introduced in the year 2018. Currently, six MD completed specialists are undergoing foreign training to complete the course. The plan is to establish one sports medicine unit per District General Hospitals and above hospitals, with 40 vacancies island wide. The cadres have not been approved. The Terms of Reference (TOR) for the unit and the Job Descriptions of Consultants and Medical Officers have been developed and are awaiting MoH approval. The SEM Physician has a wide range of care for the patient management, as well as prevention of risk factors for sports injuries. The training program's flexibility allows the learner to study areas of particular interest even if it requires "core" knowledge and abilities, so that they can meet the wide range of requirements in the community. SEM Physicians have a variety of sub-specialties which are not developed in the country yet.

The functioning of Sports and Exercise Medicine units should be led by a consultant Sports and Exercise Medicine, MO with a Diploma, dedicated physiotherapist, exercise physiologist, sports masseur and a sports psychologist. However, all the MOs after completion of the Diploma were not placed in Sports Medicine Units, and currently, all categories of staff are unavailable, and 6 acting consultants are working-in 6 functioning units, at NHSL, Kandy NH, LRH, CSTH, TH Kurunegala and DGH Kalutara. These units have almost all the instruments that need to function, and only a few number of clinics have a Gymnasium, and a few clinics have their own physiotherapists. There is no exercise physiologist, sports masseur or a sports psychologist attached. Therefore, it is strongly recommended to train medical and other categories of staff and place them according to the need for the smooth and continous functioning of the sports medicine unit.

Currently, patients are being referred from the OPD/ other specialties, such as orthopedics, accident service and pediatrics, and even patients can directly walk into the clinics. There is no referral system in place or a circular issued relevant to that. Therefore, a guideline for the referral pathway and the back referral pathway needs to be developed. Pre-participation clearance certification is provided for school children and athletes before attending sports events. It consists of a cardiovascular and musculoskeletal strength assessment, diagnosis, investigations, treatments and returning to sports events, and coverup sports events in the territory of coverage, and exercise prescriptions were provided for patients with non-communicable diseases. has been identified that there is a need for well-equipped ambulance facilities in each hospital to cover event coverage, including national and local sports events. In addition, these units concurrently work with the nutrition unit and NCD unit of the Ministry of Health in managing obesity and developing National guidelines for almost all NCDs.

The Sport Medicine Association is the professional body, and they have developed several exercise guidelines together with the NCD unit. These guidelines are for exercise in pregnancy in, different age categories, hypertension, diabtes. The NCD unit has taken initiatives to improve national level capacity for formulation of regulations and standards to promote physical activities in Sri Lanka, together with the specialty of SEM Physicians. Although all patient-related data were collected and registers were maintained at the hospital level, there is no data flow to the national level for analysis and recommendation. This gap needs to be filled by identifying and incorporating a focal point in the Ministry of Health.

Recommendations

1. Relevant necessary guides for the referral and the back referral system should be developed, and more recognition should be given within the MoH.

2. The NCD unit should collect additional epidemiological data on patients receiving services at the Sports Medicine units, This data should be identified and included in the eIMMR database. Subsequently, the collected data should be analyzed, and appropriate actions should be taken based on the findings.

3. Identify the minimum facilities in the Sports Units, after a facility survey.

4. Cadre approval and Job descriptions should be finalized and completed.

RECOMMENDATIONS

Recommendations

Strengthen health systems through the WHO six building blocks

Leadership and governance

1. Update all the health policies to be timely including the National Health Policy.
2. Consider the option of strategic purchasing of healthcare services from private health providers to give a specified health service package to an empaneled population to receive care at no cost to the patient at the point of delivery. Clinical protocols and care guidelines, with a monitoring system, must accompany if this path is taken, even on a selective basis.
3. Strengthen and speedup the primary healthcare re-organization process and scale it up based on the results.
4. Reduce the proportion of Out-of-Pocket Expenditure and eliminate Catastrophic Health Expenditure by exploring ways of creating one large health finance pool that would ensure better cross subsidies.
5. Private health sector regulations should be strengthened.
6. A Health Technology Assessment should always be conducted when introducing pharmaceutical products, vaccine products, and non-pharmaceutical products, including procedures, Approval should be granted based on a comprehensive evaluation considering various factors such as disease burden, balance of benefits and harms, cost-effectiveness, financial risk protection, budget impact, sustainability, feasibility, social and economic impact, and ethical aspects, looking at evidence-based health outcomes. In the case of rare diseases, the 'rule of rescue' should be considered due to the possibility of advanced but expensive technologies and services in HTA that may be less likely to be cost-effective.
7. Paramedical training curriculums should be developed by the experts, and all paramedical training schools should be accredited by the Ministry of Higher Education.
8.. A mandatory CPD Policy, with introduction of selected basic courses to be completed for salary increments, is recommended.
9. Link to sustainable employment system for differently abled people with the help of international donor agencies.
10. An act or a policy should be developed for the medical compensations, and a consumer protection unit should be established for medical issues.
11. Lobby with the other ministries to adopt the "Health in All Policies" (HiAP) concept.
12. Appoint a National Advisory Committee consisting of subject experts, public representatives and CSO groups to each preventive programme, to monitor and evaluate the progress and report to the DGHS on indicators identified in the Results-Based Monitoring Framework (RBM).
13. An administration fee to be charged at secondary and tertiary care hospitals for patients bypassing their empaneled Primary Medical Care Institutes.

14. Policy transfer from global experiences for evidence-based post-pandemic normalization mechanisms, while maintaining a balance of health and economy of the country.

15. Respective DDG should present performance of the preventive, curative and rehabilitation sector biannually to the Director General Health Services using the performance indicators of the National Health Sector M&E Plan.

16. Strengthen Procurement Management System (PSM) at the central level and at institutional level and develop capacity of appropriate staff in PMS.

17. Develop standards for diagnostics, medicines and other consumables and ensure adequate storage facilities are available at central and provincial level and institutional level.

Financing

1. A comprehensive health financing strategy should be developed by reviewing sectoral policies and finance plans, identifying program priorities, and allocating funds based on a cost-effective analysis for the upcoming years. In the meantime, focus on revenue raising methods, taxing systems, pooling of funds, purchasing of services and governing mechanisms. After a proper study, the realistic percentage allocation for preventive, curative, rehabilitation and administrative sectors should be identified in order to achieve optimal outcomes, considering the balance of economy and service demand.

    a. Increase the charges of healthcare costs for non-citizens when obtaining state health services.
    b. Implement the already developed tobacco tax formula and revisit the alcohol tax and the sweetened-sugar-beverage tax.
    c. Introduce a social health insurance scheme following a feasibility study.
    d. Integrate a health coverage to reimburse the state healthcare cost in vehicle insurance policies.
    e. Establish paying wards in government hospitals.
    f. After a proper utilization assessment of High-end biomedical equipment such as CT/MRI, consider leasing the resources to the private sector for a fee during the underutilized period (e.g., During Night time).
    g. Identify income generating micro interventions and standard rates for each level of care (e.g., provide CSSD services for the private sector hospitals)
    h. Establish a Plasma Fractionation Plant at the NBTS under its governance, to expand the export market of blood and blood products.
    i. Promote medical teaching tourism by providing clinical training for international medical students for a fee (e.g., neglected tropical diseases), and student exchange programmes.
    j. Train nursing officers for the private sector for a fee at the state-owned nurses training schools.
    k. Produce skilled healthcare workers targeting the international market. Recruit more international students to Sri Lankan universities.
    l. Market time-tested evidence-based public health practices by conducting international public health training programmes.
    m. Introduces attractive and competitive medical screening packages for a fee to the private sector, to provide door-to-door medical services by utilizing state health resources.

2. Establish an economic cell in the Ministry of Health for Heath Financing, to enhance efficiency, equity and accountability. Resource Mobilization in each healthcare component, in order to achieve Sustainable Universal Health Care, should be done based on sustainability, adequacy, fairness and efficiency.

3. Advocate for pre-prioritization of health in the government budget, to ensure sustainable financing.

Service delivery

1. Restructure the preventive sector programmes after a mid-term or end-term evaluation by a group of experts (international, national and civil society), with the aim of achieving Sustainable Development Goals by 2030.

2. Identify low-cost high impact strategies to obtain a cost-effective, comparable health outcome in an equitable manner, via innovative interventions and cross programmatic delivery through health and non-health related service platforms for integration.

3. All heads of institutions should adhere to the recommendations of the National Health Technological Assessments.

4. National guidelines and SOPs that have been developed for respective specialties should be followed, to maintain quality standards, and steps should be taken to develop where they are currently unavailable.

5. A Tier-based referral system should be established in the public healthcare system and ensure tha the adherance provided guidelines are followed.

6. A system should be established to provide services to the informal sector workers to promote UHC.

Medical products, vaccines and technologies

1. The National Health Technology Assessment should be conducted for new treatments, diagnostic procedures, and the introduction of medicinal products. The requirements for assessment should be determined based on factors such as disease severity and burden, clinical practice guidelines, efficacy improvement, safety, budget impact and cost-effectiveness, as well as supporting evidence.The assessment findings should be categorized accordingly.

2. Revise the national drug formulary and shortlist the most cost-effective drugs ensuring efficacy. Develop service level stratified guidelines for rational and cost-effective use of medicines and investigations for clinical management, along with a proper monitoring system.

3. Restructure the Medical Supplies Division with emphasis on continuous monitoring and evaluation, through a comprehensive data management system with inter-operational facilities.

4. Under the economic evaluation subcommittee, a working group should be established at the NMRA before registration of new drugs. Criteria for selecting new drug registration should be considered for disease severity, disease burden, clinical practice guidelines, efficacy improvement, safety, budget impact and cost-effectiveness as well as supporting evidence.

Health workforce

1. Detailed human resource analysis should be carried, out and a National Human Resource Policy should be developed. A stratified (Primary, Secondary, Tertiary) plan should be developed, identifying human resources for different sections in institutions (e.g. OPD, Medical ward, Radiology, Preventive sector), and this plan should be used to identify the cadres.

2. A performance-based merit and payment system should be introduced. Special promotional packages should be established to avert the migration of healthcare officials.

3. Develop training Plans for each category of staff and create appropriate training modules.

4. An attractive package should be established to get the maximum services from the medical professionals who are working in rural areas and to improve the rural retention, This package should cover different aspects: district quota for medical education, financial incentives, quarters facilities, children's education, etc.

Health Information Systems

1. Ensure that the preventive sector programme related data collection systems are in place e.g. STD/AIDS, NCCP, NTCCD, etc., and that they are capable of data analysis for use.

2. Establish a central level mechanism to obtain hospital data in respect of specialties e.g. cardiac, renal, ENT, eye, orthopedic, etc.

3. Develop a central focal point in the Ministry of Health for data handling and monitoring & evaluation of health services (Preventive and Curative- See above).

4. Develop a data culture in health institutes to become 'data driven organizations'. Provide incentives for such institutes to promote this.
5. The Health Information Directorate should focus on data governance, security, privacy and confidentiality of paper and digital databases.

6. The Health Information System once completely digitalized, should have the interoperability facility.

7. The Health Information Directorate should promote data quality and data assurance monitoring.

8. An expert ICT group (non-medical specialists) from a government organization such as the University of Moratuwa, should be appointed to review the technical functions of the management information systems of the Health Information Directorate, preventive programmes and hospitals.

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Annexes

Annex I

Evaluation Questions for Policy Content Analysis

- Does the policy clearly state the goals or objectives?
- Are the evidence-based components of the policy clearly articulated?
- Are the components of the policy consistent with the sectoral policies and international targets?
- Are the requirements for implementation clearly stated in the policy?
- Are the requirements feasible given available resources?
- Does the policy articulate the mechanism for monitoring implementation?
- Does the policy identify indicators for assessing program success?
- Which major stakeholders played a role in the policy's development?
- What type of resistance or opposition exists?
- Were any key changes originally proposed to the policy's content?
- How is the content of the policy similar to or different from that of other policies?
- Does it identify the sustainable finance strategies

Annex II

Questionnaire on Implementation of the National Health policy 2016-2025 for Stakeholders

Ministry of Health has decided to review the Implementation of the National Health Policy 2016-2025 and National Health Master Plan 2016- 2025. As a part of this activity, data is collected regarding the implementation of the National Health Policy 2016 -2025 from relevant Directorates, Institutions, Organizations and Focal Points of the Ministry of Health.

The objective of the questionnaire is to identify the implementation strengths and gaps in order to strengthen the existing National Health Policy 2016 and the National Health Master Plan 2016- 2025. This would also be useful to make recommendations for the next National Health Policy and the National Health Master Plan starting from 2026.

Directorate of Policy Analysis & Development will be coordinating this activity. If you have any queries please contact via Tel: 0112678250 or Email: policyunitmoh@gmail.com for further information. for further information.

Please fill the below questionnaire and send it to the Director, Policy Analysis and Development, Management Development & Planning Unit, Ministry of Health, "SUWASIRIPAYA," No 385, Rev. Baddegama Wimalawansa Thero Mawatha Colombo 10

or submit the online form (link given below) on or before 20th march 2022

Please mark (✓) where necessary

Data confidentiality will be preserved and anonymity will be maintained in the analysis.

This questioner is available to submit online via the google form using the link given below.

1. Name of your organization

……

2. Does your Directorate/ Institution / Organization have a separate sectoral policy?

Yes	
No	

2.1 If yes, please write the name, year and the duration of the policy.

……..

3. Does your Directorate/ Institution / Organization have a separate strategic plan?

Yes	
No	

3.1 If yes, please write the name, year and the duration of the strategic plan.

……

4. Did your Directorate/ Institution / Organization have a separate action plan?

For the Year	2016	2017	2018	2019	2020	2021
Yes						
No						

5. Is your Directorate/ Institution / Organization team aware about the following documents?

	Yes	No
National Health Policy 2016-2025		
National Health Strategic Framework 2016-2025		
National Health Master Plan 2016-2025		

If yes to any of the above in Q. 5, please go to Q. 6. If 'No' to all, please go to Q. 8.

6. Did you consider and align the following national documents in developing your institutional annual action plans/ programmes?

	Institutional Policy		Institutional Strategic Plan		Institutional Annual action Plans from 2016-2022	
	Yes	No	Yes	No	Yes	No
National Health Policy 2016-2025						
National Health Strategic Framework 2016-2025						
National Health Master Plan 2016-2025						

7. Did you or your team members receive any training/ guidance / awareness on the following documents?

	Yes	No
National Health Policy 2016-2025		
National Health Strategic Framework 2016-2025		
National Health Master Plan 2016-2025		

8. Did you receive adequate funding for the implementation of your action plans from 2016?

For the Year	2016	2017	2018	2019	2020	2021
Yes						
No						

9. List the type of funding you received after 2016 (GOSL, World Bank, WHO etc.)

9.1 ……

9.2 ……

9.3 ……

9.4 ……

9.5 ……

10. Please list the strengths of the overall implementation of your institutional annual action plans/ programmes after 2016.

10.1 ……

10.2 ……

10.3 ……

10.4 ……

10.5 ……

11. Please list the weaknesses of the overall implementation of your institutional annual action plans/ programmes after 2016.

11.1 ……

11.2 ……

11.3 ……

11.4 ……

11.5 ……

12.Please list the gaps identified for the overall implementation of your institutional annual action plans/ programmes after 2016.

12.1 ……

12.2 ……

12.3 ……

12.4 ……

12.5 ……

13. Please list the recommendations for future implementation of your institutional annual action plans/ programmes.

13.1 ……

13.2 ……

13.3 ……

13.4 ……

13.5 ……

14. Please list the recommendations to be included in the future National Health Policy and the National Health Master Plan starting from 2026.

14.1 ……

14.2 ……

14.3 ……

14.4 ……

14.5 ……

15. What do you expect from the Directorate of Policy Analysis & Development in the future regarding the implementation of your policies and annual action plans in line with the National Health Policy?

15.1 ……

15.2 ……

15.3 ……

15.4 ……

15.5 ……

Annex III

Midterm Review of Health Master Plan Based on the National Health Policy
2016-2025
Special Survey carried outZ with statistics unit from

5 th May 2022 – 23rd June 2022
PA&D 04/2022

Special Units in the Hospital	Number of units in 2015			Number of units in 2021		
	PGH & above plus special hospitals	DGHs	BHs	PGH & above plus special hospitals	DGHs	BHs
Hospitals (in each category)	28	20	71	32	21	83
Total Hospitals (BH & above)	119			136		
Cardiology units	23	6	2	32	19	8
Cardiology Catheter Labs	10	0	1	12	2	3
Palliative Care Units	3	3	1	7	6	6
Intensive Care Units (ICUs)	69	25	17	90	27	29
High Dependency Units (HDUs)	41	13	17	71	23	51
Oral & Maxillofacial Surgery (OMF) Units	17	13	3	17	15	7
Neuro Surgery Units	12	0	0	17	0	0
Neurology Units	19	4	0	20	8	0
Separate Stroke Units	5	0	0	5	1	3
Urological (Genito-urinary) surgery Units	13	1	0	15	10	0
Otorhinolaryngology (ENT) Units	20	17	4	23	17	7
Plastic Surgery Units	12	0	0	13	0	0
Nephrology Units	19	3	0	27	4	1
Dialysis Units	19	6	4	25	12	43
Geriatric Care Units	3	0	2	4	1	4
Inward Psychiatric Units	41	15	15	45	18	26
Accident & Emergency Care (A&E) Units	9	5	19	21	9	34

Annex IV

Interviewer Guide - Implementation of the National Health policy 2016-2025

Developmental Partners

1. Have you seen/ come across the following documents of the Ministry of Health?

1.1- Documents

1.1.1 National Health Policy 2016-2025

1.1.2 National Health Strategic Framework 2016-2025

1.1.3 National Health Master Plan 2016-2025

1.2 Did your organization align your organizational plan to the Ministry of Health based on the above national documents?

2. When you allocated funds to different Health Ministry institutions, were you able to consider the following:

2.1 National Health Policy & National Health Master plan 2016-2025

2.2 Impact indicators of the National Health Master plan/ National performance indicators

2.3 Respective strategic plans of that particular institution

3. Were you able to support the health institutions by providing adequate funding according to their priority/request for the years 2016, 2017, 2018, 2020, 2021.

4. Please list the identified strengths/weaknesses of the Ministry of Health, during the implementation of the overall programme in the period from 2016 to 2021.

5. Please list the recommendations to be included in the future National Health Policy and the National Health Master Plan starting from 2026.

6. What is your opinion regarding the overall work progress of the Ministry of Health during the period of 2016-2021?

7. Please list the recommendations to the Ministry of Health in order to improve the future work progress of the Ministry of Health in line with National Health Policy?

8. What do you expect from the Directorate of Policy Analysis & Development regarding the implementation of your policies and annual/biennial action plans in line with the National Health Policy in the future?

Annex V

Distribution of specialists in public sector, 2021

Province	Western Province	Central Province	Southern Province	Northern Province	Eastern Province	North Western Province	North Central Province	Uva Province	Sabaragamuwa Province	Sri Lanka Total
General Physicians Ratio	**1.38**	**1.08**	**1.24**	**2.00**	**1.09**	**0.66**	**0.94**	**0.72**	**0.87**	**1.13**
General Surgeons Ratio	0.79	0.72	0.75	1.04	0.63	0.55	0.58	0.72	0.63	**0.72**
Obstetricians & Gynaecologists Ratio	0.57	0.72	0.75	1.39	0.69	0.35	0.51	0.65	0.72	**0.65**
Cardiologists Ratio	0.36	0.29	0.26	0.26	0.17	0.16	0.29	0.22	0.14	**0.26**
Chest Physicians Ratio	0.19	0.36	0.26	0.26	0.11	0.20	0.14	0.14	0.14	**0.21**
Cardiothoracic Surgeons Ratio	0.13	0.11	0.07	0.09	0.00	0.08	0.00	0.00	0.00	**0.07**
Thoracic Surgeons Ratio	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.01**
Neurologists Ratio	0.19	0.14	0.15	0.26	0.00	0.12	0.22	0.07	0.10	**0.15**
Neuro Surgeons Ratio	0.11	0.07	0.07	0.09	0.00	0.08	0.14	0.07	0.05	**0.08**
Dermatologists Ratio	0.36	0.36	0.45	0.43	0.29	0.27	0.22	0.36	0.29	**0.34**
Rheumatologists Ratio	0.18	0.25	0.15	0.09	0.11	0.04	0.14	0.14	0.14	**0.15**
Psychiatrists Ratio	0.36	0.32	0.26	0.35	0.34	0.20	0.22	0.29	0.34	**0.31**
Paediatricians Ratio	0.86	0.90	0.94	0.26	0.57	0.74	0.72	0.65	0.92	**0.79**
Paediatric Surgeons Ratio	0.10	0.14	0.07	0.00	0.00	0.04	0.07	0.00	0.05	**0.07**
Otolaryngologists Ratio	0.28	0.22	0.15	0.17	0.06	0.20	0.07	0.29	0.19	**0.20**
Eye Surgeons Ratio	0.37	0.36	0.22	0.26	0.17	0.23	0.14	0.14	0.19	**0.27**
Orthopedic Surgeons Ratio	0.32	0.36	0.19	0.43	0.29	0.20	0.29	0.22	0.24	**0.28**
Plastic Surgeons Ratio	0.11	0.07	0.04	0.09	0.06	0.04	0.07	0.07	0.05	**0.07**
Genito Urinary Surgeons Ratio	0.15	0.11	0.15	0.09	0.17	0.08	0.14	0.14	0.10	**0.13**
Anaesthesiologists Ratio	1.07	0.79	0.67	1.13	0.40	0.31	0.36	0.22	0.48	**0.69**
Histo-Pathologists+Chemical Pathologists Ratio	0.52	0.40	0.37	0.35	0.29	0.23	0.29	0.14	0.29	**0.36**
Haematologists Ratio	0.37	0.22	0.26	0.17	0.06	0.20	0.14	0.14	0.19	**0.24**
Microbiologists Ratio	0.32	0.14	0.19	0.09	0.00	0.12	0.07	0.07	0.19	**0.18**
Oncologists Ratio	0.28	0.25	0.19	0.35	0.23	0.08	0.22	0.14	0.14	**0.21**
Oncology Surgeons Ratio	0.16	0.07	0.11	0.09	0.06	0.08	0.14	0.14	0.05	**0.11**
Radiologists Ratio	0.78	0.58	0.67	0.78	0.52	0.35	0.36	0.29	0.58	**0.59**
Venereologists Ratio	0.21	0.07	0.11	0.00	0.00	0.16	0.22	0.07	0.05	**0.12**

Province	Western Province	Central Province	Southern Province	Northern Province	Eastern Province	North Western Province	North Central Province	Uva Province	Sabaragamuwa Province	Sri Lanka Total
Forensic Pathologists Ratio	0.26	0.22	0.26	0.26	0.06	0.20	0.14	0.07	0.19	**0.21**
Community Physicians Ratio	1.22	0.18	0.11	0.09	0.06	0.08	0.00	0.14	0.00	**0.41**
Endocrinologists Ratio	0.15	0.11	0.11	0.09	0.06	0.08	0.14	0.07	0.14	**0.11**
Gastroenterologists Ratio	0.10	0.07	0.07	0.09	0.06	0.08	0.07	0.00	0.10	**0.08**
Nephrologists Ratio	0.11	0.11	0.11	0.17	0.11	0.12	0.29	0.07	0.05	**0.12**
Specialist Dental Surgeons-Orthodontists Ratio	0.24	0.22	0.11	0.26	0.11	0.08	0.14	0.07	0.14	**0.17**
Specialist Dental Surgeons-Maxillofacial/Restorative Ratio	0.19	0.29	0.11	0.00	0.17	0.08	0.14	0.14	0.10	**0.16**
Specialist Dental Surgeons-Restorative Ratio	0.10	0.07	0.07	0.00	0.06	0.08	0.14	0.07	0.05	**0.08**
All Specialists Ratio	14.76	11.40	10.68	11.89	7.16	7.18	8.51	6.99	8.26	**10.69**

List of resource persons attended for the stakeholder Meetings

Name	Designtion / Institution
Mr. Janaka Sri Chandraguptha	Secretary, Health
Dr. A.K.S. de Alwis	Addl. Secretary (Medical Services)
Dr. T. L.C. Somatunga	Addl. Secretary (Public Health Services)
Mrs. D.L. Umayangani Peiris	Addl. Secretary (Administration) I
Mr. Y.L.M. Nawavi	Addl. Secretary (Procurement)
Mrs. K.R.M.D Fernando	Addl. Secretary (Engineering Service)
Ms. M.A.K. Aththanayake	Addl. Secretary (Administration) ll
Dr. Asela Gunawardena	Director General of Health Services
Dr. S. Sridharan	DDG /Planning
Dr. S.C Wickramasinghe	DDG/NCD
Dr. P.W.C.L Panapitiya	DDG (Medical Services) I
Dr. Sudath Dharmarathna	DDG/LS
Dr. H.S.R. Perera	DDG/PHS-II
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