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NATIONAL HEALTH

STRATEGIC MASTER PLAN

2016 - 2025

Vol. II

Curative Services

Ministry of Health - Sri Lanka

Message from Hon. Minister of Health, Nutrition and Indigenous Medicine

Good health is central to human happiness and well-being, and also makes an important contribution to economic progress of an individual, or a country as a whole. Sri Lanka can be proud of the success it has achieved so far in its Health Sector, through careful planning and efficient execution of programmes.

However, when I took office early last year I was dismayed to note that the then ongoing Health Sector Master Plan was to lapse in December 2015, with no new Plan in the pipe line, which made me to go ahead in developing an updated Health Policy and a Health Strategic Master Plan as a top priority. This was of prime importance to implement the developmental programmes of the government of Good Governance, which laid much emphasis on health sector development and welfare of the people.

A new Plan was necessary also due to the changing landscape of health care financing and delivery in the country due to life style changes and emerging environmental issues and accompanying health sector needs. I have no doubt that with proper planning and investment in both infrastructure and health personnel Sri Lanka has the potential to develop a health system comparable to the standards comparable to those in developed countries .

I am pleased to note that in spite of their heavy official commitments, the Director General of Health Services and the team of Ministry officials assigned for the task has come up with the Health Master Plan for the period 2016 - 2025 with in a relatively short period. I also wish to convey my sincere thanks to all the health professionals who contributed for this compilation .

Furthermore, the valuable comments/ observations / recommendations made by the professional Colleges and Associations, Provincial Ministries of Health and Health sector Trade Unions are much appreciated. I sincerely look forward to the full commitment and dedication of all the officials of the Ministry of Health as well as health officials in the Provincial Health Services to achieve the expected Health Outcomes in the Master Plan 2016-2025, with the view to improving Health care delivery to our people.

Dr Rajitha Senaratne
Minister of Health, Nutrition & Indigenous Medicine

Message from the Secretary of the Ministry of Health , Nutrition & Indigenous Medicine

Ministry of Health , Nutrition & Indigenous Medicine is responsible , to safeguard the status of Health of all citizens of Sri Lanka . Therefore a considerable amount from the national budget is allocated by the Government of Sri Lanka , to the Ministry of Health , Nutrition & Indigenous Medicine , to achieve the said objective . Thus it is our duty to utilize those public funds effectively , efficiently and economically to provide better standards of health care throughout the country

As such , it is essential to have a comprehensive Health plan with monitoring tools to make the best use of this massive budget ; and , I am much pleased to note that , the professional of the sector have made a collective and collaborative effort to produce a comprehensive Health Master Plan for ten years (2016 - 2025)

I hope the deficiencies of the previous health master plan will be corrected by the newly prepared Health Master Plan (2016 - 2025) As the proposals have been prepared by the relevant Programme Directors and the Consultants attached to those subjects , the ownership of the plan is correctly vested on the programmes itself . I feel that this is a crucial decision taken by the Ministry to establish sustainability and continuation of the Health Master Plan throughout the next ten year period .

As the indicators and the verifiable means have been identified for all proposals in the Health Master Plan 2016 - 2025 , it is essential to monitor the outcomes . A continued mechanism of Monitoring & Evaluation has to be linked to this Health Master Plan 2016 - 2025 , to achieve the expected health outcomes and justify the utilization of massive amount of public funds . Duplication to be avoided and allocative efficiency should be practiced at each step of translating strategies to activities

Finally I have to endorse that , it is the first and foremost duty of all officials in the Health sector to be adherent to this plan throughout the specified ten year period (2016 - 2025) and achieve the time targets specified in it , to offer best health services to the Sri Lankan nation

Anura Jayawickrama

Secretary

Ministry of Health , Nutrition & Indigenous Medicine

Message from the Director General of Health Services

Firstly I would like to place on record , my sincere thanks to my team of professionals , the members of National Steering Committee on Health Master Plan (all Deputy Director Generals), the Programme Directors and Consultants attached to relevant subjects , for their tireless work , (despite having to cope with tremendous work load in daily duties) which made the dream of a comprehensive ten year (2016 - 2025) Health Master Plan , a success and a reality .

As the Department of National Planning recommended , the team of professionals involved in the preparation of Health Master Plan , essentially comprised of local experts only , and the National Steering Committee on Health Master Plan , at the first meeting , decided to utilize only the Programme Directors and the Consultants attached at present to the Health Services as the experts responsible for the preparation of relevant proposals . This decision has given a great stimulus to the key officers in all Programms and I find that they have produced excellent proposals for the next ten year Health Master Plan (2016 - 2025).

I also acknowledge very specially the collaborative efforts and expert contribution made by all Professional Colleges and Associations , at my request , to make this plan to cover all specialties of Medical Sciences . Although the Preventive sector is well represented in the organogram of the Ministry of Health , the Curative and Rehabilitative sectors need developments . The proposals of Clinical Professions were able to cover the said gap in Health Master Plan , accordingly I have decided to have separate plans for each major task , (as separate plan documents for Preventive Health Services , Curative care and Rehabilitation)

This Health Master Plan (2016 - 2025) has been submitted for Public Opinion , Provincial Ministries of Health Services and Trade Unions as well . I am much thankful to all of them for sending valuable suggestions to improve services on various aspects .

At last , but not the least , the excellent coordinating of the activity and drafting of this ten year (2016 - 2025) Health Strategic Master Plan was undertaken by the focal point appointed by me for this activity . Dr D.A.B.Dangalla (Director - Policy Analysis & Development and , Acting Senior Assistant Secretary (Medical Services) functioned as the focal point , with his staff , devoted many months to accomplish the given task . I highly appreciate the degree of dedication of Dr Dangalla and his staff , towards the completion of this activity .

It is my advice to all of my officials (as we own the plan as we wrote the proposals) to adhere to the plan throughout the said ten year period and implement all strategies designed by you all , with a rigid mechanism of monitoring and evaluation of time bound targets . to make our health services comparable to Developed Countries .

Dr P. G. Mahipala

Director General of Health Services

Background

As the present Health Policy was prepared in 1996 and , now ; after 20 years it has to be replaced with an updated policy . There are many reasons justifying the preparation of a new health policy ; such as the following - Health issues which were not addressed with the present health policy , have to be tackled with new and different strategies . Newly emerged health issues have to be addressed with a new health policy . After the internal civil war , Sri Lanka can look forward to stability and increased investment in health . The country has the potential to develop a health system on par with the best in the world . But a change is needed ; to reduce inequity , to improve quality , to develop a health system which can respond to the needs and expectations of the new generation

The present health master plan was prepared in 2004 with JICA assistance and it is scheduled to be terminated at the end of 2015 Thus a new health master plan has to be prepared for the next decade starting from 2016 , and the need for a new health master plan is timely as explained below .

Some of the key subjects , which have become priority health issues in the present context , had not been included in previous JICA Health Master Plan (2005 - 2015) Eg . Renal Diseases , Estate Health , Nutrition , etc . Although the Preventive sector had been covered extensively by JICA HMP , the Curative service component had not been sufficiently addressed to the expectations of clinicians . With the demands of patients for better services , (Stroke centres , Cath Labs , Cataract Surgery , Waiting for Bypass Surgery) an extensive analysis of issues , is essential to design strategies . Certain indicators of Health have become stagnant and new approaches are required for further improvements in those sectors

Accordingly , a new health policy , a new strategic framework to develop health services ; and incorporating the new policy and strategic framework , a new Health Master Plan ; are needed for the country .

Simultaneously it is essential to design the goals and the expected Health Outcomes of this Health Master Plan .

Thus it was decided by the Ministry of Health , that the expected outcome would be a people centred health system which is sensitive to the needs and expectations of the patients / people .

The best tool to ascertain the patient factors , is the concept of universal coverage ; a conceptual model which can be summarized as (a) Equity of distribution of services to all patients living in all areas of the country (b) Accessibility to health facilities by each and every patient (c) quality of service provided to each patient , and (d) Financial Protection of all patients

The processing of Health Master Plan was initiated with the establishment of National Steering Committee on Health Policy & Master Plan . The National Steering Committee on Health Policy & Master Plan comprised of DGHS (As Chairman) and the Deputy Director Generals of the Ministry of Health . Dr D.A.B.Dangalla (Director - Policy Analysis & Development and acting Senior Assistant Secretary - Medical Services) was appointed as the secretary to NSC and to function as the focal point for the preparation of Health Master Plan 2016 - 2025 .

At the first meeting of National Steering Committee (NSC - December 2014) it was decided to appoint all programme Directors and the Consultants to prepare the proposal for the relevant programme and respective deputy director generals to function as co-chair to the working groups . Terms of Reference (TOR) for the preparation of programme profiles , were approved by the NSC . Formats for preparation of strategic framework and programme profiles were also identified at said meeting of NSC

The format for the strategic framework was designed from the Reference document titled - Shri Lanka National Health Policy - 1992 (Prof Erl Fonseka , et.al) The said document has analyzed all sub sectors of health in a uniform matrix which contained a brief situational analysis of the sub sectors , followed by several policy measures . Therefore in the preparation of this Health Master plan , the situational analysis section was attached each of the programme profiles . But in the preparation of strategic framework (2016 - 2025) the health problems were listed with strategies designed to over come the issues (Instead of listing policy measures as in 1992 , the present Strategic framework (2016 - 2025) has extended beyond , to the level of designing strategies) A new feature has also been added to link the strategies to achieve the Sustainable Development Goals (where we should be in 2030)

The format for the preparation of programme profiles (attached) has been adopted from the JICA Health Master Plan (2005 - 2015) As it was a complex document , not referred as expected by many officials during later years . To avoid similar situation occurring once again , the format was deliberately simplified to contain the essentials but made more practical and user friendly manner ; and new sections are also added to justify the proposal eg . Situation and Problem Analysis in detail with the proposal for each programme .

A new tool has also been introduced (attached) for the Gap Analysis according to the concept of Universal Health Coverage - UHC . (to direct all proposals towards UHC) This new tool was approved by the NSC at the second meeting held in February 2015 .

At the third meeting of NSC (May 2015) it was decided to obtain external technical assistance , as there are no local experts for the following subjects (Disease Burden Studies , Elderly Care , Home based Care , Health Technology Assessment , Human Resources for Health - HRH , Health Economics and Regulating Private Health Sector) The suitable foreign experts shall have both academic qualifications (Post Graduate qualifications) and experience in employment of the relevant subject in other countries . This proposal has been approved by the Department of National Planning and forwarded to the Department of External Resources to seek foreign Technical expertise of aforementioned subjects .

At the fourth meeting of NSC (October 2015) the following areas were noted . Although the Preventive Health Services had been covered extensively by many proposals , the Curative Care sector proposals were inadequate . The said deficiency of not representing the curative care sector adequately at the Ministry level , has been a longstanding issue .(please refer to section on Reforms / Curative Division in pages 77 - 97 , in Vol IV of Health Master Plan / Health Administration & HRH) Therefore , as the Chairperson of the NSC , the Director General of Health Services invited all the Professional Colleges and Associations , to submit their proposals on Curative & Rehabilitative Services , according to the format designed to prepare programme profiles and to use the UHC gap analysis tool to identify the problems .

The responses from the Professional Associations & Colleges were encouraging ; Received the proposals form the following ;

College of Anesthesiologists of Sri Lanka

Sri Lanka College of Obstetricians & Gynecologists

Sri Lanka College of Microbiologists

Palliative Care Association of Sri Lanka

Neurosurgeons Association of Sri Lanka

College of Ophthalmologists of Sri Lanka

Sri Lanka Association of Oral & Maxillo-facial Surgeons

Sri Lanka Heart Association

College of Medical Administrators of Sri Lanka

Sri Lanka College of Pulmonologists

College of Community Physicians of Sri Lanka

Sri Lanka Association of Urological Surgeons

College of General Practitioners of Sri Lanka

Sri Lanka College of Haematologists

College of Otorhinolaryngologists and Head & Neck Surgeons of Sri Lanka

Sri Lanka College of Venereologists

Association of Plastic Surgeons of Sri Lanka

Sri Lanka College of Endocrinologists

As such the Director General of Health Services instructed the focal point to draft separate volumes of Health Master Plan for each major task area , (I) Preventive Health Services (II) Curative Care (III) Rehabilitative Care (IV) Health Administration & HRH .Many stakeholder meetings were held to prepare proposals , the manuscripts of proposals of each programme were prepared by the respective Programme Director and the Consultants attached to the relevant programme , under the guidance of the respective Deputy Director Generals . For the Preventive Sector , an additional group of Consultant Community

Physicians were invited (including Professors in Community Medicine and Provincial Consultant Community Physicians) The final draft of all five documents of Health strategic Master Plan (1 / Strategic Framework for Health Development , 2 / Vol I - HSMP Preventive Health Services , 3 / Vol II - HSMP Curative Care , 4 / Vol - III Rehabilitation Care , 5 / Vol - IV Health Administration & HRH) was prepared by the Director - Policy Analysis & Development (the focal point for preparation of Health Master Plan) with the assistance of the staff of PA & D unit

As an additional procedure to cover the minor specialties , the staff of Policy Analysis & development unit , consulted the senior medical specialists of certain specialties to obtain proposals of those minor specialties . eg Medical Genetics , Stokes & Trauma care , Care of Abused Children , Plastic Surgery , Autism , etc

Several Field Studies have been conducted by the staff of the Policy Analysis & Development unit with regard to situational analysis of certain subject areas (a) Health Services of Plantation Estates , (b) CKDu affected communities in Districts of Anuradhapura and Polonnaruwa , Divisions of Thanamalwila , Sooriyawewa , Buttala , Angunakolapelessa , Sewanagala , Embilipitiya , and Thissamaharamaya (c) Primary Level Curative Services – Divisional Hospitals and Primary Medical Care units - the need for re-structuring (d) under utilization of Healthy Life style clinics - application of management concepts to improve screening (e) study to identify the issues related to management and availability of medicinal drugs at district level .

Further the data available at the Medical Statistics unit and also the data bases of the individual programmes had been analyzed prior to the formulation of proposals . However most of the analyzed data are presented in the Annual Health Bulletin (AHB) and also in the annual progress reports of each programme , As such data analysis is not presented in this document (to avoid duplication) In the previous Health Master Plan , maps & charts had been presented as a separate document ; but it is not required to attach a similar document to this new Health Master Plan because those items are already available with AHB and annual progress reports of individual programmes .

The previous Health Master Plan had a separate volume to describe the situational Analysis , but its linkage to programme profiles published in another document was not evident . To avoid this type of deficiencies , the new Health Master plan has incorporated the situational analysis in to the main text of

programme profile (with indication of references to relevant research publications)

The final draft was submitted to the Department of National Planning , Ministry of National Policies & Economic Affairs , to Provincial Ministries of Health in all nine Provincial Councils (Northern , North Western , North Central , Eastern , Central , Uva . Western , Southern & Sabaragamuwa Provincial Councils) and also to the Trade Unions of the Health Services . Further the Health Strategic Master Plan (2016 - 2025) has been published in the website of the Ministry of Health and advertized in print media of all three languages inviting Public Opinion ; and the relevant comments , suggestions , and recommendations received through the said process have been incorporated to the plan .

The excellent leadership and the technical guidance given by Dr P.G.Mahipala - the Director General of Health Services , was the key factor in completion of this massive task . For the previous Health Master Plan , it is said that JICA had to spent Rs 225 Million , and a foreign company by the name of Pacific International was assigned the preparation of previous Health Master Plan with the contribution of a group of local experts . But the new plan , the National Health Strategic Master Plan 2016 - 2025 was prepared with a cost less than Rupees one million (Funded by the Government of Sri Lanka) The main reason for the production of the new plan at a much lower cost is the dedication of Sri Lankan Experts . The number of Consultants involved in the preparation of this plan was well above hundred and they offered their services voluntarily and without any additional cost to the government . The Policy Analysis & Development unit would like to place its great appreciation to all of those consultants who offered assistance to prepare the HSMP 2016 - 2025 . It has been said that - Doctors are the voice of the poor , the sick and the dead . This statement has been once again proven by the said team of consultants ; by preparing a master plan for the next ten years to grant better health outcomes to the Sri Lanka nation .

= focal point

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Health Strategic Master Plan - Ministry of Health - Sri Lanka 2016 - 2025

Volume II

Curative Services

Focal Point = Director / Policy Analysis & Development ; under direct supervision of Director General of Health Services

Preparation of HMP - funded by Ministry of Health (GoSL Funds)

Program title	**Appropriate and Accessible Cardiac Care for All Sri Lankan citizens**
Focal point	DDG (Medical Services) I
Proposal submitted by	**Sri Lanka Heart Association**
Back ground/ situation Analysis *(Problem Analysis)	Sri Lanka is a country which has very high standards of cardiac care. But we need to emphasize that there is a wide disparity in the level of care when considering the island as a whole. Several major cities in the country have excellent cardiac services but basic facilities for the management of cardiac emergencies are wanting in many peripheral health institutions. It is clear that cardiac catheterization laboratories and coronary care units cannot be established all peripheral hospitals due to financial constraints and lack of trained personnel. Hence we suggest that there be a clustering of hospitals so that institutions which do not have facilities for emergency cardiac care have mechanism in place to refer their patients to centers of excellence with minimal delay. We propose that clustering of hospitals for cardiac care is a key requirement in preparing the infrastructure needed to implement Accessible and Appropriate cardiac care for all Sri Lankan citizens. **Proposal for clustering of hospitals for optimal cardiac care in Sri Lanka.** Currently following Teaching and provincial General hospitals are equipped with catheterization laboratories. 1. National Hospital of Sri Lanka 2. Teaching Hospital Karapitiya 3. Teaching Hospital Kandy 4. Teaching Hospital Jaffna 5. Teaching Hospital Anuradhapura (not yet functioning) 6. Provincial general Hospital Kurunegala **Stage 1** On the ground of population density and division of provinces we recommend tertiary care cardiology units equipped with catheterization laboratories to following teaching and provincial and District General Hospitals. 1. Provincial general hospital of Badulla 2. Provincial general hospital Rathnapura 3. Teaching Hospital Batticoloa

	<u>Stage 2</u> Once cath labs are established in all provinces the number of cath labs should be increased in these respective hospitals to two per province as this is the only way that a meaningful primary PCI programme can be established. Each center should have the services of at least 5 cardiologists, based in the center itself or from within the cluster hospitals. It is also reasonable to develop CSTH and TH Ragama as tertiary centers with at least one cath lab considering the density of the population these areas. It is also reasonable to establish tertiary care cardiac facilities in Hambanthota DGH given the unacceptable ground transfer distance from Hambanthota DGH and Tissamaharamaya BH to TH Karapitiya and its strategic importance. We recommend all the District General Hospitals should at least have a cardiologist and following minimum facilities. 1. Good quality echo machine with facilities for tissue Doppler, speckie tracking, stress echo and 2D TOE. 2. Ex. ECG 3. Holter 4. Cardiology ward 5. CCU/HDU In addition it is reasonable to provide above facilities to Base hospital Avissawella, Panadura and Negombo considering the population density of these areas. **Human Resources** In expansion of facilities an important aspect is staffing. Appropriate cadre expansion, allocation of nurses, technicians and other support staff is vital if services are to be adequately provided. The master plan must include development of human resources in parallel with the expansion of facilities.
Target areas & Beneficiaries	Accessible and Appropriate cardiac care for all Sri Lankan citizens.
Justification	Several major cities in the country have excellent cardiac services but basic facilities for the management of cardiac emergencies are wanting in many peripheral health institutions. It is clear that cardiac

	catheterization laboratories and coronary care units cannot be established all peripheral hospitals due to financial constraints and lack of trained personnel. Hence we suggest that there be a clustering of hospitals so that institutions which do not have facilities for emergency cardiac care have mechanism in place to refer their patients to centers of excellence with minimal delay.	
Important assumptions / Risks/ Conditions	In expansion of facilities an important aspect is staffing. Appropriate cadre expansion, allocation of nurses, technicians and other support staff is vital if services are to be adequately provided. The master plan must include development of human resources in parallel with the expansion of facilities.	
Vision	Accessible and Appropriate cardiac care for all Sri Lankan citizens.	
Mission	Clustering of hospitals for cardiac care is a key requirement in preparing the infrastructure needed to implement Accessible and Appropriate cardiac care for all Sri Lankan citizens.	
Goal	Minimize deaths due to cardiac failure	
Programmer Objectives (Please prepare separate indicators for each objective)	Indicators To establish Cath labs in phased manner as described for stage one & two To arrange staffing (HRH) For centres identified	Means of Verification
Output (Please prepare separate indicators for each output)	Indicators Completion of Cath Labs in stage one & two Appointment of required staff in adequate number to each Cath Lab	Means of Verification Physical progress of establishing Cath Labs Deployment of HRH with proper skill-mix

Program title	**Anesthesia , Critical Care Medicine , Pain Medicine**
Focal point	Deputy Director General (Medical Services) I
Proposal prepared by	**College of Anesthesiologists - Sri Lanka**
Back ground/ situation Analysis *(Problem Analysis)	Anaesthesia, critical care medicine and pain medicine are fast evolving and Sri Lanka needs to improve the services looking beyond 2017 and over the next decade. An efficient and an up to date service will be needed if we are to provide optimum anaesthetic services for the ever increasing and expanding surgical services. • The safety of the patients need to be ensured with good and up to date monitoring facilities, recovery areas in all theatres with adequate monitoring • The intensive care units must be improved to cater to the ever increasing needs • The pain medicine has to be improved with acute pain rounds in hospitals and pain clinics
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	• Surgical population including subspecialties of surgery • Hospitals should be categorized according to the resources available.(human resources and equipment) • Surgical procedures should be limited to the available facilities • Medical and surgical patients needing ICU care • Patients suffering from Acute and chronic pain • Beneficiary – all categories of patients - reduced stay in hospital, better outcome and less complications eg. Infection • Ministry of health – reduce cost as outcome better and quick discharge from hospital
Justification	The health delivery should be at an optimum level to ensure quality and safety.
Important assumptions / Risks	
Vision	Optimum Anaesthetic services

	Adequate ICU beds with adequate facilities Hospital to be a pain free environment	
Mission	• Anaesthetic services - All theatres to have central airconditioning (prevents infection) with laminar flow for Orthopedic, cardiac, neuro surgeries, pipeline delivery system with wall suction (economical). Each theatre 01 theater table (privacy of patients, to prevent cross infection) Every anaesthetic machine to have facilities for low flow anaesthesia (safety), scavenging system with ventilator and multi-para monitors/ Anaesthesia work station. Minimal monitoring - ECG, Pulse oxymetry, NIBP , IBP (optional), ETCO2, ET gas concentration analysis, Temperature, Respiration (safety) Recovery area - pipelines, wall suction and monitoring (Safety) Documentation - one document with preop, operative and post op monitoring and observations Operation Department Assistants (ODA) Qualified Bio-Medical engineering services. Day surgery units to be opened where appropriate (cost effective) Anaesthesia clinics - space in the OPD Quality approved drugs should be available. Ordering of equipment to be done with the consultation with the College as appropriate to relevant category of hospitals. • ICU services - Number of beds – 5% of the total hospital beds adequate bed space - (prevent infection) Monitoring facilities (safety) Facilities for system support (reduce mortality) Ventilators, CRRT machines, US scanners HDU services to be made available. • Pain clinics in all teaching hospitals and Acute pain rounds in all Teaching DGHS and Base hospitals.	
Goal		
Programmer Objectives • to ensure up to date monitoring facilities, in all theatres and recovery areas • to expand ICU to cater the increasing need • To conduct acute pain rounds and Pain clinics in all hospitals	Indicators	Means of Verification

Program title	**Combating antimicrobial resistance**
Focal point	Director - Laboratory Services
Proposal prepared by	**Sri Lanka College of Microbiologists**
Back ground/ situation Analysis *(Problem Analysis)	Antimicrobials have become an important group of drugs which help to treat infections caused by bacteria, viruses, fungi and parasites. Antibiotics had revolutionized medicine in the past 70 years by saving many lives and allowing many procedures such as bowel surgery, organ transplantation and cancer therapy without much complication. Within a short period after inventing antibiotics, micro-organisms started developing resistance to these antibiotics. An organism is said to be resistant to an antibiotic when it is not inhibited or killed by an antibacterial agent at concentrations of the drug achievable in the body after normal dosage. There are 2 types of resistance. One is intrinsic resistance, which means that the organism was never sensitive to the particular antibiotic (Eg: *Pseudomonas* species were never sensitive to crystalline penicillin) and the other is the acquired resistance, which is said to occur when a particular microorganism obtains the ability to resist the activity of a particular antimicrobial agent to which it was previously susceptible. Acquired resistance occurs when the bacteria are exposed to antibiotics as the resistant mutants will be selected and multiplied. In Sri Lanka there is limited data on antimicrobial resistance. In one study 341/377(90%) of the *Staphylococcus aureus*were resistant to penicillin in a tertiary care hospital in Sri Lanka.[1] Methicillin Resistant *Staphylococcus aureus* will carry *mec*A gene which encodes for penicillin-binding protein 2a (PBP2a), which differs from other penicillin-binding proteins as its active site does not bind methicillin or other β-lactam antibiotics. Thus MRSA is resistant to all β-lactam antibiotics currently available in Sri Lanka. In the above mentioned study MRSA constituted 50.5% (n=195) of *S aureus*isolated from all clinical samples and 7 of the 18 (38.9%) *S. aureus*isolates from blood cultures. MRSA strains have shown a high level of resistance to antibiotics such as erythromycin and

	clindamycin (54% and 44% respectively) and ciprofloxacin 34.3%. [1] In another study carried out in the National Hospital of Sri Lanka 86% of the *S. aureus*isolates from wound curetting were MRSA.[2] Extended Spectrum Beta Lactamase producing Gram negative organisms are resistant to 1st, 2nd and 3rd generation cephalosporins. Extended Spectrum Beta Lactamase (ESBL) producing *Escherichia coli* and *Klebsiellapneumoniae* accounted for 23.15% of total Gram negative bacterial isolates in blood cultures in a multi-centre laboratory based surveillance carried out in 2009-2010. In 2013 data of the same surveillance extended to more centres, 20% of *E. coli* isolates and 28% of *Klebsiella* isolates from blood cultures were ESBL producers.[3] 60/102 (59%) of the *E. coli* and 51/104 (49%) of the *Klebsiella* spp. from blood cultures were resistant to ciprofloxacin. Carbapenem resistance was not seen in coliforms from blood cultures in this 2009-2010 isolates but it was high in 2013 data of the same surveillance with 5-9% of *E. coli* and 28-36% *Klebsiella* being carbapenem resistant.[3, 4] In another study 22 carbapenemase producing *Klebsiella pneumoniae* isolates from Sri Lanka were analysed for the molecular mechanisms of β-lactam resistance and the predominant resistance mechanisms detected in this study were OXA-181, NDM-1 carbapenemases and extended-spectrum β-lactamase CTX-M-15. Porin mutation was an independent predictor of high-level meropenem resistance in the entire Sri Lankan isolate collection.[5] In significant urine culture isolates from 7 centres of the National Laboratory Based Surveillance of Sri Lanka College of Microbiologists, resistance to oral antibiotics including cephalexin, cephradine, ciprofloxacin and amoxicillin-clavulanic acid was high in coliforms, especially in inward patients.[6] Quinolone resistance was high in Salmonella Paratyphi (91.6%) and in Salmonella typhi to a lesser degree (50%).[3]In *Pseudomnasaeruginosa*' sensitivity to imipenem and meropenem were 69.2% and 72.7%.[3] *Acinetobacterbaumanniicalcoaceticus*, blood culture isolates showed only 60% and 55.6% sensitivity to meropenem and imipenem.[3]None of the 13 urine isolates of *Acinetobacter* species tested were sensitive to meropenem.[6] Carriage as well as clinical isolates of *Streptococcus pneumonia* were resistant to penicillin.[7] In another study penicillin resistance was close to 90% and cefotaxime resistance was close to 50% in invasive pneumococcal isolates.[8] In a study carried out in enteric organisms of farm animals, non-

susceptibility to vancomycin among the tested *E. faecalis*and*E. faecium*isolates from broiler was 94% and 24% respectively. Non susceptibility to ampicillin, ciprofloxacin and trimethoprim/sulfamethoxazolein*Escherichia coli* from broilerweremore than 50%. Multiple non-susceptibilities were observed in 211 (50%) of the isolates tested and all were from either poultry (48%) or cattle (2%), not from swine. [9]

The human isolates from cultures taken within 48 hours of admission to hospital representing community acquired organisms showed20.4% resistance to cefotaxime in SJGH but only 10.7% in LRH, which is a hospital for children. None of the Gram negative isolates showed resistance to Meropenem and none of the *Enterococci*isolates were resistant to vancomycin.[9]

Prevalence of VRE in ICU setting was 5% in a study carried out in the National Hospital of Sri Lanka.[10]

Glycopeptide sensitivity of MRSA isolates at the National CancerInstitute was studied in 2009.[11,12]Total number of 93 MRSA isolateswere tested. MICs of vancomycin were ranging from 0.25µg/ml to 2.0µg/ml with$MIC_{50}$and $MIC_{90}$of 1.0µg/ml and 1.5µg/ml respectively.Furthermore, no statistically significant correlation was found betweenvancomycin MIC and the inhibition zone diameter in disc diffusion test.Teicoplanin MICs were ranging from 0.25µg/ml to 4.0µg/ml with $MIC_{50}$of 2.0µg/ml and $MIC_{90}$of 3.0µg/ml. There was a highly significantinverse relationship between teicoplanin MIC and inhibition zone diameter withP value of 0.000. There was no significant statistical relationship foundbetweenvancomycin MIC and teicoplanin MIC when evaluated. In this study noglycopeptide intermediate or glycopeptide resistant isolates were found. [11,12]

When these rates are compared with other countries, the resistance of Sri Lanka is close to other Asian countries like Pakistan but much higher than the resistance rates in countries like the United Kingdom, where the non-susceptibility to cefotaxime is only around 11% and to Meropenem is only 0.1% in *E.coli* from blood cultures.[13, 14]

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GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	1. Antibiotic/antimicrobial stewardship in hospitals 2. Rational use of antimicrobials in the community in humans 3. Rational use of antimicrobials use in Veterinary medicine 4. Rational use of antimicrobials in animal husbandry/ farming/agriculture 5. Improving hand hygiene compliance in healthcare setting
Justification	Antibiotic resistance is now a global problem as an increasing proportion of microbes can no longer be treated effectively by readily available antibiotics. Overuse, and inappropriate use, of antibiotics in humans and animals has been the main driver for the development of resistance and this has occurred in countries all around the world. In Sri Lanka the magnitude of this problem is at a very high level and currently patients get infections due to organisms which are resistant to almost all the available antibiotics in the country
Important assumptions / Risks/ Conditions	1. Inappropriate and irrational use of antimicrobials especially antibiotics in hospitals has led to development of antibiotic resistance in hospitals. 2. Inappropriate and irrational use of antimicrobials especially antibiotics in humans in outpatient setting, in animals in Veterinary medicine, animal husbandry, farming and agriculturehas led to development of antibiotic resistance in the community. 3. Poor hand hygiene compliance in healthcare facilities.
Vision	To reduce level of antimicrobial resistance to a level where the available antibiotics can be used effectively to treat serious infections and to save lives.
Mission	To promote rational use of antimicrobials in the healthcare setting and the community to minimize development of acquired resistance in antimicrobials. To strengthen hand hygiene practices in the healthcare setting
Goal	1. Stop increase in resistance rates in blood culture isolates (in *E coli*, *Klebsiellapneumoniae*, *Streptococcus pneumoniae*, Salmonella Typhi and Paratyphi)

	2. Reduce resistance rates by 3 % each year in blood culture isolates. (in *E coli*, *Klebsiellapneumoniae*, *Streptococcus pneumoniae*, Salmonella Typhi and Paratyphi) 3. Reduce resistance rates in E coli/ coliforms from urine cultures of non-hospitalised patients.	
Programmer Objectives 1 To have antimicrobial stewardship programe in all hospitals 2 Have legislation and national policy on antimicrobial use , availability and quality 3 Have a monitoring programme for antimicrobial use and availability in community 4 Capacity building in hand hygiene	Indicators 1 Number of hospitals with antibiotic stewardship programe 2 Number of audit reports received at the focal point from hospitals and from community 3 Hand hygiene compliance from audit results (already identified as a quality indicator by D/ Health Quality & Patient Safety)	Means of Verification
Output	Indicators	Means of Verification
Reduction of Anti Microbial Resistance	1 Resistance rates in blood culture isolates (in *E.coli , Klebsiellapneumoniea , Streptococcus pneumoniea* , Salmonella Typhi and Paratyphi)	From Antimicrobial resistance surveillance study of Sri Lanka College of Microbiologists
	2 Number and Methicillin Resistant *Staphylococcus aureus*(MRSA) bacteraemia rate per 10000 patient days	Already identified quality indicator by D / Healthcare quality & Patient Safety

	3 Resistance rates in E.coli / coliforms from urine cultures of non – hospitalized patients	From National Laboratory based Surveillance of the Sri lanka College of Microbiologists
Monitoring & Evaluation	1. Reports from the hospital Drug and Therapeutic committee on antimicrobial stewardship programmes and audit reports quarterly to the Director Laboratory Services 2. Reports from the community audits on antimicrobial prescribing quarterly to the Director Laboratory Services 3. Reports on MRSA rates and hand hygiene compliance through the Quality Director to the Director Laboratory Services of Ministry of Health 4. These reports should be evaluated and actions should be taken by the multi-sectorial alliance for combating antimicrobial resistance with the Director Laboratory Services.	

Program Title	**Haematology**
Focal Point	DDG (Medical Services) I
Proposal submitted by	**Sri Lanka College of Haematologists**
Back ground/Situation Analysis	Statistics pertaining to patients receiving Haematology clinical care are incomplete as only the indoor morbidity & mortality (IMMR) is recorded at present .Further a detailed classification of available statistics in to Haematological Disorders such as Haemophelias , Thalasemias , Thrombophelias , Haematological Malignancies , is also not available Haemophelia patients do need different modalities of treatment frequently such as Dental Surgery , Orthopedics etc . But most of the time they are not given priority over other patients and as such they do not receive the attention which should be given to Haemophelia patients at said treatment units Thalasemia units have been established in certain hospitals but it need central coordination from MoH to develop the services according to a national plan Haemato - Oncology has become an important service need for many patients , but unfortunately most of such needy patients cannot find money to get Bone Marrow Transplants in India . As Sri Lanka has not yet started this treatment facility most of the patients who need this treatment suffer due to difficulties in financing the huge out-of-pocket-expenditure involved in Bone Marrow Transplants etc Non availability of norms for Haematological tests at different levels of Hospitals and Technology assessment with regard to standard set of Haematological Laboratory equipment for different levels of Hospitals are the issues which need immediate attention Non availability of Genetic Laboratories is an Important issue with regard to provision of state-of-the-art advanced clinical care for Haematology patients (Centres of excellence of comprehensive diagnosis including molecular diagnosis for Haemophelia , Thalasemia, Thrombophelia and Haematological Malignancies , are needed)
Gap Analysis using UHC tool	• Haematological Services are not equitably distributed • Patients living in remote rural regions have less access to Haematological services

<table>
<tr><td></td><td>

Due to deficiency of Haematologists , Haematological Laboratory facilities and MLTT , a quality service is not available at peripheral institutions
Thus the out-of-pocket-expendeture for the patient has become a serious problem

</td></tr>
<tr><td>Target areas and beneficiaries</td><td>The patients who need hematological assessment and treatment
<table>
<tr><td></td><td>Leukamia</td><td>Talasemia</td></tr>
<tr><td>2004</td><td>3735</td><td>2441</td></tr>
<tr><td>2005</td><td>3167</td><td>2094</td></tr>
<tr><td>2008</td><td>5187</td><td>3854</td></tr>
<tr><td>2009</td><td>5183</td><td>3999</td></tr>
<tr><td>2010</td><td>5449</td><td>4924</td></tr>
<tr><td>2012</td><td>5781</td><td>4772</td></tr>
<tr><td>2013</td><td>6415</td><td>5159</td></tr>
</table>
Data from IMMR / Medical Statistics Unit</td></tr>
<tr><td>Justification</td><td>The clinical hematological conditions and Oncological conditions need regular Haematological laboratory investigations and specialized management options. The admission rate and readmission rate is very high in this regard compare to other diseases. The waiting time of patients may cause the problem further serious. To establish the quick assessment and start of initial management need some organized action plan. When the patient admitted with complications they need a proper referral system to attend the particular complications. The adequate allocation of infrastructure, human resource and financial aids are the main areas to focus to minimize the delay and improve the most patient centered clinical care.</td></tr>
<tr><td>Important Asumption/risks/Condititons</td><td></td></tr>
<tr><td>Vision</td><td>Improve the quality of life of people with hematological diseases.</td></tr>
<tr><td>Mission</td><td>Improve Haematological clinical services of the whole country by adopting a national plan to develop and deploy qualified HR , establish infrastructure and equipment according to identified norms at different levels of hospitals to improve Heamatological Diagnostics and Treatment facilities</td></tr>
<tr><td>Goal</td><td>An efficient and Responsive service to the all Haematological patients which will reduce the out-of-pocket-expendeture for the patient</td></tr>
</table>

Program objectives	Indicators	Means of verification
1 / to establish a comprehensive data collecting and analyzing system for Haematological Morbidities and Mortalities 2/ to establish Haemophelia Day Care Centres 3/ to establish Thalasemiacentres according to a national plan coordinated by MoH 4/ to develop norms for Haematological laboratory investigations , equipment , and staffing for each level of hospitals 5/ to establish a Bone marrow transplant unit 6/ to establish Genetic labs		
Output		
Monitoring and Evaluation		
Reference to Research		

Program title	**Palliative Care**
Focal point	Director - Primary Care Services
Proposal Submitted by	**Palliative Care Association of Sri Lanka**
Back ground/ situation Analysis *(Problem Analysis)	Sri Lanka has population of 22 million and approximately 112,500 deaths a year. Most of those who die spend their last days in pain and suffering. World Health Organization has recently (World Health Assembly Resolution 2014) suggested that all Member countries should develop palliative care services as part of main stream health services to address the problems of the incurably ill, the elderly and the dying people. Palliative care relieves suffering and improves the quality of life of the living and dying. Nothing would more quickly and dramatically improve the quality of life for cancer patients, other patients dying of chronic diseases, the elderly terminally ill and AIDS, than being able to implement in a rational public health way. The minimum number needing palliative care in the country can be estimated to be 60 percent of all deaths, or 68,000 people a year, the majority of them dying with Non communicable Diseases. With the rapid ageing of the population occurring, the highest number of patients needing palliative care in the country will in the future come from the elderly terminally ill. There are no designated palliative care units in public or private Hospitals in the country. The country has more than 331 doctors with basic training in palliative care, thanks to a major initiative by college of General practitioners of Sri Lanka and palliative care Association of Sri Lanka (PCASL). Also 30 government and private sector nurses were trained recently by PCASL. A train the trainer program by Lien Foundation,Singapore, is also on. Palliative care Association of Sri Lanka, the national umbrella organization for palliative care in the country has been formed recently in the month of April 2015. Formal palliative care services are not available in the country except for the few hospices which offer incomplete services to patients with advanced cancer. Most of the patients with diseases other than cancer in need of palliative care are not getting these minimal services. Physical symptoms in cancer patients are usually addressed by the treating oncologist as long as the patient is under his/her care. Anesthetists are sometimes called to treat difficult pain if the patient is admitted in a cancer hospital

	The existing health care system with a fairly good primary health care and referral system can integrate a grassroots level palliative care system without much difficulty. Good social capital available in the community will ensure community support for such system.
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	The program will focus on addressing suffering in people at the end of their life. The target population are the incurably ill patients, the chronically bed ridden, the elderly and the dying people in the country and their family members.
Justification	A huge number of citizens suffer unnecessarily at the end of life in spite of existing scientifically valid and simple methods for addressing suffering. A comprehensive program to address this universal problem costs little and is maintainable at community level so all can be covered.
Important assumptions / Risks/ Conditions	Palliative care relieves suffering and improves the quality of life of the living and dying. Nothing would more quickly and dramatically improve the quality of life for cancer sufferers, other patients dying of chronic diseases, the elderly terminally ill and AIDS, than being able to implement in a rational public health way, the enormous knowledge accumulated in pain control and palliative care. There exists a scientifically valid and simple method for pain control that costs little and that is possible with the political will to act, educate and train the health profession, involve the community and make the necessary affordable drugs easily available Many aspects of palliative care are also applicable earlier in the course of the illness, in conjunction with treatment. Policies and recommendation for the implementation of palliative care in a rational public health way have been produced and a several derailed reports on how to put theory into practice when establishing National palliative care programs or Initiatives are available. Sri Lanka has a population of 22 million and approximately 112,500 deaths a year. Most of those who die spend their last days in pain and suffering because the present system do not have the knowhow and tools to address this universal problem • Freedom from controllable pain should be a human right. • A clear national policy is needed and establishing coordinated foundation measures should be a priority. • The national health plan for sri Lanka, so as to be comprehensive, should include palliative care. • An essential list of pain control and palliative care drugs should

	be established. • A new estimate of morphine needed should be submitted to the International Narcotic Control Board(INCB) in Vienna. • It is recommended that the regulations for prescription of opioids be reviewed so that it will be easy to prescribe morphine by all appropriately trained doctors, enabling pain relief to be incorporated in the primary health care system (PHCS) • In the future, morphine formulations should be made available widely, e.g., in all area hospital pharmacies. • The training of General practitioners and Family doctors in pain relief and palliative care will be important as well as of social workers, and in the future of Home care Nurses. • It is recommended that establishing a home care system should be explored for the terminally ill patients. • Pain and palliative care should be included in the under graduate Medical and Nursing curriculum and be eligible for exam. • Advocacy and education of the politicians, religious leaders, health care professionals and the public is essential to ensure the success of this initiative.	
Vision	All citizens of Sri Lanka will enjoy the same level of support and appropriate Interventions at the end of life as at beginning of life	
Mission	Establishment of a National Palliative Care Programe integrating Palliative care programe in to the mainstream of health system to help all the citizens of the country to live and die with dignity	
Goal		
Programmer Objectives	Indicators	Means of Verification
1 To ensure that all the patients in need of palliative care are registered with the system and in receipt of appropriate care	1. Number of patients registered for palliative care	1. Verifying patients registers
2 To ensure that the health care team has the capacity to	2. No of Doctors and nurses successfully completing training programe in	2. Attendance and completion certificates of palliative care courses / training programs

address issues related to palliative care 3 To ensure that the health care system is equipped to look after patients in need of palliative care	palliative care 3. No of Home care teams in operation	3. Verification of records
Output	Indicators 1. Policy changes and National/State action programs established 2. Advocacy done and evaluated 3. Number of persons trained 4. Undergraduate education and numbers covered 5. Morphine consumption 6. Number of positions in palliative care 7. Number of patients covered	Means of Verification Policy documents and hospital records
Monitoring & Evaluation	1. Monthly review meetings at district level 2. Quarterly review meetings at provincial level 3. Annual review meetings at National level	
(*) Reference to Research		

Program title	**Establishment of Plasma fractionation Plant in Sri Lanka**
Focal point	Ministry of Health Director General of Health Services
Back ground / **Situation** Analysis *(**Problem Analysis**)	Human blood is composed of two elements ; the cellular component (majority of Red cells, and a smaller portion of white cells =WBC , & platelets ; the latter is essential in clotting of blood) and s liquid component, which is called the 'plasma' 02. Whole blood transfusions (above mentioned cellular component with plasma) have been used for centuries , But in the recent past the technologies have been developed to separate plasma into micro-components and manufacture a variety of very precious resources termed as plasma derived medicines (PDM) Global need for PDM have been increasing almost regularly over the last decade . 03. The process of separating plasma into it's different components is called plasma fractionation; and this process could provide a wide range of vital medicines (PDM) essential for saving the life of patients The following PDM are used in the management of severely bleeding patients and in patients with immunological disorders (coagulating factors including factor VIII (FVIII), factor IX (FIX) , von willebrand factor , fibrinogen , fibrin sealants,prothrombin complex concentrate , albumin and immunoglobins (IG) are among the most used PDM around the world) 04. As at present , Plasma Fractionation facility is not available in Sri Lanka , **the above life saving plasma derived medicines are imported and the annual import cost in year 2012 was USD 12,110,792.01** (Reference to table one in cost effectiveness analysis) It is an enomous amount of expenditure for a country like ours as Sri Lanka is struggling to improve it's infrastructure to be in par with developed countries (if the exchange rate of USD is Rs 130/= the total annual import cost of PDM is (in LKR) 1,574,402,960/= ie;- **RsMn 1574.4)**

	05. **On the other hand, lack of plasma fractionation facility , contributes to the increased discard rates of plasma regardless of it's perniciousness as a raw material for production of PDM . At present the National Blood Transfusion Service (NBTS) has to discard 40,000 liters of plasma annually** , and such a waste of pernicious human plasma in Sri Lanka is unavoidable due to the fact of non-availability of plasma fractionation facility in the country . With the present development and expansion of NBTS throughout the country , it Is expected that 100,000 liters of human plasma will be collected but , has to be discarded if fractionation facility is not established in Sri Lanka 06. **As described in paragraph 04 above Sri Lanka is losing RsMn 1574.4 worth of foreign exchange annually ;and at the same time 100,000 liters of very pernicious human plasma is also discarded annually . Thus the question is ; are we to waste an enomerous amount of foreign exchange and 40,000 to 100,000 liters of presicious human plasma as described above or to establish plasma fractionation facility in Sri Lanka to save our resources.** 07. **After establishing Plasma Fractionation Facility in Sri Lanka the annual cost of local manufacturing cost of PDM would be 1/12 of import costs. (Reference to table two in the cost – effectiveness analysis = USD 1,178,853.44 If the exchange rate of USD is Rs 130/= the total annual cost of local manufacturing of PDM would be LKR 153,250,890/= RsMn 153.2) Thus the project would be able to save foreign exchange worth of RsMn 1421.2 and in addition a total stoppage to waste of pernicious human plasma (40,000 – 100,000 liters annually) in Sri Lanka** 08. However establishment and maintenance of a plasma fractionation plant is a highly technical process , which requires specialized facilities , with provision for large scale protein separation , purification ,virus inactivation and formulation .As such , building a high tech GMP compliant plasma fractionation facility needs the consultancy services from experts who have comprehensive knowledge on the subject (Including construction of the plant , technology of machinery and specifications , training of highly skilled staff ; process of manufacturing & Quality assurance regulation)Therefore the

	Ministry of Health could request assistance from the World Health Organization (as availability of raw material of acceptable quality and continuous supply of said plasma , both are already established) 09. To establish a Plasma Fractionation Plant , it needs a fair amount of financial involvement . But according to the GOSL policy Vision for future , states that " Identify the existing obstacles in taking modern technological advances made in medical science and take immediate steps to remedy such obstacles and provide a viable and practice solution for all to have access to modern medical science and technology " (page 80) As it is ; this project has a definite value for money (VfM) in many aspects. a. Saving on Foreign Exchange, hence reduce the cash outflow b. Reduce the country's expenditure on imports c. Local fractionation of plasma will stop the wastage of human plasma in Sri Lanka d. Local manufacturing of PDM offer private sector patients affordable prices e. During global shortages and emergencies the locally produced PDM will be a great national asset f. Development of local technical expertise ; hence improving the country's talent pool. g. Contractual Fractionation can be under taken for the countries in the region (Eg . plasma from Nepal,Butan ,Maldives can be air-lifted to Sri Lanka and after preparation of PDM in Sri Lanka , those PDM can be sold back to those countries with earnings of foreign exchange 10. Considering all above facts , high priority to be given to this project of establishing a plasma fractionation plant in Sri Lanka

Courtesy -

Dr Ananda Gunasekara- former DDG (Medical Services) II

Dr Hemantha Beneragama - former Director / Medical Supplies Division

Dr Anil Dissanayaka - Director / National Blood Transfusion Services

The aforementioned proposal was prepared by

Dr Athula Dangalla

Director - Policy Analysis & Development - Ministry of Health - SL

Program title	**Development of Oral and Maxillofacial surgery services in Sri Lanka**
Focal point	DDG (Dental Services)
Proposal submitted by	**Sri Lanka Association of Oral &Maxillo Facial Surgeons**
Back ground/ situation Analysis *(Problem Analysis)	Oral and Maxillofacial surgery (OMS) is a growing and a relatively new field in Sri Lanka. It deals with the diseases affecting the mouth and the soft and hard tissues of the maxillofacial structures. According to the ministry of health website, all oral and Maxillofacial surgery units should provide the following services to the public -minor oral surgery -extractions and treatment of uncooperative or special children with needs under general anaesthesia -diagnosis and treatment of non-malignant lesions of the OMS region -diagnosis and treatment of ablative and reconstruction surgery of the OMS region - diagnosis and treatment of coetaneous lesions of the face - management of precancerous lesions of the OMS region -Management of oral mucosal diseases - diagnosis and treatment of congenital oro-facial disorders - diagnosis and treatment of salivary gland diseases - diagnosis and treatment of chronic facial pain - diagnosis and treatment of temporomandibular disorders - diagnosis and treatment of jaw deformities including orthognathic surgery - diagnosis and treatment of hard and soft tissue trauma to the OMS region - diagnosis and treatment of sleep apnoea related to OMS -Cosmetic surgery of the head and neck – surgery and Botox etc. At present, all OMS units are unable to meet the above service output due to deficiencies in infrastructure, manpower and consumables. Due to this reasons, patients in rural areas have to travel to the main centres to obtain advanced treatment options mentioned above (Eg: patients with oral cancer jaw deformity and cleft lip and palate) most patients undergo great hardships to obtain OMS services.

Target areas & Beneficiaries	The whole Sri Lankan population will benefit by improvement of OMS. Patients will be able to visit the nearest general hospital to obtain treatment. The congestion of OMS units in main cities will reduce and quality of care can be improved.	
Justification	Oral cancer and road traffic accidents remain two of the most conditions treated by the OMS. Due to lack of manpower and facilities, a treatment delay as well as the quality of treatments affected. Eg: delay in treating oral cancer may cause the prognosis of the patient to reduce. Due to lack of facilities, the best reconstructions options may not be offered to the patients. (Micro vascular surgery) In case of trauma management, lack of titanium bone plates will affect the quality of treatment of most patients with maxillofacial trauma	
Important assumptions / Risks/ Conditions	Equal logistics and manpower should provide to all teaching, general and District general hospitals to improve the OMS services Considering the OM surgeons who will retire within next 10 years, there will be a significant deficit of OM surgeons in Sri Lanka to fill all above stations The cadre expiation should be considered to prevent a deficit of OM surgeons beyond 2017	
Vision	To provide a quality oral and maxillofacial surgery treatment to all patients of Sri Lanka at their closest hospital	
Mission	All OMS units of teaching, general, provincial and district general hospitals should be developed and equipped The cadre expansion should be planned for the future Providing the OMS services at the nearest hospital will benefit the patients and reduce the cost on the government on ambulance and transfer costs.	
Goal	To provide best care in OMS to all patients of Sri Lanka	
Programmer Objectives	**Indicators**	**Means of Verification**

1. To improve the infrastructure facilities in OMS clinics in Teaching, general, provincial and district general hospitals of Sri Lanka 2. To provide adequate instruments and consumables to all above units 3. To provide separate wards, High dependency units, clinic space to the OMS unit 4. A head and neck unit should be established in co-operation with the ENT, at least in every teaching hospital 5. Dedicated operation theatres to the OMS alone or with ENT 6. Finalize the establishment of centre of excellence at dental institute, Colombo 7. Commence hospital based cancer, trauma and maxillofacial surgery		
Output	**Indicators**	**Means of Verification**
Monitoring & Evaluation		
(*) Reference to Research		

Program title	**Infection Prevention and Control in Healthcare setting**
Focal point	Director - Laboratory Services
Proposal prepared by	**Sri Lanka College of Microbiologists**
Back ground/ situation Analysis *(Problem Analysis)	The Centre for Disease Control reports that healthcare-associated infection (HAI) prevalence surveyprovides an updated national estimate of the overall problem of HAIs in U.S. hospitals. Based on a large sample of U.S. acute care hospitals, the survey found that on any given day, about 1 in 25 hospital patients has at least one healthcare-associated infection. There were an estimated 722,000 HAIs in U.S acute care hospitals in 2011. About 75,000 hospital patients with HAIs died during their hospitalizations. More than half of all HAIs occurred outside of the intensive care unit.[1] In Sri Lanka no such surveillance has been performed and data on HAI is scarce. In one study the overall HAI rate in a tertiary care hospital in Sri Lanka ranged from 0.119 to 0.29 per 100 admissions. [2]The HAIs reported were Surgical Site Infection (SSI) with a rate of 2.72% in clean surgeries, Ventilated Associated Pneumonia (VAP), Catheter Associated Urinary Tract infections (CAUTI) and Intravascular Catheter Related Blood Stream Infections (CRBSI).[2]In another hospital the rate of HAI was reported as 0.1%.[3] In a study carried out in ICUs of the National Hospital of Sri Lanka the HAI rate was 15%. The most common types of HAIs found were Surgical Site Infection (32.9 percent), Lower Respiratory Tract Infection (17.2 percent) and Urinary Tract Infection (17.2 percent).[4] In another ICU the two main nosocomial infections detected were ventilator associated pneumonia (26.4%) and urinary tract infection (UTI) (10.9%).[5]The organisms isolated from cultures in VAP in this study were *Acinetobacter*spp, *Pseudomonas* spp, Coliform spp, Mixed Gram negative bacilli and *Staphylococcus aureus*. One of the blood cultures through the Central Venous Catheter (CVC) grew an extended spectrum beta lactamase producing (ESBL+) coliform species indicating colonization of the central line. The Catheter associated UTI were growing Candida, Coliform and *Streptococcus* species.[5] In a study carried out in 3 tertiary care hospitals in Sri Lanka, *Clostridium difficile* toxin was detected in 4% of the patients who had diarrhoea following antibiotic treatment.[6]

	In another publication out of 308 isolates of *Staphylococcus aureus* isolated from specimens processed at the Department of Microbiology, Faculty of Medicine, Colombo 66 (21.5%) were resistant to methicillin.[7]A significantly higher proportion of methicillin resistant Staphylococcus aureus (MRSA) were isolated from special care units, namely the Premature Baby Unit (PBU) and the Plastic Surgery Unit (PSU) when compared with other general medical and surgical units. Most of these strains were also resistant to many other antibiotics. The patients with MRSA infections had a longer mean hospital stay when compared to patients with methicillin sensitive Staphylococcus aureus (MSSA) infections. MRSA strains are as virulent as MSSA strains and these infections are mainly nosocomial (hospital acquired).[7] A descriptive cross sectional study was carried out to identify the ventilator associated pneumonia (VAP) rates and to describe associated factors and organisms responsible and their antibiotic susceptibility patterns at MICU, ASICU and ASHDU at the National Hospital of Sri Lanka in 2014. Overall rates in 3 units were 37.57 per 1000 ventilator days with 7575,40.61 and 23.53 per 1000 ventilator days in ASICU, ASHDU and MICU respectively. Ninety five percent of VAP cases were diagnosed 5 days after intubation and 70 % of all admissions were transfers from another hospital. Coliforms, *Acinetobacter* spp. and *Pseudomonas* spp. were the isolates and out of them the commonest was *Acinetobacter*spp.(45%). Almost all *Acinetobacter* spp. were multidrug resistant whereas 40% of Pseudomonas isolates were multidrug resistant. Coliforms were 100% resistant to cephalosporins, out of which 25% were multidrug resistant. From this study it is very clear that VAP rates in 3 ICUs were very high and it is well above NHSN bench marks.[8] *Acinetobacter* spp. being identified as the commonest microorganism causing VAP another descriptive cross sectional study was carried out involving all ICUs at the National Hospital of Sri Lanka to describe the epidemiology of VAP caused by *Acinetobacter* spp. Sixty seven *Acinetobacter* spp. were isolated from 200 VAP cases (33.5%).All the isolates were *Acinetobacterbaumannii/calcoaceticus* (100%). Most number of cases were from MICU followed by SICU, ASICU and NTICUs. Most of the isolates were multidrug resistant. A hospital based prospective descriptive study was carries out at the National Hospital of Sri Lanka in 2014 to describe the epidemiology of surgical site infections (SSI) following orthopaedic surgeries, to determine the incidence of SSI among patients undergoing orthopaedic surgeries and to identify the common bacteria causing SSI in orthopaedic surgeries and their susceptibility patterns. It revealed that SSI incidence rate following orthopaedic surgeries was 10.4%.The commonest pathogen isolated causing orthopaedic SSI in this study was *Pseudomonas* spp. which was susceptible to commonly using antipseudomonas antibiotics although there were some MRSA and carbpenem resistant organisms (unpublished data). References:

	1. http://www.cdc.gov/hai/ 2. Incidence of Hospital Associated Infections at Sri Jayewardenapura General Hospital from 1st September 2009 to 31st August 2010; Jayatilleke S.K., Gunaratne G.P.S, Samaraweera H.M.G.A.; Proceedings of the 25th Annual Academic Sessions of Sri Jayewardenapura General Hospital, Clinical Society, 4th December 2010 3. Surveillance of Hospital Associated Infections in Teaching hospital, Kurunegala; Jayatilleke K, Nandanie MTAC, Hewaarachchi H, etal.; Proceedings of the Annual Scientific Sessions of the Sri Lanka College of Microbiologists, September 2007. 4. Some characteristics of hospital associated infections manifesting in patterns and the knowledge, attitudes and practices of nurses on hospital associated infections in the Intensive Care Units of the National Hospital of Sri Lanka. Ranaweera, AD. [Thesis for MSc. (Community Medicine)] 2007. Post Graduate of Medicine (PGIM), University of Colombo, Sri Lanka 5. Nosocomial infection in the Intensive Care Unit at Teaching Hospital Karapitiya, Galle; an audit; GunaratneA, Vidanagama D, WijayaratneWMDGB, Palangasinghe S; Proceedings of Galle Medical Journal, Vol 16: No. 2, September 2011. 6. Antibiotic associated diarrhea due to *Clostridium difficile*in three tertiary care hospitals of Sri Lanka; Athukorala GIDDAD etal., Proceedings of the Annual Scientific Sessions of the Sri Lanka College of Microbiologists, September 2009. 7. Methicillin resistant *Staphylococcus aureus*; Perera J, Ranjithan C, Gamage S; Ceylon Med J. 1992 Mar;37(1):12-4. 8. W.M.I.D. Nakkawita,C.G.U.A.Patabendige, Incidence of ventilator associated pneumonia in two intensive care units and high dependency unit at the National Hospital of Sri Lanka, The Bulletin of the Sri Lanka College of Microbiologists August 2015; 13(1):9 – 10. **9.** W.P.H. Abeydeera,C.G.U.A. Patabendige, Epidemiology of VAP caused by *Acinetobacter* spp. and their susceptibility patternsin different intensive care units at the National Hospital of Sri Lanka, The Bulletin of the Sri Lanka College of Microbiologists August 2015; 13(1):10 - 11.
Target areas & Beneficiaries	Patients seeking services of hospitals and other healthcare settings Cost incurred in patient management by the Ministry of Health Healthcare personnel working in hospitals and other healthcare settings

Justification	Healthcare associated infections are causing high morbidity and mortality in patients seeking services of healthcare institutions worldwide. Data on HAI in Sri Lankan hospitals are scarce.	
Important assumptions / Risks/ Conditions	1. Healthcare associated infections are prevalent in Sri Lankan healthcare settings. 2. Data on healthcare associated infections are scarce in Sri Lankan healthcare settings.	
Vision	To reduce level of healthcare associated infections	
Mission	To develop a system of monitoring healthcare associated infections in Sri Lanka. To strengthen the infection prevention and control activities in Sri Lanka To reduce the rates of healthcare associated infections in Sri Lanka	
Goal	1. To establish a monitoring system of healthcare associated infections 2. To strengthen the infection prevention and control activities in healthcare settings 3. To reduce rates of HAI	
Programme Objectives	**Indicators**	**Means of Verification**
1. To collect and analyze data on HAI according to CDC definitions- Surgical site infections of clean surgeries (LSCS infections already identified as a quality indicator by the Quality Directorate of ministry of health); Intravascular Catheter Related Blood Stream Infections; Catheter associated Urinary Tract Infections;	1. Number of hospitals sending data on HAI to focal point	

Ventilator Associated Pneumonia; antibiotic associated diarrhoea 2. To conduct a one day prevalence survey on HAIs every 3 years 3. To optimize infection prevention and control activities in Sri Lankan Healthcare setting 4. To reduce the rates of HAI- Surgical site infections of clean surgeries (LSCS infections already identified as a quality indicator by the Quality Directorate of ministry of health); Intravascular Catheter Related Blood Stream Infections; Catheter associated Urinary Tract Infections; Ventilator Associated Pneumonia	2. Number of hospitals with an established infection control programme 3. Number of hospitals using alcohol based hand rub in intensive care units for hand hygiene 4. Number of hospitals using alcohol based hand rub in non-intensive care units for hand hygiene 5. Hand hygiene compliance from audit results (already identified as a quality indicator by the Quality Directorate of the ministry of health)	
Output Reduction of Health Care associated Infections (HAI)	**Output indicators** 1. Number and Methicillin Resistant *Staphylococcus aureus*(MRSA) bacteraemia rate per 10000 patient days- already identified quality indicator by the Quality Directorate of the Ministry of health 2.Rates of Surgical site infections of clean surgeries (LSCS infections already identified as a quality indicator by the Quality Directorate of ministry of health); Intravascular Catheter Related Blood Stream	**Means of Verification** Prevalence of HAI in Sri Lankan hospitals

	Infections; Catheter associated Urinary Tract Infections; Ventilator Associated Pneumonia, antibiotic associated diarrhoea	
Monitoring & Evaluation	Reports from the hospital Infection control committees on infection prevention and control activities quarterly to the Director Laboratory Services Reports from the hospital Infection control committees on use of alcohol based hand rubs quarterly to the Director Laboratory Services Reports from the hospital Infection control committees on rates of HAIs (Rates of Surgical site infections of clean surgeries (LSCS infections already identified as a quality indicator by the Quality Directorate of ministry of health); Intravascular Catheter Related Blood Stream Infections; Catheter associated Urinary Tract Infections; Ventilator Associated Pneumonia and antibiotic associated diarrhoea) yearly to the Director Laboratory Services Reports on MRSA rates and hand hygiene compliance through the Quality Director to the Director Laboratory Services of Ministry of Health Reports on prevalence of HAIto the Director Laboratory Services of Ministry of Health These reports should be evaluated and actions should be taken by the multi-sectorial alliance for combating antimicrobial resistance with the Director Laboratory Services.	
(*) Reference to Research		

Program title	**Neuro Surgical Services**
Focal point	Deputy Director General (Medical Services) I
Proposal Submitted by	**Neurosurgeons Association of Sri Lanka**
Back ground / Situation Analysis *(Problem Analysis)	Neurosurgery is one of the highly specialised surgical subspecialties that require sophisticated equipment and infrastructure including intensive care facilities, wards and operating theatre facilities that must be readily accessible. Moreover, the neurosurgery advanced worldwide, during the last two decade with the concept of micro neurosurgery made possible by the advancement of technology. The integrated support of radiology services, laboratory services and rehabilitation services is mandatory for a proper service. All these components cannot be compromised in providing optimal neurosurgical service and hence the high initial cost involved in establishing a neurosurgical unit. Head injuries are a major cause of death and disability all over the world, and Sri Lanka is no exception. It is noted that the numbers of head injuries have increased and over the past decade they have become more severe and complex. With the expansion of medical specialist services in the country and advancement of imaging facilities etc. other neurosurgical problems are also diagnosed more than ever before. Therefore the need of a good neurosurgical service covering the whole country is necessary. There are only 17 working neurosurgeons in Sri Lanka whom 13 serve the 8 neurosurgical unitsin the Government sector. A substantial amount of neurosurgeries are done in the private sector at present. However neuro trauma mainly presents to the Government Hospitals. It is unfortunate that the services provided by these units are constrained and has become suboptimal due to multiple reasons like lack of infrastructure and equipment, and lack of junior medical, nursing and para-clinical staff. Since there is no proper national policy at present, attitudinal misconducts of certain senior neurosurgeons have also contributed to this sad plight. Therefore the Neurosurgeons Association of Sri Lanka (NSASL) welcomes the initiative of the Ministry of Health to prepare a national health master plan that would streamline the neurosurgical services for the future. This document prepared by the NSASL gives a comprehensive set of recommendations for an optimal Neurosurgical Service in SriLanka.
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	Since there is a high cost and demand for infrastructure, high running costs and dearth of specialist neurosurgeons in the country, a well-integrated and standardised system of neurosurgical centres is essentially needed

Justification	
Important assumptions / Risks / Conditions	
Vision	
Mission	
Goal	
Programe Objectives	**A. <u>NEUROSURGICAL UNITS:</u>** • One neurosurgical unit per each Province of the country must be established. These units must be placed in the major Teaching Hospital of the Province. At present there are 8 neurosurgical units in the country established in major Teaching Hospital of each Province except in Sabaragamuwa Province. This unit needs to be established in the near future. • Lady Ridgeway Hospital for Children is the major hospital in the country for paediatric medical care and a paediatric neurosurgical unit must to be established here. This centre must function as the national centre for specialised care of trauma and non-trauma paediatric neurosurgical patients. • The National Hospital of Sri Lanka holds the largest and most equipped units in the country that includes the Neurotrauma Centre. Therefore this centre must function as the ***National Centre*** for specialised care of adult trauma and non-trauma neurosurgical patients. **PROVINCIAL UNITS:** • These units must be able to handle basic trauma and non-trauma neurosurgical patients. They must be able to perform both cranial and spinal surgery. • Complex surgeries that require more sophisticated equipment and expertise as decided by the treating neurosurgeon should be referred to the National Centre at NHSL.

	• A provincial unit must have separate in-ward facilities, Neurointensive care unit with at least 5 ICU beds with ventilator facilities and a dedicated operating theatre. **THE NATIONAL CENTRE AT NHSL** • The NHSL houses the largest neurosurgical facility including the Neurotrauma Centre. At present 3 units function separately under the supervision of 3 consultant neurosurgeons. Collectively the units have approximately 300 in-ward beds, 80 neuroICU beds and 10 operating theatres. • The NSASL recommends integration of the 3 units into a single Department of Neurosurgery that will function with several consultants appointed as per the cadre projection for 2020 and beyond prepared and submitted to the Ministry of Health by the NSASL previously. (*See Annexure 1*). The traditional concept of one unit for a single consultant must be abandoned. • The National centre will handle complex cases and support the peripheral units as required apart from its general neurosurgical services to the Western Province. • The original vision of the founders of the Neurotrauma Centre was to make the unit a 'Centre of Excellence' in the region. In this regard the originally planned divisions of this unit eg: the spinal unit, neuroradiology unit with facilities for neurointerventional procedures, neuro-rehabilitation unit etc. must be made functional. An expert committee must be appointed to re-visit and implement the goals and plans originally made for this unit and also to introduce newer services as appropriate (eg: stereotactic radiosurgery, functional neurosurgery etc.) • This centre must be developed to give high standard of treatment to the more affluent neurosurgical patients both local and foreign citizens(esp. of the region with promotion of health tourism) who can pay for their medical treatment. A reasonable package can be introduced. This will generate good income for the hospital and the staff. High running costs of the Centre can be covered from the income generated. **B. <u>HUMAN RESOURCES:</u>** • **Consultant cadre** must be filled strictly in accordance to the cadre projection and filling priority recommended by the NSASL (see Annexure 1). The transferable posts in the National Neurosurgical Centre at NHSL will provide a chance for the junior consultants to gain advanced work experience for a period of 4 years while rotating in the peripheral centres. This must be regulated so that each and every junior consultant gets this chance at least once before they get in to an end post in the Centre.

- **Medical officers** play a vital role in these units and a peripheral unit will need at least 6-8 medical officers for smooth functioning. Adequate numbers of medical officers must be appointed to all neurosurgical units from annual transfers and from new appointments as the case may be.
- Medical officers involved in neurosurgical procedures gain specialised skills during their tenure in the neurosurgical unit. These skills and expertise can be productively utilised for the benefit of the neurosurgical patients if these medical officers (if they prefer to do so) are given transfers to other neurosurgical units in the country at the end of their 4 year tenure at a particular unit.
- **Nursing officers must** be appointed in adequate numbers. The neurosurgical centres must get the priority when they are appointed as the degree of difficulty and involvement in caring the subconscious neurosurgical patient population is greater compared to other patient populations.
- **Health related junior staff** categories must be provided in adequate numbers for all the neurosurgical units.

C. <u>NEUROSURGICAL EQUIPMENT AND CONSUMABLES:</u>

- Neurosurgery requires special equipment and intraoperative imaging facilities which are often comparatively expensive. All neurosurgical units must be equipped with the following in order to perform basic neurosurgical procedures.
    - **Neurosurgical operating bed**
    - **Head fixation device**
    - **Neurosurgical operating microscope**
    - **High speed drill system**
    - **Ultrasonic tissue aspirator**
    - **C-Arm fluoroscopy machine**
    - **Brain retractor system**
    - **Wilson's frame**
    - **Neuro navigation system**
    - **Biopsy head frame**
    - **Neuro endoscope**
    - **Nerve Monitor**
    - **Standard instrument sets for individual surgical procedures**
    - **CT and MRI facility**
- Other equipment required for critical care (eg: ICP monitors and transducers) and the range of consumable items (eg: VP shunts, EVDs, pedicle screw systems and plating systems etc.) are also essential for optimal care

and must be supplied to all neurosurgical units without undue interruption.

- Purchasing of equipment and consumables must be standardised and transparent. Conformity of equipment and the need of the end-user (Neurosurgeons) can be achieved by standard **Technical Specifications** provided by the NSASL that are updated regularly. This will also assure the uniformity and quality of equipment and consumables in all the neurosurgical units in the country. NSASL is ready to provide standard Technical Specifications for neurosurgical equipment and consumables.

D. <u>ANCILLARY SERVICES:</u>

- **Neuroanaesthesia:** Agood anaesthetic service and neurocritical care service is mandatory for good out comes in neurosurgery. Therefore a separate neuroanaesthetic team comprising neuroanaesthetist/s and anaesthetic medical officers trained in neuroanaesthesia and neurocritical care must be provided at least to the larger neurosurgical centres (eg: NHSL – already has a team, TH Kandy, TH Karapitiya). The NSASL recommends an immediate dialogue with the College of Anaesthesiologists mediated by the Ministry of Health in this regard.
- **Neuroradiology:** Unrestricted availability of Computed Tomography (CT Scanning) and Magnetic Resonance Imaging (MRI Scanning) is mandatory for a neurosurgical unit. Therefore all neurosurgical centres must have access to both these imaging modalities, ideally - on site. Neurosurgical units that do not have MRI imaging facilities on site must be given unrestricted access by the nearest hospital that has MRI facility.
- **Neurointerventional services** are at a very primitive level at present due to lack of neurointrventionalists in the country and high cost of devices used. Neurointerventional procedures are the first line treatment modality for neurovascular diseases like Berry aneurysms in all over the world for the past two decades or more. Training of neurointrventionalists must be encouraged on a priority basis by both the College of Radiologists and NSASL. The NSASL recommends an immediate dialogue with the College of Radiologists mediated by the Ministry of Health in this regard.

- **Histopathology and other laboratory services:** An efficient and reliable service in these departments is an essential requirement.
- **Neuro-rehabilitation:**Neuro- rehabilitation is an important adjunct in neurosurgical management. Having a dedicated team of physiotherapists for all neurosurgical units is recommended.
  The underutilised neuro-rehabilitation facility at the National Centre at NHSL that has been designed to have speech therapy and occupational therapy services must be made fully functional on a priority basis and must be available to all neurosurgical units in the country.

E. <u>NEUROSURGICAL TRAINING:</u>

- There is no standard neurosurgical training programme in the country. Hence there are some constrains in attracting trainees and deficiencies in the training. Therefore it is mandatory to reorganize the neurosurgical training in collaborations with the PGIM. We suggest appointing a special committee to work with the neurosurgery study board to formulate a mechanism for this purpose.
- NHSL should be recognize as the prime training centre, and therefore appointing more number of neurosurgeons will facilitate training, achieving targeted number of neurosurgeons in the country (WHO recommendation 0.5 to 100,000 population))

F. <u>FUTURE:</u>

- The imaging data can be linked through a computerised system (eg: PACS or equivalent system) for easy access in the wards, clinics and operating rooms. This will cut down the large expenditure on x-ray/CT/MRI films and also will help save the environment.
- Imaging data of all neurosurgical units in the country can be linked digitally which will allow exchange of information on patient care effectively between the units as and when necessary.
- We suggest establishing highly specialized spinal centres and neuro-rehabilitations, where patient management is done by both neurosurgeons and orthopaedic surgeons jointly. Following are proposed centres:

  - Ragama National spinal and rehabilitation
  - Spinal and rehabilitation centre Kandy (Digana)

<table>
<tr><td></td><td colspan="2">▪ Spinal and Rehabilitation centre Anuradhapura or Jaffna

G. <u>CONCLUSION:</u>
Services of a neurosurgical centre will save lives and minimise disability in the neurosurgical patient population who would otherwise face catastrophic consequences. Hence it is essential that these units are developed and energised to serve the whole country in a high standard and a cost effective manner. The implementation of above recommendations undoubtedly will bring the neurosurgical service of Sri Lanka in par with the international standards.</td></tr>
<tr><td>Output</td><td>Indicators</td><td>Means of Verification</td></tr>
<tr><td>Monitoring & Evaluation</td><td colspan="2"></td></tr>
<tr><td>(*)Reference to Research</td><td colspan="2"></td></tr>
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Program title	**Ophthalmic Care**
Focal point	DDG (Medical Services) I
Proposal submitted by	**College of Ophthalmologists of Sri Lanka**
Back ground/ situation Analysis *(Problem Analysis)	During the past 30 years it was possible to raise the awareness among the general public on causes of preventable blindness like cataract, Glaucoma, Diabetic Retinopathy, Refractive errors and childhood Blindness.
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	• Elimination of blindness from cataract, Glaucoma and Diabetic Retinopathy in the elderly • elimination of childhood of Blindness • Rehabilitation of people with low vision Population of Sri Lanka
Justification	Elimination of blindness will have beneficial impact on the family and the society
Important assumptions / Risks/ Conditions	• Provision of equipment • Upgrading of units • Improving infrastructure facilities Patients with preventable disease could be unattended Each district should have a District Eye surgeon adequate number of ophthalmic technologists, adequate theatre sessions and supportive staff.
Vision	Elimination of preventable blindness
Mission	Development of proper referral system with monitoring and evaluation.
Goal	Elimination of preventable blindness

Programmer Objectives (Please prepare separate indicators for each objective)	Indicators 1. Incorporation of primary eye care into primary health care 2. Training of eye care workers Indicators – Number of eye care personals trained	Means of Verification Quarterly return from Eye units
Output (Please prepare separate indicators for each output)	Indicators Cataract surgical rate Number of patients screened diabetic retinopathy Number of patients screened for glaucoma Number of school children screened Number of ROP patients screened	Means of Verification Quarterly return from eye units
Monitoring & Evaluation	By District eye care team and finally by the college of Ophthalmologists of Sri Lanka	
(*) Reference to Research		

<table>
<tr><td>Program title</td><td>Urological (Genito - Urinary) Surgery</td></tr>
<tr><td>Focal point</td><td>DDG Medical Services I</td></tr>
<tr><td>Proposal Submitted by</td><td>Sri Lanka Association of Urological Surgeon</td></tr>
<tr><td>Back ground / Situation Analysis *(Problem Analysis)</td><td>Currently Urology Departments are established in following centres The number of urological surgeons in each centre is given within brackets

<table><tr><td>Province</td><td>No of Urological Surgeons</td></tr><tr><td>Western</td><td>NHSL (3) , THCN (1), THCS (1)</td></tr><tr><td>Southern</td><td>TH Karapitiya (2)</td></tr><tr><td>Central</td><td>TH Kandy (2)</td></tr><tr><td>Eastern</td><td>TH Batticaloa (1) , DGH Ampara (1)</td></tr><tr><td>Northern</td><td>TH Jaffna (1)</td></tr><tr><td>North Central</td><td>Th Anuradhapura (1) PGH Polonnaruwa (1)</td></tr><tr><td>Sabaragamuwa</td><td>PGH Rathnapura (1)</td></tr><tr><td>Uva</td><td>PGH Badulla (1)</td></tr><tr><td>North Western</td><td>PGH Kurunegala (1) DGH Chilaw (1)</td></tr></table></td></tr>
<tr><td>GAP ANALYSIS by using UHC tool</td><td>The association held discussions regarding the expansion of urology services in Sri Lanka with DGHS on 08th April 2015 and with DDG (MS) I on 16th June 2015 . It had been agreed establish 13 new Urology units in District General Hospitals initially .After these 13 units were opened , it was decided to increase the cadre in the excising units</td></tr>
<tr><td>Target areas & Beneficiaries</td><td></td></tr>
<tr><td>Justification</td><td></td></tr>
<tr><td>Important assumptions / Risks / Conditions</td><td></td></tr>
<tr><td>Vision</td><td>to develop and maintain a urology service that caters to the general population in a well distributed and equitable manner</td></tr>
<tr><td>Mission</td><td></td></tr>
<tr><td>Goal</td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Programe Objectives	**Indicators**	**Means of Verification**
(a) It was decided to open the 13 new urology units in DGH in the following order as agreed by DDG MS I on 16th June 2015	DGH Polonnaruwa DGH Chilaw GDH Kegalle DGH Hambantota DGH Monaragala DGH Trincomalee DGH Nuwaraeliya DGH Kalutara DGH Negambo DGH Vauniya DGH Matara DGH Ampara DGH Mannar	
(b) Simultaneous development of infrastructure (including instruments) and manpower (Medical officers and Nurses) to facilitate the smooth functioning of new and existing units		
(c) Once the setting up of the above 13 new urological units in DGH , is completed , the following existing units are to be expanded	NHSL - 4th post TH – Anuradhapura - 2nd post TH - Jaffna - 2nd post TH - Batticaloa - 2nd post	
Output (Please prepare separate indicators for each output)	Indicators	Means of Verification
Strategies / Major Activities		
Monitoring & Evaluation		
(*) Reference to Research		

Program Title	Establishing Accidental &Emergency Care Services
Focal Point	DDG/MS
Back Ground/Situation Analysis	Accidents and Medical Emergencies are conditions which lead to immediate risk to the life and or long term health of the affected person. The major health problems in the country are Accident which leads to 11% all deaths and Non Communicable Diseases which leads to emergencies comprise of 71% of all deaths. The leading cause of hospitalization is the accidents and emergencies where timely attention is important for fast recovery and to prevent complication of the injury as well as to prevent deaths. Accidents can be categorized intentional and unintentional injuries. Intentional injuries include self-inflicted, interpersonal violence and collective violence. Unintentional injuries are sub divided by the causal mechanism: Road Traffic Injuries (RTI), Drowning, Burns/Fires, fall and Poisoning. Unintentional injuries can also be sub divided based on the place of injury – Road traffic injuries, Home injuries, Occupational injuries, Leisure injuries etc. Medical Emergencies are emerging and increasing rapidly due to unusual rise of the Non Communicable Diseases. Recently it is noted that more and more Youngers who are in productive age (30y-40y) getting medical emergencies like heart attack, stroke (brain attack), diabetic coma. Etc.
Target area &Beneficiaries	Patients and health care employees
Justification	Vast majority of accident and medical emergencies occur in most productive ages (30y-40y). If timely attention with qualified staff and treatment will reduce hospital stay, fast recovery, complication of the injury and prevent deaths. Most injured people are in younger and most productive age. If they have delayed recovery and if they developed complication and even death, it will affect the country's economy. Most of the time lot of family members and relatives use their valuable time and other resources to take care of the diseased loved one. If the patient has delayed recovery, he or she has to be at long term in hospital leading to loss of productivity of family members and relatives. Some time in hospitals due to lack of resources at the current system which may leads to delayed recovery, complication or even deaths. If complications developed he or she has to suffer or depend on others. This will affect the reduce productivity and consume more resources.

	If a breadwinner is affected by an injury and ended up with disability and even deaths, the whole family will affect the unfortunate situation. Children's education and their future may also affect. Generally disabilities and deaths will affects economic status of the individual, family, community and finally country. Proposed Accident and Emergency project has planned to prevent the disabilities and deaths with fast recovery by which providing easy accessible, standard quality care to entire country.	
Important assumptions/risks/Conditions	Government commitment towards free health care service and increased funds allocation to expansion of services are on the right trend. Accident and Emergency care services policy approved at Cabinet of Ministers and National planning approval taken.	
Vision	Nation with an Excellent Accident and Emergency Care Service	
Mission	To establish a comprehensive accident and emergency care system which includes pre hospital, hospital and rehabilitation care to minimize the short and long terms health impacts on affected individuals.	
Goal	To reduce preventable mortality and disability related to accidents and emergencies in Sri Lanka by providing an efficient and effective Accident and Emergency Services at all levels of health care.	
Objectives	**indicators**	**Means of verification**
1. Island wide establishment or upgrade of A&E services in appropriate levels of care in government sector health service	Number of institutions Developed/Upgraded up to the standard	Maintained A & E units in Hospital according to the guideline
2 Enhancement of private sector involvement and improving the standards on A&E care in private sector hospitals	Number of Private hospitals developed/Upgraded up to the standard	Registered hospitals with standards A & E units at Private Sector Regulatory Council
3.Development and defining of standards on A&E services for each level of care A&Es will be divided in to 4 categories based on proposed care models in the guidelines. It ranges from apex centre (Level I) to Emergency Room (Level IV). Each province will have one	Number of copies distributed	Development of Guidelines and Manual for Accident and Emergency care services

apex centre (Level I) facility and a Level II facility will be available in all other Tertiary care institutions while, a Level III facility will be in all secondary care institutions and a Level IV facility will be made available in all primary care (Divisional Hospitals) institutions.		
4. Improving the capacity of relevant staff on A&E care	Number of training programmes conducted and Number of staff trained	Hospital records and participant list
5. Establishing pre hospital care services in each district as part of Accident and Emergency Care Management System	Number of Pre hospital care team developed	Hospital records
6. Enhancement of public awareness and commitment towards successful utilization of A&E services and empowerment of public on prevention of trauma	Number of awareness campaign conducted	Records of programmes Survey conducted with General public
7. Enhancement of patients' and public satisfaction on quality improvement of A&E care service	% of satisfied patients and public	Survey conducted with General public and patients
8. Monitoring the implementation of developed Accident and Emergency Care management System in the country through establishment of management information system related to A&E services	Number of Hospitals using management information system related to A & E services	Hospital survey
9. Enhancing research and development on Accident and Emergency Care	Number of research published	PGIM records and other relevant records
Out put	**Indicator**	**Means of Verifications**
Developed or upgraded Accident and Emergency Units	Number of institutions Developed/Upgraded up to the standard	Maintained A & E units in Hospital according to the guideline
Development of A & E guidelines and manuals	Number of Guidelines and Manuals distributed	Hospital records
Competence staff working in Accident and Emergency units Efficient patients management and information system	Number of trained staff	Training records

Positively changed health seeking behavior among general public	Number of training programmes conducted	Training record
Strategies/Major Activities	1. A&E Operational structure and care model 2. Triage system for A&E Units 3. Infrastructure development guideline 4. Standard Human Resource Requirements for A&E Units 5. Standard Medical Equipment Requirements for A&E Units 6. Standard Equipment, facilities and capacity building required for ambulances 7. Standard Drugs list for an A&E Unit 8. Standard Resuscitation Trolley for A&E Units 9. Information System for A&E Units 10. Capacity Building for human resources within the A&E Units 11. Quality improvement in A & E units	
Monitoring & Evaluation	A National A&E Care Steering Committee will be established to coordinate and review the implementation of this policy, strategic framework and implementation guidelines along with coordinating bodies at provincial and district levels. The National Committee will be chaired by the Secretary Health and the Provincial and District committees will be chaired by the Provincial Director Health Services and the Regional Director Health Services respectively. The implementation guideline on Information System will be followed to report on overall A &E Units performance and Patient Information Management System at A &E units. Facilities will be established to create inter-hospital communication systems to better plan for patient transfers including an ICU Bed availability, knowledge improvement of health teams in A&E Units and for providing expert advice to lower level A&E Units. For Injuries, an injury surveillance system will be established in selected A&E Units and a trauma register will be established to report on the trauma patient burden in the hospitals.	
• Reference to research	ACCIDENT AND EMERGENCY CARE POLICY OF SRI LANKA-2015	

Program title	Blood Transfusion Quality & Safety
Focal point	DDG MS II & Director / NBTS
Back ground / **Situation** analysis*(**Problem Analysis**)	NBTS is the sole provider of quality assured blood, blood products & related laboratory and clinical services to the Government & private sector hospitals of the country. Functioning as a centrally coordinated system, NBC acts as the coordinating centre for 96 hospital based blood banks scattered island wide, which are affiliated to 19 cluster centres depending on the geographic locations. In addition to the provision of safe blood and blood products and related laboratory and clinical services, the purview of NBTS is being expanded with "The Project of Upgrading the National Blood Transfusion Service with State of the Art Technologies". These services includes, upgrading of HLA testing, NAT testing, cord blood banking, stem cell transplant, frozen red cell facility and sample archiving. Currently NBTS strives to maintain the quality and standards of its existing services and the services being implemented with the project and also to introduce state of the art laboratory and therapeutic services.
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	<u>Target areas :</u> All components of NBTS; Which includes National Blood Centre, regional blood centresand all government Hospital Based Blood Banks. Private sector hospital based blood banks. <u>Beneficiaries:</u> Patients who obtain laboratory and clinical services of NBTS, Volunteer Blood donors and mobile campaign organizers.

Justification	In global scenario, Transfusion Medicine is a rapidly developing field which includes advanced treatment modalities with cellular therapy and transplantation. With improvements in the field of curative services, transfusion service has to be upgraded as a supportive service. With the increasing prevalence of HIV and other sexually transmitted diseases and wide spread of emerging and re-emerging diseases due to the effects of increased migrations, improvements in TTI screening technology has become a necessity to reduce the residual risks to the minimum. Although the National Blood Transfusion Service has had a vast improvement over the past few decades, some of the essential aspects have to be optimized or improved. Some of these aspects are; • Improving transport system within the network of blood centres for optimal management of blood inventory and efficient transport of blood samples. • Strengthening the legislations by implementing the blood policy. • Optimizing the cold chain maintenance and monitoring during transport of blood and test samples. • Expansion of available storage capacity for blood and blood products, consumables and reagents. • Process improvements in blood component processing for improved quality assurance in line with cGMP.
Important assumption / Risks / Condition	Assumptions: • Continuous government commitment for the timely and adequate provision of human resources, capacity development, other physical resources and infrastructure facilities. • Continuous commitment of the community towards functions of NBTS. Risks: • Possible resistance of the private sector in establishing the legislative framework.
Vision	To be a unique model for the world securing quality assured blood services through a nationally coordinated system.
Mission	To ensure the quality, safety, adequacy and cost effectiveness of the blood supply and related laboratory, clinical, academic and research services in accordance with national requirements and WHO recommendations.

Goal	Provide optimum blood transfusion & related services to the people of Sri Lanka.	
Programme Objectives To ensure adequate provision of quality assured safe blood and blood products and related laboratory and therapeutic services to the entire country.	**Indicators** %of staff in each category underwent capacity building. %of staff got through the competency assessment. %Increase of in-house blood collection %of blood banks using automated Hbanalysers for donor Hb testing. %of blood banks using coolents for blood product transportation % Availability of SOPs for procedures in HBBs. %Coverage of EQAS for each test procedure. Number of internal and external audits performed. TTI positive prevalence rate in donor population in comparison to the general population Turnaround time for release of test reports. Blood component discard rates Number of HBBs obtained ISO accreditation %Increase in the storage capacity (For Components, reagents and consumables)	**Means of Verification** Training records Training records Blood donor statistics Equipment records Equipment records Document distribution records HBB review records Audit reports Hemovigilance report Report issue records Component discard statistics Accreditation records Facility survey records

To ensure the availability of state of the art therapeutic and laboratory facilities in relation to the field of Transfusion Medicine.	%of HBBs with established NBTSIS. %Increase of reagent and rare donor recruitment %Coverage of Blood Donor Health Care Programmes. %Coverage of Organizer awareness programmes. Number of cord blood samples preserved. %Compliance with AABB standards. Number of RCC units frozen. Number of stem cell transplants performed. %Coverage of NAT testing for donated blood. Number of PI platelets produced. %Increase of platelet pooling.	Facility survey records Blood donation records Donor care programme records Organizer awareness programme records Relevant registers and records.
Output	**Indicators**	**Means of Verification**
National Blood Policy implemented	NBTS as the sole provider of blood and blood products to the country.	Blood act and Blood policy documents
Transportation facilities for mobile blood drives improved.	Number of mobile blood donation buses in use.	HBB facility records

Cold chain management regularized.	Number of coolents and blood transport boxes available for each blood bank.	Equipment records
	Number of temperature monitoring devices available for each blood bank.	Equipment records
TTI testing centralized	Number of TTI testing centres.	TTI testing records.
Donor blood grouping automated and donor phenotyping established.	%Donor groupings performed by automation.	Donor grouping statistics
	Number of blood donors phenotyped.	Donor grouping statistics
Production of screening cells and ID cell panels established.	%Increase of HBBs practicing antibody screening and cross match technique.	HBB statistics
	Number of screening cell and ID cell panels issued per month.	Reagent issue records
Storage capacity for blood products, reagents and consumables optimized.	%Increase of the storage capacity.	HBB facility records
	%Reduction of FFP discards.	Component discard records.
	Number of cool rooms installed	NBTS facility records
Production of pooled platelets is established.	%Increase in production of pooled platelets.	Component production records
	Number of processing centres practicing platelet pooling.	HBB statistics
Equipment calibration and preventive maintenance programme established.	Number of equipment calibrated.	Equipment records
	%Coverage of preventive maintenance of equipment	Equipment records
Output	**Indicators**	**Means of Verification**
IEC Unit established	Number of IEC materials published.	IEC materials
	%increase in donor recruitment.	Donation records

Transfusion medicine research & university department established.	Number of publications	Publications
NBTS upgraded to a WHO collaborating centre for training.	Number of international students trained.	Training records
	WHO certificate of approval	
Enrolled in EQAS programmes for each test procedure.	Number of EQAS programmes registered.	EQAS records
	%Coverage of HBBs in EQA programmes.	EQAS records
ISO accreditation extended to HBBs	Number of HBBs obtained ISO accreditation.	Accreditation records.
Cord blood bank established	Number of cord blood samples preserved.	Cord blood bank records
	Compliance with AABB standards	Cord blood bank registry
Stem cell transplant established	Number of stem cell transplants performed.	Stem cell registry
Bone marrow transplant established	Number of bone marrow transplants performed.	Bone marrow registry
Bio safety and infection control practices improved.	Number of staff trained on bio safety and infection control	Staff training records
	Number of PPE available at HBBs	Bio safety records
	%Coverage of staff vaccination programme.	Staff vaccination records
	Number of autoclaves available for neutralizing of TTI positive clinical waste.	Equipment records
Quality systems established	Additional tests included in the ISO accreditation programme	Certificates for accreditation
	Number of HBBs accredited with ISO	Certificates for accreditation
	cGMP accreditation	Certificates for accreditation

Strategies / Major activities

1. Establish a National committee to proceed with the blood act and blood policy.
2. Establish a committee for formulation and implementation of policies for NAT testing, sample archiving, cord blood banking and stem cell transplant.

3. Procurement of vehicles for mobile blood drives.

4. Procurement and distribution of coolants, transport boxes and data loggers for temperature recording.

5. Conduct a feasibility study and developing a plan to reduce the number of TTI testing centres to 2 or 3.

6. Conduct a survey to determine the cluster centres which is beneficial to install automated blood grouping machines and the number of automated grouping machines required.

7. Procurement and distribution of automated blood grouping machines to main centres.

8. Phenotyping of group O blood donors for production of reagent cell panels.

9. Expansion of the reagent preparation laboratory with an addition of a clean room.

10. Conduct a facility survey at the reagent laboratory and identify the resource requirement for the expansion of services.

11. Conduct a facility survey to identify the existing storage capacities for all blood products and calculate the additional storage space requirement.

12. Building of storage cool rooms, freezer rooms for the expansion of storage.

13. Conduct a pilot study at NBC for preparation of pooled platelets and identify the resources required to establishment and expansion of the program.

14. Establish a Biomedical Engineering Unit at NBC.

15. Train the identified staff on equipment calibration.

16. Identify and purchase the equipment required for the calibration program.

17. Establishing an IEC unit at NBC and design IEC material.

18. Identify the research areas with regards to currently established and new technologies.

19. Establish an ethical review committee at NBC.

20. Coordinate with the WHO country office to establish a WHO collaborating centre at NBC.

21. Identify the laboratory tests required External Quality Assessment.

22. Identify the suppliers who supplies EQA samples and register with the programmes.

23. Identify and procurement of equipment for reagent bottling and packing to Improve the SL-NEQAS(BGS) program .
24. Select HBBs for the ISO accreditation and capacity building on ISO accreditation.
25. Preparation of policy and procedure documents for cord blood banking, stem cell and bone marrow transplant, pathogen inactivation, NAT testing and sample archiving.
26. Conduct a feasibility study on establishment of an island wide expansion of NAT testing.
27. Capacity development on bio-safety and infection control.
28. Procurement and distribution of autoclave machines for neutralizing of TTI positive clinical waste.
29. Procurement and distribution of PPEs for HBBs.

Monitoring & Evaluation

1. Who? Director/ NBTS with delegated officers.
2. When? Periodical and annual surveys.
3. What actions to be taken on the monitoring results?

   Positive results : Reinforcement and continuous improvement

   Negative results: Failure Mode Effect Analysis to identify the failures / areas for improvement.

(*) Reference to research	

Program Title	Enhanced Quality of patient Care Services	
Focal Point	DDG/MS	
Back Ground/Situation Analysis	Current system lacks a review system to analysis, implement or Improve patient care services in Sri Lanka. A system of mechanism or guidelines or methodology should be reviewed or upgraded patient care services in order to improve the quality of patient care services.	
Target area &Beneficiaries	The whole Population of the Country	
Justification	Sri Lanka Has an inspiring Record of health Care provision with a model proficient in health outcomes compared to similar Developing countries. Over the Decades since Independence the government Of Sri Lanka (GoSL) has played remarkable role in the health System. Dispute of impressive out comes associated with good maternal and child care health, low level of communicable diseases and long life-expectancy. since that era of health care figures no methodology to audit the health care services	
Important assumptions/risks/Conditions	A continues appraisal system , performance reviewing method, improved occupation atmosphere of the employees as an responsive health care system	
Vision	A healthier nation that contributes to its economic, social, mental and spiritual development.	
Mission	To contribute to 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. Objectives are; To empower community for maintaining, promoting their health To improve comprehensive health services delivery actions To strengthen stewardship management functions To improve the management of human resources	
Goal	The ultimate goal of primary health care is better health for all identified five key elements to achieving that goal: reducing exclusion and social disparities in health (universal coverage reforms); organizing health services around people's needs and expectations (service delivery reforms); integrating health into all sectors (public policy reforms); pursuing collaborative models of policy dialogue (leadership reforms); and Increasing stakeholder participation.	
Program Objectives	**Indicators**	**Mean of Verification**
To upgrade ,develop, schematic review of existing Opd /ipd patient care services related issues standards, protocols, righteous Medical practices, patient disease diagnostics, righteous investigations, appropriate treatment. activate or initiate medical audit system/ electronic power review/ assessment system	▪ implement or upgrade hospital ops/ipd protocols & procedures ▪ review/implementation of patient complain system ▪ upgrade /review of hospital investigations ,diagnosis, treatment	▪ Hospital Records &Reports

Out put	Indicators	Mean of Verification
Impel Quality Secretariat for the ministry of health	Revision of functions established/quarterly	• Quarterly Review
Review progress of Quality management Units in tertiary Care Hospitals	Review Progress of Established Quality Management Units Quarterly	• Quarterly Review
Impel performance appraisal system implemented in national/provincial & institutional level	Impose protocols and regular review Patient disease diagnosis, investigations, treatment,	• Quarterly Review and reports • Annual report
Impel and review Manuals and protocols are developed for righteous medical Practices & responsive health Services	No of articles developed in respective specialty /quarterly /yearly	• Published data
Human resource development plan focusing on health work force to provide responsive health services & services &safety care	• Continuous resource Development • Impel new action plan	• Reviews
Monitoring & Evaluation	Continuous review every quarterly , midterm evaluation	

	Activities	Expected Results	Process Indicators
1.	Impel new tasks for Quality secretarial of MOH	Review and upgrade quality assurance programme	Review meetings, annual reports
2.	Improve services of Quality management Units in Tertiary care hospitals, base hospitals and DPDHs Offices	Impel productivity & Quality Culture is Crested in Hospitals	do
3.	Re organizing Development & Improve quality of work environment in health institutions	Patient friendly environment for patients	Do
4.	Accelerate Peer education programmes NAQP in all districts	Actuate resources workforce in quality improvement to organize	Do
5.	Periodical performance reviews	Revise performance of different Hospitals at central level	Do
6.	Contrivance of institutional frame work for primary care functions & referral system among different levels of hospitals	Reforming Quality of all hospital & patients Care services	Do
7.	Develop guidelines on righteous medical practices	Impregnability in patient care Services	Management of quality indicators
8.	Establish and modify Clinical practice guideline for MS of common clinical conditions	Impel Clinical guideline.	Impose working group in developing guidelines.

Program Title	Establish a system to improve the patient rights and their access to systematically updated information on all public and private facilities
Focal Point	Secretary of health
Back Ground/Situation Analysis	Universal Declaration of Human Rights recognizes “the inherent dignity” and the “equal and unalienable rights of all members of the human family”. And it is on the basis of this concept of the person, and the fundamental dignity and equality of all human beings, that the notion of patient rights was developed. In other words, what is owed to the patient as a human being, by physicians and by the state, took shape in large part thanks to this understanding of the basic rights of the person and system to implement to impose the behalf of the grieved party
Target area &Beneficiaries	Director general of health services
Justification	Human Rights has been instrumental in enshrining the notion of human dignity in international law, providing a legal and moral grounding for improved standards of care on the basis of our basic responsibilities towards each other as members of the “human family”, and giving important guidance on critical social, legal and ethical issues. But there remains a great deal of work to be done to clarify the relationship between human rights and right to health, including patient rights. Recognizing this method like Ombudsman draws setbacks ability of a grieved party toinitiate a complaints and obtaining justice. Systematic and reconciliation upgraded version of patient right friendly method. de
Important assumptions/risks/Conditions	Governments have a fundamental responsibility to ensure universal access to quality health care, education and other social services according to people’s needs, not according to their ability to pay. • The participation of people and people's organizations, trade unions and civil rights societies is essential to the formulation, implementation and evaluation of all health and social policies and programmes, Liaise and obtain upmost support in formulation of new policies.
Vision	Equity, ecologically-sustainable development and peace are at the heart of our vision of a better world - a world in which a healthy life for all is a reality; a world that respects, appreciates and celebrates all life and diversity;.
Mission	Health is a social, economic and political issue and above all a fundamental human right. Inequality, poverty, exploitation, violence and injustice are at the root of ill-health and the deaths of poor and marginalized people. Measurement is central to the concept of quality improvement; it provides a means to define what hospitals actually do, and to compare that with the original targets in order to identify opportunities for improvement.

Goal	Build broad-based popular movements to pressure governments to incorporate health and human rights into national constitutions and legislation. • Fight the exploitation of people's health needs for purposes of profit	
Objectives	Indications	Means of Verifications
Implement protracted version of Ombusdsmen system relevant to MOH&PMOH Relevant	• Patients' rights in relation to health • Notified case of patient rights violation	• Human rights organizations and charters
Out put	Indications	Means of Verifications
Patient charter in relation to patients' rights	Reinforce of patients charter	• patients charter accessibility
Patients' rights structural system establishment	• impose of regulations and legislations to prevent patients' rights violation	• method of reporting
Impose system to brief victims of patients' rights violations	• development of a system to bring	• enhance of the system
Monitoring & Evaluation	1. legislations-Ministry of health and its provincial ministries and other related disciplinary bodies 2. excellence- periodical surveys and hoc surveys, and forms of reports 3. Activities-regulations, circulars, guidelines, disciplinary bodies, penalty of violation, training/rehabilitation, compensations schemes for victims and other methods of grief.	

	Activities	Expected Results	Process Indicators
I.	Human rights issues advocated for surveillance	Identification of Groups of human rights issues	Galvanize policy making task force
II.	Formulation/upgrade of feasible system/standards to prevent patient right violations	Standard protocol of conduct to prevent patient right violation	Methodology to address respective disputes
III.	Upgrade/modify victims of patient rights violation	Justice for victims of patient right violators	Methodology to notify issues
IV.	Establish Ombudsman system within MOH to promote and protect patients' rights	Initiation of ombudsman system	Cabinet approval to secure funds
V.	Develop/upgrade patient charter in relation to health related human rights	Initiation of patient charter	Cabinet Approval for appoint task force

Program Title	Enhanced Emergency Preparedness & Response	
Focal Point	DDG/MS	
Back Ground/Situation Analysis	Health departments play an extremely important role in all-hazards emergency preparedness and response. Public health professionals within these departments should have immediate access to guidance and information that will assist them in rapidly establishing priorities and undertaking necessary actions during the response to an emergency or disaster.	
Target area &Beneficiaries	Whole population	
Justification	Establishing Emergency Attentiveness & Retort system following mass natural and man-made disaster's deficiencies perfection there are many set back following initiation nevertheless	
Important assumptions/risks/Conditions	• Strengthen Government committed to establish EPR activities • Restore commitment of the health care staff towards the betterment of enhanced emergency preparedness & response • Allocate adequate human resources to respective health institutions • Unrestricted transportation in disaster areas. • Focused tailor-made preventive activities • Multi sectoral approach in dealing with situations	
Vision	Provide instantaneous health care to anguished distressed people.	
Mission	Comprehensive well organized systemize care to people irrespective to one's cast and position using latest equipment and guideline in order to minimize distress related to disaster.	
Goal	The goal of most emergency medical services is to either provide treatment to those in need of urgent medical care, with the goal of satisfactorily treating the presenting conditions, or arranging for timely removal of the patient to the next point of definitive care. This is most likely an emergency department at a hospital. The term emergency medical service evolved to reflect a change from a simple system of ambulances providing only transport, to a system in which preliminary medical care is given on scene and during transport. In some developing regions, the term is not used, or may be used inaccurately, since the service in question does not provide treatment to the patients, but only the provision of transport to the point of care.[9]	
Programe Objectives	**indicators**	**Means of Verification**

Implement customized out reached primary health care units incorporated to serve at the time of an emergency or a disaster	• ER equipped health care facilities • Number of benefited following ER services hospitals providing care in the area. • Variance between affected and unaffected in relation to the whole country • Approachable difference between affected an affected in relation to the whole country. • % of death over the first 24 hour of admission	• Special survey • Respective reports and records • MOH Reports & date • Epidemiological reports/records • Health care reports/records • Various Clinical records/Report's
Strategies/Major Activities	indicators	Means of Verification
Improve ER units at each levels of care	Functional ER unit	• MOH/PHA data • Hospital data
Upgrade management guidelines	• Available ER Management Units	• Capacity of trained staff
Improve ER system at each level of care	• Operational ER units • Surveillance	• Surveillance repots • PHA records
Mobilize ER units to requirement	• Funds and activities carried out	• Records /minutes at MOH/PHA • Monitoring records • Official reports of MOH/PHA
Provision of resources	• Annual amounts of ER mobilized • NO OF ER aid obtained	• MOH/PHA Records • Monitoring reports
Related Projects		
1.2.1	• Upgrade Medical supply of drugs	
1.2.2	• Upgrade medical supply of drugs	
1.3.2	• Upgrade of formulation of ER	
1.5.3	• Upgrade disable health issues	
1.5.4	• Health of people in conflict affected areas and disable population	
5.2.1	• Establishment of improved management system and capacity building for the staff	
Agencies coordinated	MOH. Provincial government ,Tri forces, NGO ,CBO, social service department	
Monitoring & Evaluation	• Initiative authority: MOH. Provincial government ,relevant Hospitals • Period ; Quarterly reports ,Annual reports, survey data	

Program title	**Healthcare Quality and Safety**
Focal point	Director / Healthcare Quality & Safety
Back ground/ situation Analysis *(Problem Analysis)	**Background & Situation Analysis** Sri Lanka provides free healthcare services to all the citizens irrespective of their status, income or geographic location, and has achieved remarkable health outcomes, particularly relative to neighboring countries with a similar income range. Nevertheless, there are certain drawbacks in the hospital-based healthcare delivery system which have affected the quality and efficiency of its services as demonstrated by overcrowding in the higher level institutions, deficiencies of amenities and patient dissatisfaction. Over the last three decades successive governments in Sri Lanka have strived to address these deficiencies in order to improve the healthcare service provision in the preventive and curative sectors. The preventive health service areas were re-demarcated to serve more people. Many hospitals were upgraded in the remote areas. The Health Sector reforms taken place in 1994 onwards provided opportunities to establish District General Hospitals in each district which provide basic specialized services. Training of health personnel was intensified. Medical/Nursing and Paramedical staff were appointed to many hospitals. The intensive care facilities and laboratory services were expanded with appropriate technology. Despite these initiatives by the Ministry of Health to improve the services, certain major deficiencies still exists in the government health sector, namely: • Some hospitals do not provide services focusing on customers / patients expectations; • Services provided by the hospitals are not attractively presented to the people; • Many hospitals ignore the non-health expectations of people such as,

	○ Basic Human Needs ○ Dignity ○ Kindness and compassion ○ Communication with patients and relatives ○ Prompt attention in emergency care; and ○ There had been numerous complains on deaths or disability due to inappropriate care in hospitals Even though the hospitals provide valuable service to the public, the services were not well recognized by the public. However, many hospitals have taken their own initiatives to improve the services by way of improving infrastructure, introducing monthly performance reviews, preparing manuals and guidelines, productivity improvement programmes etc. The Ministry of Health has published valuable documents in Quality related activities in different service areas. The evolution of a National Quality Assurance Programme in the Sri Lankan Health Services dates back to 1989 with the initiatives of then the Deputy Director General of Health Services. A pilot project was started at General Hospital, Kurunegala to improve basic quality of care in hospitals. Health indicators were prepared to monitor the different units of the hospitals. In 1995, the Ministry of Health has published a handbook on National Quality assurance Programme which provides basic concepts of Quality and Guidelines on monitoring indicators. Even though, the pilot project was not formally expanded to other hospitals, some institutions have embraced the concept and marched forward to introduce quality improvement programmes in their own institutions. The major drawbacks of this programme were, not paying attention on customers' expectations, staff welfare and human resource development. The concept worked in a closed environment with limited participation of employees. As such during late 1990's and in the new millennium, the professionals working on quality emphasized the importance of improving

	systems, rather than blaming failures and ensure addressing customers' expectations. The philosophy '***Quality Fails when System Fails'*** by Sir Donald Berwick, one of the pioneers in Quality Healthcare in USA and European countries was highly taken up. Learning from health and non-health organizations to prevent mistakes, improve systems and satisfy the customers was considered more fruitful. Quality Assurance Programme was re-launched in 2000 with the concept '***Quality Healthcare through Productivity'***. As an entry point for the quality improvement programme, Castle Street Hospital for Women used the celebrated Japanese concept of '5S' to organize the hospital. Subsequently improved efficiency and reduced waste using productivity concepts. Then the hospital concentrated on the healthcare quality related activities. For the first time in the history of Sri Lankan health services, Castle Street Hospital won national awards for quality of care and productivity in year 2001 - 2004. The Ministry was quick to use the opportunity to fill a long felt void and named Castle Street Hospital for Women (Teaching) as the Focal Point for the National Quality Assurance Programme by circular No SH/178/93 dated 08 – 10 – 2003. This is in order to initiate Quality Assurance Programme in all other hospitals. A consultative meeting was held on 11th October 2003 to review the possibility of establishing a Quality Secretariat for the Ministry of Health, Sri Lanka. Due to the said developments to establish a Quality Secretariat, it was recommended to function at Castle Street Hospital for Women premises temporarily. As a result of this initiative of the Ministry of Health, several hospitals such as Ampara DGH, Mahiyangana BH, Gampaha DGH, Kurunegala TH, Dambana RH and many other health care institutions won national awards related to 5S, Kaizen, Productivity and Quality in health care. Also, a draft policy on Hospital Quality and Safety was developed. The quality concept of using 5S concept to organize the hospitals and improve the systems, then introducing concepts and finally marching towards Total Quality Management is well accepted by the other developing countries as

	cost effective method. Through Asia-Africa Knowledge Co-creation Programme (AAKCP) Ministry of Health trained 28 developing countries on 5S-CQI-TQM. In year 2008, with the objective of reducing the variation in the clinical practice, 93 clinical guidelines were prepared and disseminated to all secondary and tertiary care hospitals. Also 6 guidelines for the different types of healthcare institutions were prepared by the Ministry of Health. This is funded by the World Bank under Health Sector Development Project, Hospital Quality and Efficiency component. Sri Lanka is now on the growth phase and the government and the administrative authorities need to position themselves to be geared to forge ahead to the new level of development, for the mere fact, that the country has to overcome the impediments of conflict that had strangled and stalled the country's development and economy for over thirty years. Post war conditions for Sri Lanka have been remarkably conducive and has created a unique climate for development activities of all aspects, hitherto been deterred and denied by the three-decade long conflict with terrorism. Sri Lanka's private healthcare industry grew by 23 percent last year and the country has huge potential to develop medical tourism in the country. Towards this it is imperative that the quality and safety standards of healthcare need to be improved and ensured. Then also, it was recommended to establish an apex body to facilitate the quality improvement programme throughout the country. The new Directorate of Healthcare Quality and Safety was commissioned in September 2012. Since then measures have been taken to carry out the quality improvement programme of the Ministry of Health in a planned manner. Currently this Directorate works under the concept of ***'Centrally Driven, Locally Led, Clinically Oriented, Patient Centered Continuous Quality Improvement Programme***addressing the following areas:

1. **To ensure effective implementation of QA programme in Healthcare Organizations**

    - Established QMUs and District HQS - Institutionalized the National Quality Assurance Programme in the Country. Established the functional Quality Management Units in all secondary and tertiary care Hospitals and District Healthcare Quality and Safety Unity in each District to monitor the quality related activities of primary care and preventive care institutions.
    - Situation Analysis Carried out in Line Ministry Institutions
    - Initiated the Monitoring of IIry and IIIry care hospitals with 23 indicators
    - Published National Guidelines on Healthcare Quality and Safety for curative and preventive sectors
    - Conducting Performance Review meetings
    - Developing 2nd Line Leadership

2. **Developed the National Policy** in Healthcare Quality and Safety for Sri Lanka which has been approved by the cabinet of Ministers
3. **To ensure standards in clinical care practice and management of hospitals towards quality and safety**

    - National Guidelines on Healthcare Quality & Safety developed
    - 93 National Clinical Guidelines developed and initiated revision of National Guidelines.

4. **To enhance the knowledge and skills of health care personnel through continuous Capacity building programs on Quality and Safety**

    - health personnel trained by Directorate in 2014,
    - Developed the Master Trainer's Manual for Quality Assurance Programme.

- Training on Clinical Audit as pilot commenced
- Producing film 'Responsiveness in Healthcare' to improve responsive health care in curative and preventive health services

5. To ensure effective risk management practices in healthcare institutions

- Introduced the Safe Surgical Check list into the National Programme in 2013
- Introduced the National circular on Hospital associated infections
- Hand Hygiene compliance survey and monitoring the progress.
- In the process of introducing the adverse event and readmission forms to the National System (Forms and guidelines developed and pilot done).

6. **Creating a national accreditation council**

Initiated the process – a working group appointed – Working at present with Australian Council Healthcare Standards

7. **Sharing of Best Practices –**

A conference with private and public hospitals to share the best practices

8. III Country Training Programme

Conducting III country training programme on South – South Cooperation. Up to June 2015, 31 countries have been trained on 5S-CQI-TQM activities.

Problem Statement

World Health Organization developed its strategies to improve quality and patient safety for 206-2020. In November 2015, the monitoring tool was

	piloted in Sri Lanka. The summary of the results is annexed. Accordingly the following were found to be addressed in the following years. a. Legal and regulatory framework to improve patient safety and quality b. Introduce accreditation and external quality mechanism to promote healthcare quality and safety. c. Patient Safety risk Management and monitor adverse events, near misses and readmissions. d. Promote medical devices safety e. Improve research capacity on patient safety and quality. The barriers and challenges faced to improve quality and safety are: **a. Inadequate visibility of Support from Stakeholders – Lack of teamwork** It has been noticed during the past few years that the support from stakeholders were not adequate to improve quality and safety including the professional colleges, hospitals. The teamwork among staff members found to be worsening. CQI inherently increases the dignity of the employees involved because it is not only recognizes the important role belonging to each member of the process improvement team, but also involves them as partners and even leaders in the redesign of the process. In some cases, professionals can also serve as consultants to other teams and to management itself. In a study on factors affecting Continuous Quality Improvement Programme in Sri Lanka (Somatunge*et al*, 2015), it was fond that teamwork has the lowest mean (3.05±0.802) when compared with the other independent variables (Top Management Commitment, Training, Monitoring System, Physical Resources). Its correlation with the CQI Programme Implementation is 0.227 and it is statistically significant. This correlation is lowest

	when compared with other independent variables in the study. This indicates that participants are less concerned about the teamwork. There are various roadblocks to team progress identified and they are: • Insufficient training of the staff. This is mainly because the training programmes are centrally based; • First – line supervisor resistance; • Lack of management support for the quality improvement initiatives; • Lack of union support for the quality improvement programme. Health sector has more than 100 trade unions • Organization objectives are not being publicized. The management does not disseminate the goals, objectives and plan to the operational level staff. Hence they are unaware why they are working for and what they are doing; • No time to do improvement work. Mostly government hospitals are disorganized and staff spend most of their time for non-value added activities. Hence they are unable to concentrate on their quality improvement activities; • Incompatible rewards and compensation. Government hospitals do not have a rewards or compensation mechanism for the highly performing staff. Most of the time highly performed or less performed, both are treated equally; • Lack of planning. Another important aspect for barriers of teamwork. There is no proper planning for quality improvement work. Some hospitals working for quality improvement merely to get awards. Once they get award the enthusiasm and team spirit disperses; and • No clear measure of success. Sometimes the success was not communicated or shared with the team. The leaders get their credit for the success. **ii. Politics / turf battles** The politics and turf battles between different staff categories

	and units created turbulence in implementing the patient safety and quality improvement programme. **iii. Self-Oriented than Task Oriented** Some of the health workforce are self-oriented than task oriented. They do not think in terms of improving the system, but their personnel benefits. **iv. Misunderstanding about 5S-CQI-TQM** There is a misunderstanding about 5S-CQI-TQM believing that the programme is basically trying to find fault of others. Also some think that quality improvement needs lots of money. v. **Failure to provide incentive by recognition** There is no mechanism to provide incentives to provide recognition for the best and committed workers. **vi. Lack of effective communication** The block in the communication block prevents the goals and objectives of an organization to reach the operational level staff. Also suggestions and grievances from the operational level staff to top level management. **vii. Narrowly Based Training** Training programmes are sometimes conducted by the non – health sector resource personnel. Hence they are not aware of the issues related to health sector. Also they are unaware of issues related to clinical quality. Hence their training programmes are mainly related to functional quality. **viii. Turnover and changes in key personnel** It was found that the quality programme is dependent on one or two key personnel. When there is s turnover in the key personnel, the quality programme tends to stagnate.

	ix. Inadequate / Insufficient training All the staff in the health sector should be trained on patient safety and quality based on their requirements. Also the training programme need to be conducted in all three languages based on the requirement of the participants. Anyhow this has become practically impossible because of lack of trainers in patient safety and quality.
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	• Community and patients seeking services from hospitals and other healthcare settings • Cost incurred to manage healthcare institutions • Reduction of adverse events and near misses • Line ministry institutions, programmes and provincial ministry organizations • Healthcare managers and workers • Improve the image and reputation of Sri Lankan Health Sector
Justification	Healthcare will be made more **accessible** to the community on an equitable basis with provision for meeting specific health needs, improving the **quality** of healthcare to a level acceptable to both the community and service providers and healthcare will be made more **efficient** and **cost effective** and mainly **safe to the patients and community.**
Important assumptions / Risks/ Conditions	• Provision of adequate, knowledgeable and skilled staff to the Directorate / Healthcare Quality & Safety, District / Healthcare Quality and Safety Units and Quality Management Units of the Hospitals • Data on quality related data available on time and linked with the Directorate • Obtaining of approval from the top management of the ministry on time • Support from the professional colleges
Vision	Providing optimum quality and safe healthcare services to the people of Sri Lanka

Mission	Facilitating healthcare institutions to provide demonstrable best possible quality healthcare services through continuous improvement while responding to peoples' expectations and ensuring safety with involvement of all stakeholders	
Goal	To sustain Continuous Quality Improvement of healthcare services that ensures clinical effectiveness and patient safety while addressing the non-health expectations of the people.	
Programmer	**Indicators**	**Means of Verification**
1. To ensure organizational settings towards customer-focused care responsive to their preferences, expectations and values	1.1 Percentage of hospitals with functional QMUs (BH upwards)	
2. To establish effective managerial systems and processes to facilitate continuous quality improvement	2.1 Percentage of Hospitals (BH upwards) which conduct a death review once a month	
3. To promote evidence-based, ethically accepted clinical practices to ensure the best possible outcome for the patient	2.2 Percentage of hospitals with adverse event and near miss reporting mechanism 3.1 Percentage of hospitals monitoring healthcare associated infections 3.2 Percentage of hospitals that have carried out at least 2 clinical audits per month (excluding death audits)	
4. To mitigate risk from medications, procedures and untoward events to ensure safety of patients and staff	4.1Percentage of staff trained healthcare quality and patient safety	
5. To internalize quality improvement strategies to assure shared values in creating health promoting and	5.1Percentage of healthcare institutions performing at least one patient experience Survey per year with scoring system (according to national guidelines)	

environment friendly healthcare organizations 6. To develop a competent, healthy and satisfied workforce to enhance productivity, quality and safety in healthcare 7. To promote research in the field of quality improvement and patient safety	6.1 Percentage of hospitals carting out at least one job satisfaction survey per year 6.2 Institutions responsiveness i.e. extent to which the non-medical expectations of people are met during encounters with the health services 6.3 Availability of an accreditation programme. 7.1 No. research carried out in healthcare quality and safety	
Output	**Indicators**	**Means of Verification**
1. Reduction of readmission of hospitals (BH upwards) annually. (Readmissions can be defined as any unplanned admission to the same hospital, for the same condition, occurring within 28 days after discharge from the initial visit.)	No of Re admission / Total annual Admission *100	
2.Increase in the positive patient experience	No of positive experiences of patient during the certain period / Total no of (+) and (-) experiences of patient during the certain period	
3. Percentage of research findings disseminated	No of research findings	
4. Reduction in the adverse events		
5. Percentage of actions taken based on the Root Cause Analysis during clinical audit, adverse event reporting etc	No of clinical audits	
6.Reduction in Surgical site infection rate	No of surgical infections / No of total surgeries	

7. Reduction in Number of MRSA bacteremia 8. Increase in hand hygiene 9. No of hospitals accredited	MRSA bacteraemia rate per 10000 patient s No of accredited hospitals/ Total no of hospitals	
Monitoring & Evaluation	a. Monthly report form the Quality Management Units of the Hospitals b. Quarterly report from the District Healthcare Quality and Safety Units. c. Performance review meetings conducted at the Directorate Healthcare Quality and Safety and District Healthcare Quality and Safety d. Surveillance on hand hygiene, infections and adverse events e. Monitoring visits by the District and National level authorities based on the monitoring tools f. Conducting best sharing practices	
(*) Reference to Research		

Annexure –I

Summary Dashboard

S.No	Strategic Direction	Total Marks	Marks Scored	Assessment	Comments
1	**Strategic Direction 1**	**39**	**21**		**Good but room to improve**
1.1	Legal and Regulatory Framework	24	10		**Weak, need attention**
1.2	Accreditation and External Quality Assessment	9	5		**Good but room to improve**
1.3	Safety Culture at HCF	3	3		**Very Good, keep it up**
1.4	Patient Involvements in PS and Care	3	3		**Very Good, keep it up**
2	**Strategic Direction 2**	**9**	**2**		**Need to commence**
2.1	Adverse Events Monitoring	9	2		**Need to commence**
3	**Strategic Direction 3**	**24**	**8**		**Weak, need attention**
3.1	Competent Workforce	12	6		**Good but room to improve**
3.2	Patient Safety Risk Management	12	2		**Need to commence**
4	**Strategic Direction 4**	**33**	**25**		**Very Good, keep it up**
4.1	Infection Prevention and Control	24	18		**Very Good, keep it up**
4.2	Sterilized Equipment	3	2		**Good but room to improve**
4.3	Environment, General Hygiene and Sanitation	6	5		**Very Good, keep it up**
5	**Strategic Direction 5**	**60**	**28**		**Weak, need attention**
5.1	Safe Surgical Care	6	3		**Good but room to improve**
5.2	Safe Childbirth	6	4		**Good but room to improve**
5.3	Safe Injection	12	8		**Good but room to improve**
5.4	Safe Medication	3	3		**Very Good, keep it up**
5.5	Blood Safety	3	2		**Good but room to improve**
5.6	Medical Devices Safety	6	2		**Weak, need attention**
6	**Strategic Direction 6**	**9**	**3**		**Weak, need attention**
6.1	Research Capacity	9	3		**Weak, need attention**

Program title	**Biomedical Engineering Services**
Focal point	Deputy Director General (BES)
Back ground/ situation Analysis *(Problem Analysis)	**1. Procurement of Medical Equipment** The medical equipment requirement for the line ministry hospitals are collected yearly before the budget. Following categories are coincided for equipment plan according to the priorities given by the hospitals. 1. Replacements of obsolete equipment 2. Additional requirements for present functioning units 3. Equipment for newly constructed units. Procurement plans prepared by using above data and depend on available funding. Issues Encountered – • Equipment lists are not arranged in priority order. • A replacement policy could not be established as there is no accurate inventory system. • Time frame of construction work would vary and it affect the equipment procurement plan. • When initialize new units in hospital human resources, infrastructure, recurrent budget and utilization is not considered. • Passive pressure from private sector with high end equipment. • Disparity between Line ministry and provincial councils. • Inadequate cash flow through the year. • Delays in procurement process Inadequate staff for technical evaluation Inadequate supporting staff Language proficiency of supporting staff is not sufficient, i.e. management assistants and development assistants. **2. Maintenance of Medical Equipment** Some equipment are maintained by local agents through service and maintenance agreement and other equipment are maintained by technical staff of BES. Issues Encountered – • Delays in procurement process of spare parts& accessories. • Spare parts to be ordered for individual machines. (need S / No, Version etc.) • Inadequate Technical staff. • Hospital base units are not established in all line ministry hospitals (only 21 units available) hence high downtime and high transport cost. • Transportation problems (using very old vehicles with frequently break downs)/delay in attending repairs/ time wasting due to travelling (total

distance travel in 2014 – 150, 487 Km).

- Equipment are coming to the country with high price variation and poor quality but there is no proper regulating mechanism.
- Shortcoming of break down reporting system – limited technical details.

3. Human resource development

As the medical equipment technologies are developing rapidly training programs should be arranged frequently.
(post graduate courses for Engineers and technical courses for technicians)

Issues Encountered –
Funds not available

Post graduate courses are not available in Sri Lanka for Biomedical Engineering field. Qualifications of technician has taken down to lower level in new recruitment criteria Large no of vacancies; Engineers – 10, Foreman – 51, Technician – 32
Difficult to retain skill person due to poor remunerations.

4. Global trend

Lifetimes of high tech equipment are 7 to 8 years and beyond that most equipment are technically and clinically obsolete.
Rapid technology advancements

5. Utilization

High tech equipment utilization time is limited.
Highly sophisticated equipment procured but all the features are not utilized.

End user are unaware about operating procedures because of lack of training hence expected outcomes are not achieved. (i.e. nursing staff)

Inadequate infrastructure facilities to match equipment requirement.

Ex: CR system using without networking

High recurrent cost on accessories for some equipment and no mechanism to monitor accessories prices.

EX: Ultrasonic dissector

GAP ANALYSIS by using UHC tool	**Activity Area**	**Equity of Distribution**	**Accessibility to all**	**Quality of Service**	**Financial protection of the patient**	
	Procurement of Medical Equipment	Availability of standard equipment for relevant hospital	Equal distribution	Inadequate cash flow Vacancies of Engineers and Management assistant Poor quality of equipment	Maintain the standard of the equipment	
	Maintenance of medical equipment	Hospital based maintenance units availability	provide spare parts & accessories improve transportation facilities	Vacant technical staff Transportation problem Shortcoming of break down reporting system	Proper & timely attending to repair & maintenance	
	Human resource development	Vacant positions in carder Post graduate courses and technical training programs	Training Opportunities	Funds availability Difficulty of retain skill persons	Providing necessary funds Arrange training program Coordination between MOH & Universities	
	Utilization	Standardization of equipment supply	Resource sharing	Lack of training	Providing training	
Target areas & Beneficiaries	Providing equipment to hospitals and maintain them / patients seeks treatments					

Justification	To provide cost effective quality service to general public.	
Important assumptions / Risks/ Conditions	Availability of sufficient funding Filling of vacancies Trading of technical person Providing infrastructure facilities Priority is not given to address the identified requirement. Government policy may change on improving carder position. Difficult to retain skill person due to poor remuneration. Inadequate funding Procurement procedure is inefficient.	
Vision		
Mission		
Goal	To achieve 80% of the equipment working at all time.	
Programmer Objectives (Please prepare separate indicators for each objective)	**Indicators**	**Means of Verification**
1. Computing a inventory	1. No. of hospitals with inventory	Collect data
2. Passive pressure from high end equipment	2. percentage of health technology assessments	From data
3. Disparity of Line ministry and provincial council	3. No. of tertiary care hospitals having standard equipment	Survey
4. Inadequate cash flow	4. cash received in each month	From data
5. Delays in	5. No. of procurement completed	From data

procurement process	within year	
6. Inadequate technical staff	6. No. of technical people recruited and trained	From data
7. Decentralization BES units	7. No. of functional hospital based maintenance units	From data
8. shortcoming of breakdown reporting	8. No. of breakdown reported given format	From data
9. Human resource development	9. No. of Engineers having postgraduate courses, No. of technical person trained	From data
10. High tech equipment utilization time	10. No. of high tech equipment used throughout the day	By survey
11. End user training	11. No. of training program conducted for end users	Count
12. Inadequate infrastructure	12. Identified the equipment which delay in installation more than one month.	Number
Output (Please prepare separate indicators for each output)	Indicators	Means of Verification
1. Equipment available for utilization for treatment for all the time.	Availability of 15 equipment Sophisticated – 5 Medium – 5 Low end – 5	Survey
2. Procurement of equipment and spare parts in time	No of equipment procured out of planned quantity	From data
Monitoring & Evaluation		
(*) Reference to Research		

<table>
<tr><td>Program title</td><td>Curative Care Services in primary care Hospitals in Sri Lanka</td></tr>
<tr><td>Focal point</td><td>Director Primary care services</td></tr>
<tr><td>Back ground/ situation Analysis *(Problem Analysis)</td><td>
Primary care is the day-to-day health care given by a health care provider. Typically this provider acts as the first contact and principal point of continuing care for patients within a health care system, and coordinates other specialist care that the patient may need. The World Health Organization attributes the provision of essential primary care as an integral component of an inclusive primary health care strategy.

The department of Health services had been established under the legal provisions of health services act No. 12 of 1952. According to the section 05 of health services act, the first national health policy was published in 1992 and later it was replaced by the national health policy 1996.

There are 982 primary care hospitals established in the island to serve entire rural population in the country.

<table>
<tr><td>Types of primary curative care institution</td><td>Bed capacity</td><td>Total number of institutions</td></tr>
<tr><td>Divisional Hospital Type A</td><td>>100</td><td>42</td></tr>
<tr><td>Divisional Hospital Type B</td><td>Between 50-100</td><td>129</td></tr>
<tr><td>Divisional Hospital Type C</td><td><50</td><td>322</td></tr>
<tr><td>Primary Medical Care Units</td><td>Central dispensaries and Maternity Homes</td><td>474</td></tr>
</table>

Primary care hospitals 9 Divisional Hospitals) comprise of three basic units OPD, clinics and wards.

Analysis of patient attendance to primary care institutions reveals that the higher number of people who seek out patient care from primary care institutions. (i.e. 69.7%)
</td></tr>
</table>

<table>
<tr><td></td><td>Although the OPD of primary care institutions are utilized by patients extensively as indicated above, the in-patient facilities are utilized less as indicated at the comparison of bed availability (49.1%) with admissions (37.7%) i.e. whilst observing an underutilization of in-patient facilities at primary care hospitals, a simultaneous overcrowding is evident secondary and tertiary care hospitals

<table>
<tr><td>Level of care</td><td>OPD</td><td>Admissions</td><td>Beds</td></tr>
<tr><td>Primary</td><td>69.7%</td><td>37.7%</td><td>49.1%</td></tr>
<tr><td>Secondary</td><td>14.9%</td><td>23.0%</td><td>17.3%</td></tr>
<tr><td>Tertiary</td><td>15.4%</td><td>39.3%</td><td>33.6%</td></tr>
</table>

Over-crowding of specialized care institutions too, is inevitable, utilizing limited time of specialists, on patients with minor ailments. If required standards are maintained, such patients can be treated at primary care level.</td></tr>
<tr><td>GAP ANALYSIS by using UHC tool</td><td>1. Under – utilization of primary care hospitals
2. Non availability of referral / back – referral system. Back referral of patient from specialized care centers is more feasible. It will reduce the congestion in such center and specialist’s time is saved to focus on more severe and complicated patients. Same time it increases the utilization in primary care institutions leading to cost effective health care delivery.
3. Inadequate facilities to deliver care to the demand – Inadequate emergency care facilities, laboratory facilities, shortage of medical supplies and inadequate supportive and sanitary facilities can be highlighted.
4. Gaps in required skills, - Knowledge attitude and skills on various technical procedures give big impact on quality service delivery from primary care institutions and the satisfaction of the patients.
5. Non availability of personalized care to the patients, - This is one of the area should be addressed, patients privacy and their dignity is not considered as priority.</td></tr>
<tr><td>Target areas & Beneficiaries</td><td>• Optimize cost effective health care at primary level by increasing utilization.
• Develop emergency care facilities at primary level 24/7
• Reducing overcrowding of specialized care hospitals by handling all patients who do not need specialist attention.
• Develop cluster based health care service to share limited resources.
• Develop managerial skills at primary care
• Improve managerial skills at primary care institutions</td></tr>
</table>

	• Improve health care worker – community relationship with developing positive attitudes among staff. • Improve medical technological skills of health care providers • Optimization of resources to deliver affordable comprehensive, quality care to the satisfaction of the clients. • Establishing good information and monitoring system in primary care network. • Community support for decision making and development.	
Justification	The ultimate goal of primary healthcare is the attainment of better health services for all. Out of the 1090 hospitals in Sri Lanka, 982 institutions are fallen into the primary care level. Priority attention should be paid on development of these institutions, as it would help to optimize, comprehensive and quality health care with easy access, to the rural population where you find economically deprived community. Direct and opportunity cost, to obtain such health care for them, is very high due to travel a long distance leaving their day today activities.	
Important assumptions / Risks/ Conditions	Adequate supply of human and monetary resources	
Vision	Healthy and productive Nation	
Mission	Development of primary care services of entire country by providing necessary guidance, technical expertise and resource support.	
Goal	To achieve comprehensive, easily accessible quality health care in affordable manner to the people who deserve it.	
Programmer Objectives (Please prepare separate indicators for each objective)	**Indicators** • To improve utilization of primary care institutions • Establish person centered health care system • Establish shared care cluster hospital system to share resources. • To improve quality service delivery at primary care level to the satisfaction of the patients. Complaints free health service. • Continuous professional development.	**Means of Verification**

	• To improve community participation on health care, to develop a responsibility on respective health care unit. • To improve management capacity of primary care network in the country to optimize cost effective service delivery.	
Output (Please prepare separate indicators for each output)	**Indicators** To achieve, up to 80% of bed occupancy rate Complaints free health service Number of suggestions accepted by the hospital management during a year.	**Means of Verification**
Monitoring & Evaluation	• Responsible focal point is very important in each district level to coordinate and evaluate performance of primary care health institutions. • Conduct of performance review at district level with the participation of all stakeholders every year by central and regional authorities, to identify gaps, relevant measures to fulfill those gaps and possible assistance. • Quarterly review meetings with regional officers at central level. • Web based data collection and dissemination • Feedback system on individual institutional performances. • Availability of essential drugs	
(*) Reference to Research	• Customer satisfaction survey • Retain of health care in various institutions and related gaps identification study.	
Names of officials who documented the profile	Dr. U.S.B. Ranasinghe – Director, Primary Care Services.	

Program Title	**Department of Mycology –MRI**	
Focal Point	Head of Mycology Department	
Back Ground / Situation Analysis	Due to the gradual increase in immune compromised populations and other various reasons, the number of patients with Fungal Infections in Sri Lanka is ever increasing. But the required Mycological services have not expanded accordingly, leaving a significant space for improvement.	
GAP Analysis by UHC tool	Equitable Distribution- Is an issue as sending samples to MRI Mycology department is an identified problem. Accessibility – Is an issue, as patients have difficulty in accessing, as only one Consultant Mycologist is stationed at MRI available to cater to whole of the Country. Quality of Services- There are problems with regard to certain new tests Financial Protection – Is not an issue all services are free of charge from MRI for state sector patients while a very nominal fee is charged from private sector patients	
Target Areas and Beneficiaries	Immunocompromised and immune competent Population of Sri Lanka	
Justification	Due to the increasing prevalence of Non Communicable diseases like Malignancies, CKD, and Uncontrolled Diabetes and also due to increasing Organ transplantations, more and more patients are prone to get Fungal Infections.	
Assumptions /Risks / Conditions	• Lack of support by the Ministry of Health – NMRA to streamline the importation of various new chemical reagents which are necessary to do new research and also to initiate new diagnostic tests	
Vision	To Significantly reduce the Morbidity and Mortality rates due to from Fungal infections in Sri Lanka	
Mission	To contribute to minimizing incidence of Fungal Infections in Sri Lanka on the backdrop of increasing immune compromised populations.	
Goal	1. Increase distribution and accessibility to Mycology services to cover whole of Sri Lanka 2. To do more Collaborative research (local and international)	
Program Objectives 1. To be 100% accessible to whole of Sri Lanka for Mycological referrals to MRI by 2020 2. To Establish a Mycology treatment clinic for the special referrals at MRI	**Indicator** • Number of Mycological Samples received from new - districts / areas / hospitals, per month • Number of Patients Treated at MRI Mycology clinic	**Means of Verification** • From Sample Register at Department / Database • From Mycology clinic Register / Database

within 2 years **3.** To do International Collaborative research with developed country agencies	• Number of International Collaborative Research done per year	• From MRI Ethics Committee records / Database
Output(for above objectives in same numerical order)	**Indicator**	**Means of Verification**
1. MRI Mycology department receives samples from all Hospitals with consultants	• Number of months in which Mycological samples have been received from all consultant level hospitals in Sri Lanka	• Sample register at department / Database
2. Functioning Mycology treatment clinic	• Number of Patients b treated per month at the clinic	• Clinic Register / Database
3. Established International Collaborative Research activities	• Number of fully active collaborative researches done per year	• MRI Ethics Committee records / Research funding accounts records / MRI Database / International Collaborative Partner Agency's websites
Strategies / Activities	1. Increasing required lab facilities (staff and equipment) to cater to increased demand when services expand 2. Physically establishing a clinic room to see patients at Mycology department 3. Increasing awareness among clinicians Island wide of the diagnostic facilities at Mycology department at MRI 4. Initiating new Fungal diagnostic tests 5. Establishing a free of charge antifungal medicine dispensing mechanism to issue antifungals to the patients seen at the clinic – either from NHSL Dispensary or government pharmacies; "Osusala"s 6. Initiate a Fungal sample transporting courier system in collaboration with the Ministry of Health, in order to receive samples from whole of Sri Lanka 7. To call for invitations online from international research agencies to initiate Collaborative research 8. Proposing to Health Ministry to Approve cadres for consultant Mycologists to TH Karapitiya, TH Kandy, TH Kandy, TH Anuradhapura, TH Jaffna, TH Batticaloa	
Monitoring and Evaluation	Monitoring and Evaluation will be done by the Head of the Department and the Director MRI	
References		
Prepared by	Dr(Mrs) PrimaliJayasekara (Consultant Mycologist) Head-Department	

Program title	Department of Natural Products - MRI
Focal point	Director MRI
Background	Technology plays an increasingly important role in modern medicine. Rapidly changing medical technology and availability of high technology diagnostic and therapeutic equipment together with changing practice pattern of doctors has revolutionized the way health care is being delivered today. And, with the growing workload of diagnostics the present laboratory setup is not conducive to perform quality research. It is also stressed the future diagnostics and research would be on the molecular basis. Further the present setup is not attracting experienced medical researchers to join MRI. So it is suggested to establish a modern research laboratory to cater advanced medical research and central facility of modern medical equipment for health care. There is an important and unique biodiversity in Sri Lanka. Also there is a community having a precious knowledge on indigenous medicines in SL which has been a strong part of medical field since ancient period. By improving natural products research field, there will be a higher possibility to isolate and identify many compounds having medicinal values from domestic natural sources. Those compounds can be used for drug development and cosmetic industry in future. From this field, there will be a good opportunity to earn foreign revenue. Hospital stays and invasive surgeries can be decreased by drug treatments along which the direct costs from illnesses, in SL can be reduced. This can be applied to vaccines as well. After developing vaccines which are more effective and compatible to local people or specific communities, there will be great opportunities to earn money by introducing it to private or foreign manufacturers. Upgrading the natural products division with novel infrastructure will facilitate the isolation, identification and evaluation of biological materialfor chemicals such as anticancer, antioxidant, antimicrobial, insecticidal, anti-parasitic and anti-Alzheimer, from new and known compounds. These can be developed as drugs in the Sri Lankan context. Development of anti-venoms against endemic reptiles and insects bite will be another scope of this program. Therefore facilities for proteomics and genomics research are essential.
GAP ANALYSIS by using UHC tool	The facilities at the Department is open to all Sri Lankan citizens, from the whole of the country, but the utilization in the current context is concentrated mostly to western province.
Target areas and Beneficiaries	**Natural Products Chemistry** • Isolation and characterization of novel bioactive compounds with pharmaceutical importance for future drug development and/or, to generate patents. • Scientific characterization of the bioactivity of indigenous remedies or plant materials used in alternative medicine. • Collaboration with industries to develop pharmaceuticals, cosmetics or novel remedies of indigenous medicine for economic gains to MRI.

	• Establishing a central facility for bioactivity screening assays to provide service to other research institutes, Universities and private industries with an economic gain to MRI. **Vaccine/anti venom production and in-house test kit development** • In the current situation, Sri Lanka spends a huge sum of money in importing vaccines and test kits which are used to identify certain illnesses. But some of these are not effective against tropical and some unique diseases and also against endemic reptile bites. With adequate human resources and facilities we could develop cost effective, quality vaccines, venoms and certain diagnostic tools within the country. **Genomics and translational research** • Fundamental understanding of bio-molecules and mechanisms of their metabolism are essential and is a fundamental requirement for producing targeted drug candidates and therapeutics for certain diseases. This will be advantageous for early detection of a large number of health problems. And gene therapies and targeted therapies would follow.
Justification	Medical Research is an absolute necessity in the battle against diseases and for maintaining a healthy nation. Developed countries are the major investors on medical research focusing on new drugs, diagnostic methods and to production of new vaccines/therapeutics etc. As numbers suggest, our Asian companions such as China, India, South Korea and Singapore also have markedly increased their research expenditures in the field of interdisciplinary, pioneering and innovative biomedical research due to the scientific, social and economic importance of medical research. When it comes to top global investors in medical research (i.e. USA, Canada, EU etc.); it is well known that rather than the government sector, industries especially pharmaceutical companies contribute to the major portion of investment in medical research. The reason is increasing economic gains through new drugs, vaccines as well as new diagnostic tools and medical instruments. The main concern of these investors is to meet the requirements of populations in developed world rather than developing or under developed countries. Hence, certain tropical diseases (e.g. Dengue, Bird flu) which are mostly affecting the developing or under developed countries, are considered as neglected diseases. Therefore, the main reason of increased investments on medical research by developing Asian countries is to address medical issues which are more specific or related to their own countries. 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 medical research output. As a result Sri Lankans still suffer with tropical disease out breaks 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, we spend a huge sum of money to import pharmaceuticals and diagnostic tools and consumables. But, we do comprise of 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 medicines as well as a central medical research facility in order to improve public health. At present, we are conducting basic, applied and translational medical research at the Natural products department to produce health, social and economic benefits to Sri Lanka. Our scope is limited due to lack of high end equipment and lab facilities at our department. Therefore, by developing the infrastructure and technology at our department and as a whole at MRI, encouraging quality research, it will be the stepping stone for future discovery of many unexplored drug candidates to face future challenges.	
Important assumptions\ Risks/conditions	1. Lack of high end sophisticated instruments (NMR, FTIR, NGS, LC MS, MALDI-TOF MS, GC MS,UHPLC, etc.) and limited facilities given for research work 2. Insufficient subordinate staff for research work and advanced instrumentation 3. Lack of opportunity to acquire training for research staff about the advanced instrumentation and new technologies used in other countries. 4. Current lab conditions are not suitable for culture maintenance as well as quantitative analysis using hazardous chemicals	
Vision	To develop the Natural Products Department at Medical Research Institute in to an International level and pioneering medical laboratory for innovative research in the field of Natural Products.	
Mission	Explore the pharmaceutically important and unique Natural products in Sri Lanka	
Goal	Establishing a central facility for bioactivity screening, novel endemic remedies characterization, and drug development for future medicine Development of personalized medicines and targeted therapies at MRI	
Program Objectives: 1. Upgrading the natural products division with novel infrastructure facilities to isolate, identify and evaluate biological activities such as anticancer, antioxidant, antimicrobial, insecticidal, anti-parasitic and anti-Alzheimer s of new and known	**Indicator** • No of new advanced instruments • Number of developed sample analyzing protocols • Number of Publications	**Means of verification** • Procurement Records at MRI • Database at MRI • Registers at MRI and Natural Products Department • Publications Registers • MRI Website

compounds, which can be developed as drugs from natural products of Sri Lanka. 2. Provide training and teaching to the graduate and postgraduate students on various aspects of natural products research 3. Evaluate the curative properties of traditional medicines circulating in the country. (Used by Sri Lankans for centuries, which have been subjected to various criticisms by underestimating the effectiveness of them) Natural products division of MRI can play a scientific role by endorsing these traditional medicines subduing the above-mentioned criticisms.	• No of students trained • Number of Teaching Publications Produced • Number of Publications • Number of Reports • Number of Presentations • No of Applications	• Student Attendance Records at Department • MRI/Departmental Publications Records / Register • MRI / Departmental Records / Registries • MRI Database / Website
Output(for above objectives in same numerical order)	**Indicators**	**Means of verification**
1) More focused researchers and research activities producing new drugs based on Natural products of Sri Lanka	• No of New Drugs discovered and developed in a year	• Drug Registration Records at Drug Registry • Patent Number
2) Post graduates coming through MRI being well trained in Natural Products research and	• No of Postgraduates trained in Natural Products per year	• Department Registry / Department Records • Post Graduate students attendance registers

well aware of the importance and potential of Natural Productsin Sri Lanka 3) More traditional Medicines validated or endorsed by MRI Natural Products department after proper evaluation	• No of traditional Medicines validated by MRI per year	• Departmental Registries • MRI Website • Traditional Medicinal Drugs registries
Strategies/ Major activities	1. Formulating a Framework with the Ministry of Health to establish a Natural Products research Center at MRI with enhanced scope, capacity and funding 2. Signing of MOUs on research projects with national and international agencies to perform research. 3. Establishment of efficient extraction and isolation methods of secondary metabolites from natural resources such as medicinal plants, microorganisms and marine natural productsusing various chromatographic techniques such as Sephadex LH-20, silica gel column chromatography, preparative thin layer chromatography and HPLC. 4. Structure elucidation and identification of isolated pure compounds using various spectroscopic techniques such as UV spectroscopy, IR spectroscopy, NMR techniques and mass spectrometry. 5. Establishment of biological activity testing unit to evaluate biological activity of isolated compounds for anticancer, antioxidant, antimalarial, insecticidal, antimicrobial, anti-Alzheimer and cytotoxicity. 6. Modification of biologically active compounds to evaluate the increased therapeutic potential and reduced cytotoxicity 7. Total and semi synthesis of biologically active natural products. 8. Study the mechanism of action of highly active natural products. 9. Collaboration for anti-venom production in the country	
Monitoring and Evaluation	Periodic monitoring to be done by the Director MRI and Ministry of Health No of paper publications, No of Patents generated, and No of MoUssigned with local and foreign institutions and privatesector per year; could be used as evaluative indicators	
Reference		
Prepared by	MrRankuwaHewage Research Officer	

Program Title	Department of Immunology -MRI
Focal Point	Head of Department of Immunology
Back Ground / Situation Analysis	PID: Primary Immunodeficiency (PID) is not uncommon. It is reported to have a prevalence of 1 in 2000 in USA [1]. In Sri Lanka, one study reported detection of 74 patients with PID in a period of 4 years [2]. This rate is rising due to increased awareness among clinicians and it is reflected by the increasing number of referrals to our unit. (35 referrals in 2008 and 268 referrals in 2015). Although facilities to detect common conditions are available, testing for uncommon illnesses is done by sending samples abroad. In certain instances even this is not possible as the time taken to transport specimen exceed the duration of sample stability. Treatment for some of the immune deficient conditions is replacement of Immunoglobulin. Patients with conditions such as agammaglobulinemia can lead a normal life if immunoglobulin is replaced adequately. In Sri Lanka, only intravenous immunoglobulin is available for this. In the west clinicians are moving toward subcutaneous immunoglobulins due to the reduced rate of adverse events and the ease of transfusion. This preparation is still not available in Sri Lanka. The management for some of the conditions such as Severe Combined Immunodeficiency (SCID) is early detection and Stem Cell Transplantation (SCT). So far In Sri Lanka only one child has successfully undergone this therapy and even that was performed in India. It is important that SCT is established in Sri Lanka along with improved diagnosis. At least 10 patients diagnosed at the MRI have died due to lack of SCT therapy during 4 years. Some of the PID conditions are transmitted by genetic mutations and it is important to detect these mutations by molecular methods. This will provide the clinicians an opportunity to have a better understanding of the condition to provide treatment as well as counsel the parents and patient to prevent future occurrence. Allergy: The incidences of allergies are increasing worldwide. Increased detection rates as well as improvement in hygiene and changes in life style are thought to be contributing to this. In Sri Lanka the numbers of cases reported are increasing. However, actual researches on allergies are scarce. Understanding about common allergens such as pollen and food is minimal. In the researches we have conducted so far we have reported the presence of Food Dependent Exercise Induced Anaphylaxis [3], and identified common allergens responsible for pediatric asthma [4]. Furthermore, reporting and confirming drug allergy remains poor in Sri Lanka. The majority of patients who present to clinics are unaware about the drug, the patient was prescribed, and there is only limited information in patient notes. Therefore, confirmation of drug allergy is inadequate at present. Although, a few case reports and case series on allergy to insects

	such aswasp, bees have been reported patients are not offered immunotherapy. This is largely due to insufficient information on insect venom. It is noted that the incidence of asthma and allergic rhinitis is increasing. Therefore attempts should be made to detect the causative allergens in order to provide for immunotherapy in the future. Patients who are at risk of anaphylaxis are not provided with the auto injectable adrenaline pen, as yet. As this is costly, only those who can afford it have the facility. Autoimmunity: During the recent past, it came to light that certain conditions that were earlier thought to be idiopathic are actually due to autoimmunity. One example is autoimmune encephalitis. Therefore, in order to provide better care for our patients the diagnostic assays should be established in Sri Lanka. At present only a handful of tests are offered in the government sector to patients with autoimmune diseases.
GAP Analysis by UHC tool	Services provided from our unit are offered to all patients in the country and they have equal accessibility to tests. Quality of service – similar in all patients Financial protection – tests requested by the private sector are charged a nominal fee.
Target Areas and Beneficiaries	All patients who are citizens of Sri Lanka
Justification	PID patients require priority as failure to diagnose them timely and intervene can lead to either death or severe disability. In addition, disability will lead to financial burden and loss of working hours. As we are heading towards eradication of Polio, patients with antibody deficiencies especially patients with Common Variable Immunodeficiency require special attention. These patients can harbor enteroviruses including vaccine derived polio virus and this has serious implications i.e. for spread of a virulent, mutated poliovirus strain. Improving identification of allergens is important due to the rising trend of cases. Identification may lead to a reduced disease burden, for example, drug or food allergy and anaphylaxis. In addition, desensitization in bee/wasp venom allergy may reduce deaths. Diagnosis of autoimmune diseases is important in therapy, as for example, patients with autoimmune encephalitis need immune suppression whereas those with infective encephalitis need anti-microbial therapy.
Assumptions	1. Improved diagnosis of PID patients will reduce morbidity and mortality and also give an opportunity to counsel and prevent/minimize future occurrence 2. Detection of patients with antibody deficiencies is an important part of the Polio end game.

	3. Identification of allergen will reduce disease burden	
Vision	To significantly contribute to the reduction of the burden of Primary Immune Deficiency, Allergies and Autoimmune Diseases in Sri Lanka	
Mission	To provide diagnostic services in patients with PID, Significant Allergic conditions and Autoimmune conditions being referred to MRI from all over Sri Lanka in a timely manner	
Goal	1. Early diagnosis and treatment of PID 2. Identify allergens and proper management of allergic diseases 3. To expand facilities for diagnosis of Autoimmune conditions	
Program Objectives	**Indicators**	**Means of Verification**
1. PID - To Diagnose as early as possible all PIDs in Sri Lanka	• No of Early Diagnosed cases of PID at MRI	• Patient Registry at Department Clinic
2. Allergy – To contribute to Improving Allergy management in Sri Lanka	• No of New Allergens introduced per year	• Department Records / MRI Records / MRI Website
3. Autoimmunity Establish cost effective autoimmune diagnostic services	• No of cost effective diagnostic tests done per year	• Departmental Records / Patients Sample Registry
Output (for above objectives in same numerical order)	**Indicators**	**Means of Verification**
1. More PID cases diagnosed early in Sri Lanka	• No of PID cases diagnosed early	• Patients Registers at Department • Sample Register at Department
2. More Effective and Advanced and Allergy Management methods established in Sri Lanka	• No of Allergy patients tested with new Allergens per year at MRI	• Patient Register at Department • Hospital Records of Patients treated with New Allergy Management methods at the key Hospitals in Sri Lanka
3. Cost effective Diagnostic Services	• No of Patients diagnosed with cost effective diagnostic tests for	• Patient Records at Department

for Auto-Immune conditions are established at MRI	Auto-immune conditions per year at MRI	• MRI records
Strategies / Activities	1. Awareness programs to update clinicians on availability of Early diagnosis &its benefits 2. Improve laboratory facilities to speed up the diagnosis 3. Introduction of new Allergens 4. Recommending Provision of auto injectable adrenaline to all who need it in Sri Lanka 5. Introduction of Desensitization techniques for insect anaphylaxis Immunotherapy for allergic diseases in Sri Lanka 6. Introducing cost effective Immunological diagnostic tests	
Monitoring and Evaluation	Periodic Monitoring and Evaluation will be done by Director MRI and Head of Department	
References	Dr Rajeewa De Silva (Consultant Immunologist) Head of Department	

Program Title	**Hematology Department - MRI**	
Focal Point	Head of Department	
Back Ground / Situation Analysis	The youngest department in 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, while for Coagulation Tests it is offered only to Hospitals where such tests are done. For Hb and Blood Picture quality assurances done down to Base Hospital levels and even lower in some Hospitals. We also provide diagnostic facilities for Thalassemia. Also provides special hematological investigations for bleeding disorders. Currently conducting research on the 1 Tube screening test for Thalassemia carrier identification. Another study on Platelet function disorder pattern in Sri Lanka is also presently ongoing.	
Gap Analysis by UHC tool	The services at Hematology Department are accessible to whole of Sri Lanka. Equality of distribution is not an issue as most samples are sent through the government hospitals which are evenly distributed throughout the country. Quality of services is equal to whole of Sri Lanka, and services are free to state sector while a nominal fee is charged for private sector which assures financial protection of the community	
Target areas and Beneficiaries	Thalassemia, Genetic Molecular Diagnostics, Special Diagnostic Tests and Research are the target areas while the beneficiaries are Public of Sri Lanka.	
Justification	The need for a special laboratory facility for hematological disease conditions which needs complicated and advanced technological techniques or diagnosis such as Thalassemia, Bleeding Disorders , Hematological Malignancies, are provided by our department for the whole of Sri Lanka and needs improvement.	
Important Assumptions / Risks / Conditions	Due to the increasing need for quality health care, the need for sophisticated laboratory techniques are ever increasing and therefore the Hematology department needs to improve the services accordingly.	
Vision	To significantly Improve the quality of Hematological Laboratories in Sri Lanka	
Goals	1. Accreditation of Hematological department - MRI as a clinical diagnostic laboratory services and as an EQA provider 2. To provide Molecular and Genetic laboratory services at MRI 3. Enhance the scope of Department and staff at the Laboratory	
Program Objectives 1. To cover 100% of Hospitals laboratory in provision of EQA by 2020 2. Establishment of a Molecular Genetic	**Indicator** • No of new Hospitals accredited per year • No of Molecular and Genetic tests done per year	**Means of Verification** • Department records • MRI website • Department Records

Laboratory by 2018 3. Provide the staff with more opportunities to improve their capacities 4. Establishment of new tests	• No of training opportunities given to staff per year • No of training visits done per year • No of new tests introduced per year	• Staff records at MRI • Department records • MRI Website • Department records
Output 1. All Hospitals with Hematology Labs covered by EQA and Accredited 2. Functioning Molecular Genetics Lab at MRI 3. Staff Capacity improved 4. New tests are done	• No of Hospitals accredited • No of Hospitals provided with EQA • No of Molecular and Genetics tests done per year • No of trainings completed per year • No of Training tours completed per year • No of new tests done per year	• Hospital Records • Department Records • Department Records • MRI Database • Department Records • MRI Database • Department Records
Activities /Strategies	1. Increasing the staff/cadres 2. Expand the EQA program to cover all Hospitals with Hematology labs 3. International Exposure and Training arranged for all staff categories in collaboration with the Ministry of Health 4. Training of staff on Molecular and Genetic laboratory techniques 5. Conducting awareness programs on research capacities of Molecular and Genetics for Clinicians, Postgraduate students and ROs 6. New tests on Hemophilia carrier detection introduction 7. New test on Thrombophilia introduction 8. New tests on Platelet function introduction	
Monitoring and Evaluation	Monitoring and Evaluation will be done by the Head of Department and Director MRI	
References		
Prepared By	Dr(Mrs.)Priyanka Herath (Consultant Hematologist)	

Program Title	Bio Chemistry - MRI
Focal Point	Head of Department
Back Ground / Situation Analysis	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 which are only done here. (Eg: 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 NHSL. The department is the national EQA provider for 92 government hospitals with biochemistry labs. The department carries out research on cardiovascular risk factor for the moment. Recently it started neonatal screening for neonatal hypothyroidism for 4 provinces including Western, North western, North central and northern provinces.
Gap Analysis by UHC tool	The Biochemistry Department caters to the whole of the country
Target areas and Beneficiaries	Target areas to be developed include EQA, Accreditation, LIMS introduction, Research and Human Resource development and Commencement of special biochemical tests not available in the country to date. This includes endocrinology, tumor pathology, trace metals and heavy metals, metabolic markers, therapeutic drugs, markers for CKD identification.
Justification	The Medical Research Institute was established over 25 years ago and most equipment and facilities have been outdated. The staff knowledge on new technologies is also limited due to inadequate exposure. The department has acquired little new technologically advanced equipment and is in the process of procuring more. The Bio Chemistry department needs an upgrade in all aspects to maintain itself as the reference laboratory and EQA provider for the rest of the country.
Important Assumptions / Risks / Conditions	Due to the need for computerization in all sectors, the LIS software introduction is a necessity. The service demand for the biochemistry laboratory sector is ever increasing due to increased demand for quality health care. The staff is barely adequate for the current workload.
Vision	To assure that the Biochemical tests done in Sri Lanka is of the highest quality at international standards, and make available all special, sophisticated and advanced biochemical tests needed for diagnosis, monitoring, prognostication and screening of diseases to users (clinicians and whole population) in the country.
Goals	1. To be a reference laboratory for clinical biochemistry in Sri Lanka 2. To be the NEQAS provider in Clinical Biochemistry – in routine chemistry, special chemistry, urine chemistry

	3. To introduce new special biochemical tests and introduce LIS 4. To progress more in Innovative research	
Program Objectives 1. To become Established as the National Reference laboratory in Clinical Biochemistry by 2018 2. To become established as the NEQA provider by 2020 3. To upgrade the Biochemistry Laboratory with LIS and introduce the various new and special biochemistry tests by 2016 4. To do more innovative Biochemical research	**Indicator** • No of referencing samples receivedper year • No of new Hospital Laboratories given NEQA by MRI Biochemistry Department • No of new and special tests introduced per year • No of research initiated per year	**Program Objectives** 5. To become Established as the National Reference laboratory in Clinical Biochemistry by 2018 6. To become established as the NEQA provider by 2020 7. To upgrade the Biochemistry Laboratory with LIS and introduce the various new and special biochemistry tests by 2016 8. To do more innovative Biochemical research
Output **1.** MRI Biochemistry Department recognized as the reference laboratory for Clinical Biochemistry **2.** MRI Bio chemistry Department established as NEQA provider for Sri Lanka 3. The Biochemistry laboratory upgraded with LIS and able to do new special tests 4. More Research imitated	**Indicator** • No of reference samples received per year • No of Hospitals laboratories given EQA per year • No of Special tests done per year • No of new staff allocated • No of Barcodes generated per month • No of research initiated per year	**Output** **5.** MRI Biochemistry Department recognized as the reference laboratory for Clinical Biochemistry **6.** MRI Bio chemistry Department established as NEQA provider for Sri Lanka 7. The Biochemistry laboratory upgraded with LIS and able to do new special tests 8. More Research imitated
Activities /Strategies	1. LIS installation and customization I. Bi-directional interfacing of all analyzers II. Barcoding of samples at the specimen counter 2. New laboratory equipment procurement; • Fully Automated Biochemistry analyzer (back up) – 2016	

	• ICP-MS – 2016 (for trace metal and heavy metal analysis in body fluids) • LC-MS/MS – 2017 – for Phaechromocytoma testing (metanephrines, adrenalines, VMA, 5HIAA) • LC-MS/MS – 2008 – for therapeutic drugs – tacrolimus, other immunosuppressant's, other drugs • LC-MS/MS – steroids, female testosterone, urinary free cortisol, steroid profiles • System for neonatal screening – second analyzer – 2016 – to expand the neonatal screening program to other disease conditions Eg: congenital adrenal hyperplasia, cystic fibrosis, galactosaemia and other possible conditions • Capillary electrophoresis system - 2016 • Osmometer - 2017 • Renal stone analyzer – 2017 • Scanning spectrophotometer – 2018 3. Accreditation of the laboratory according to ISO15189:2012 standards by SLAB (Sri Lanka Accreditation Board) 4. Develop EQA program to an international level program and get ISO 13485 accreditation. 5. Increasing the Cadre of the Staff within 10 years up to: I. 25 MLTs II. Research Officers – 4 III. Data entry operators – 6 IV. Laboratory orderlies – 10 V. Laborers – 12 6. To have a second Chemical Pathologist who is research oriented: Example ; DrLakminiGinige (Current SR about to leave for foreign training) 7. Expand the Research activities to involve areas of 1. Study of NCD – Risk factors for NCD 2. CKD 3. Diabetes 4. Biochemical markers and risk factors – establishment of reference levels 5. Support other research projects (of ministry of health and done by other investigators) by providing biochemical investigations. 8. Infrastructure development of Department – Refurbishment of Biochemistry and RIA laboratories
Monitoring and Evaluation	Regular Periodic Monitoring and Evaluation will be done by Head of Department and Director MRI
	Dr(Mrs.) Gaya Katulanda (Consultant Chemical Pathologist) Head of Department

Program Title	**Department of Parasitology & Entomology - MRI**	
Focal Point	**Head of Department**	
Back Ground / Situation Analysis	It is essential to improve the parasitology laboratory at MRI as it is the one and only Parasitology laboratory for the government of Sri Lanka. At the moment we do not have a research officer or a medical officer for the department. The Consultant Parasitologist is also the Head of the department of Entomology. The Entomology department also handles requests that come from all over the country regarding Entomological problems. For the development of infrastructure facilities we get the requirements done through the Director MRI. It is important to train all the staff at the international level. The consultant Parasitologist and the two MLTs are handling all the samples which come to the department from all over the country.	
Gap Analysis by UHC tool	The services of the Department are available to all of Sri Lanka	
Target areas and Beneficiaries	Staff training and exposure to new techniques and technologies available internationally.	
Justification	We want to build up international collaboration with other Parasitology& Entomology laboratories in the world. However as there was no training for our staff that has become a barrier to increase their knowledge on the subject. The main concern about the Parasitology & Entomology laboratory at MRI is lack of training opportunities to do sophisticated investigations in the country. With the limited human resources and existing laboratory structure we try our best to handle all the samples we get for identification and diagnosis. However it is essential to expose our staff to the international arena to upgrade their knowledge to international standards and also to start new techniques in the department. The ultimate benefit will be for the general public of Sri Lanka	
Important Assumptions / Risks / Conditions	There are many innovative and more effective laboratory techniques and technologies in parasitology and entomology available at the International level.	
Vision	Significantly reduce the national burden of Parasitic diseases and vector borne disease.	
Goals	1. Improve the quality of staff members and the services offered by Entomology and Parasitology 2. To encourage and facilitate more International Collaborative research	
Program Objectives **1.** To provide training at international level to staff **2.** Increase the staff cadre	**Indicator** • No of International Trainings given to staff per year • No of new staff members per year	**Means of Verification** • Department Records • MRI records • MRI Records

3. To encourage and facilitate more international collaborative research	• No of new collaborative research initiated per year	• Department Records • Ethics committee records
Output 1. Staff trained at International level 2. Staff number increased 3. New collaborative researches initiated	**Indicator** • No of new tests carried out at international standards • No of new staff members allocated per year • No of new collaborative researches done per year	**Means of Verification** Department Records Department staff register Department Records Ethics Committee Records
Activities and Strategies	1. Organizing of international Training programs in coordination with the Ministry of Health & WHO 2. Increasing the Cadre of Staff: To have 2 Research officers, and to increase the number of MLTs from 2 to 6. To have 3 Medical Officers. (Parasitology 2-MOs, 2-ROs. Entomology 1-MO, 1RO) 3. Programs on improving service attitudes for staff 4. To do awareness programs on services provided by the department; for the general public 5. Encouraging research activity through increasing facilities and removing administrative barriers	
Monitoring and Evaluation	Monitoring and evaluation will be done by the Head of the Department and Director MRI	
References		
Prepared By	Dr(Mrs.)Sagarika Samarasinghe (Consultant Parasitologist) Head of Department	

Program Title	**Department of Rabies and Vaccine Quality Control -MRI**	
Focal Point	**Head of Department**	
Back Ground / Situation Analysis	One of the oldest Departments in the MRI, the Rabies and Vaccine Quality Control department has been a responsible and unique section, providing quality assurance for all imported vaccines to Sri Lanka. This department plays a role in the development of rabies PET Guideline sand training programs for hospital staff. Vaccine Registration, New Vaccine evaluation and Batch analysis are the major services provided by department and eventually responsible for Vaccine Batch release for use in Sri Lanka. Our Department at MRI is the reference laboratory for Rabies for Sri Lanka	
Gap Analysis by UHC tool	Our services are available to the whole of Sri Lankan public, but accessibility may be an issue as people may need to come to the MRI for some special services like for conformation of Rabies in animal specimens.	
Target areas and Beneficiaries	Public knowledge on Rabies Post Exposure Prophylaxis need to be addressed and the General public of Sri Lanka are the beneficiaries. There is still a significant lack of awareness among some of the vulnerable population who are mostly the people who doesn't have a permanent residents due to their occupation; examples being ; Masons, fish vendors construction workers, and also uneducated and poor socio economic people.	
Justification	Around 20 deaths per year occur due to Rabies island wide. Significant amount of money is spent on Rabies vaccination per year.	
Important Assumptions / Risks / Conditions	Due to the increasing number of stray dogsand semi domestic animals in the country the number of Rabies cases can be assumed to increase and if stepsare not taken to increase public awareness and reduce the stray dog population and the promotion of responsible pet ownership, during the coming years.	
Vision	To significantly reduce the national burden due to Rabies	
Goals	1. Improve the Public awareness regarding Rabies and prevention of death by Post Exposure Prophylaxis Therapy (PET) 2. To improve the laboratory facilities and improve speed of diagnosis 3. Collaborative research expansion	
Program Objectives	**Indicator**	**Means of Verification**
1. Nationwide program to increase public awareness on PET to cover the whole population including the vulnerable population of Sri Lanka by 2018	• No of districts covered by awareness campaign	• Program activity register • Departmental statistics

2. Have the newest technologically advanced laboratory equipment and techniques at the Rabies laboratory	No of new advanced laboratory equipment and Technologies acquired per year	• Departmental records
3. To enter in to more International Collaborative research	• No of new collaborative research initiated per year	• Departmental Records • MRI Research Ethics Committee records
Output	**Indicator**	**Means of Verification**
1. Whole of Sri LankanPublic aware on PEP prophylaxis	• No of districts of PEP awareness campaigns completed per year	• Program activity register • Departmental Records
2. The newest and most advanced equipment & technology available at the department	• No of equipment /Technologies acquired per year • New tests established and done per year	• Departmental Records
3. More international collaborative research agreements entered into	• No of International research initiated per year	• Departmental records • MRI research and Ethics committee records
Activities and Strategies	1. Conducting awareness programs aimed at grass root level population. Ex: Poster distribution for exhibition inside public transport, Radio and TV advertisements, awareness through PHMWs (Midwifes) 2. Training programs for staff on new techniques from India. 3. Upgrading Laboratory to facilitate Real Time PCR procedures 4. Infrastructure development for laboratory – Renovation 5. Requesting from Health Ministry for a Streamlined process to allocate foreign exposure Training for staff 6. Requesting from Ministry for a streamlined process of purchasing Reagents and primers for Real time PCR so as to have a uninterrupted supply	
Monitoring and Evaluation	Will be done by the Head of Department and Director MRI	
References		
Prepared By	Dr(Mrs .)S. Nanayakkara (Consultant Virologist) Head of Department	

Program Title	Department of Laboratory Animal Science - MRI
Focal Point	**Veterinary Surgeon/ Head of the section**
Background / Situation Analysis (Problem Analysis)	Existing situation: Animal Centre /MRI was built in 1989 as a grant from Japan International Co-operation Agency (JICA). It is considered as the premier center of Laboratory Animal Science in Sri Lanka. Original Laboratory animal colonies were brought to Sri Lanka from Clea Japan and Charles River Japan. Animal Centre contributes to the research communities in Sri Lanka by providing internationally designated laboratory animals for research purposes, training research scientist to carry out animal experiment in accordance to three R concept in animal experimentation, making laboratory animal feed for animals maintained at the MRI, supply animal blood for laboratory media preparations and collaborating with other research scientist from different organizations to carry out animal experiments and conducting institute originated laboratory animal experiments according to country requirements. In addition to research activities laboratory animals bred and maintained at MRI are widely being used for reagent preparations such as antigen and antisera production, vaccine safety and efficacy testing and toxicity studies conducted at the MRI and other organizations. Laboratory animals maintained for research purposes should be maintained in a steady standard environment to minimize unwanted variables that can affect the results of the experiments. In the year 2010 central air conditioning system which operates the air exhaust system and air cooling system totally collapsed after long usage and central air conditioning system and air exhaust system which operates the animal breeding area was re-established in the year 2015. Laboratory animal feed is produced at the Animal Centre MRI according to formula recommend by WHO (Saboudry, 1989) using locally available feed ingredients. Feed production unit was established in the Animal Centre as laboratory animal feed is not commercially available in Sri Lanka. Laboratory animal feed ingredients are purchased from the local market and using the

	grinders available in the sections it is made in to a powder. It is mixed according to different formulas suitable for different species of lab animal. Mixing machine is used for mixing the feed and using a pelleting machine feed for different species is converted to pelleted form. As final measure pelleted feed is oven dried at 80 degrees temperature. All the machines were given by JICA as a part of technical co-operation in 1990 and for more than twenty years these machines are being used for animal feed production with the help of the maintenance section of the MRI which carries out all the repairs. On average 8114 kg of animal feed is produced yearly. Animal colonies were brought from Clea Japan and Charles River Japan in 1989 and Guinea pig, New Zealand White Rabbits, Institute of Cancer Research (ICR) mice are being maintained as out bred colonies whilst C57 Bl, Balb/C and C3H and Hamster colonies are maintained as in bred colonies for last twenty years. All out-bred and in-bred colonies are being maintained according to standard method over twenty years. In 1996 new blood was introduced to the rabbit and guinea pig colonies and there is a requirement to re-introduce new blood to all the out bred colonies as there is a high tendency of inbreeding due to maintaining fewer numbers of breeding pairs for longer duration. Inbreeding depression is inevitable as less number of animals is being bred in the nucleus colonies for a long duration. The large animal area is an old building converted to maintain sheep which are being maintained for blood drawing. This blood is used mainly for laboratory media preparation. Facilities are available to maintain nearly forty sheep. Locally available breed of sheep such as Red Madras is being maintained. They thrive well in local conditions as such only a few management problems are encountered. Except for a few renovations in the old building complex and introduction of new animals to replaced dead animals there is no immediate requirement. Statistics Two Veterinary Surgeons, one Medical Laboratory Technician, three Animal Supervisors, one Lab orderly and six laborers are working at Animal center. Wistar rats, ICR mice, Balb C mice, C57BL mice, C3H mice, Syrian hamster, Hartley Guinea pig, New Zealand White rabbits and sheep are maintained. According to available statistics in the sections following services were provided to the Institute and the country to the year 2014 &2015. 2014, Statistics: Animal blood tissue- 9445ml, Animal issue-3697, Animal feed production - 7186, No. of trainees trained - 321, No. of test carried out for research - 1471, Lectures -19, Research presentation - 01. Poster presentation - 01, Presentations in other academic forums- 01, No.of ethical review of the project proposals- 26, No. of scientific review of the abstracts - 03, Workshop/Seminar/conferenceattended-14 2015 statistic Animal blood issue- 6493ml , Animal issue-3341 , Animal feed production - 7475.5, No. of trainees trained - 137, No. of test carried out for research - 924 Lectures -22, Research presentation - 06 Poster presentation - 02, Presentations in other academic forums- 03 No.of ethical review of the project proposals- 32,

	No. of scientific review of the abstracts - 04, Workshop/Seminar/conferences attended - 16 Functions: Overall management & supervision of the staff attached to the Anima Centre, Formulating important policy decisions for the improvement of the animal center, taking important decisions regarding the animal colonies such as maintenance, breeding, feeding etc. Making final decision regarding feed formulation, requisition of supply, indenting of special items such as equipment, issuing of animal blood to be used by the different laboratories at MRI and to other institutions that make such request from MRI. Coordination of collaborative projects, introduction of new techniques and exchange of available technologies with other research institutions, universities, organize teaching and training programs for researches both from the MRI and out-side Current Contribution (National): Training Students for various universities and research organizations, Supervision of research students for various organizations and universities, conducting collaborative research for various research organizations and universities, Supply blood and other animal blood product for research and other diagnostic purposes 5442 (55.50.%) for various research organizations and universities, Supply of laboratory animals for various other research organizations and universities. Current contribution (MRI) .Supply Animal blood for laboratory media preparation 4203 (44.49%)ml in the year 2014 & 2015 At present, Central air conditioning system and air exhaust system is out of order in infectious animal experimental area and non-infectious experimental area. This situation can badly effect on animal welfare conditions and extrapolation of results obtained from animal experiments and other diagnostic work carried out using laboratory animals. External collaborators who carry out their post graduate degrees such as M.Phil& PhD theses will not be able to complete their research project due to various functional deficiencies in the current situation. Nearly 25 years old machineries installed during the JICA co-operation period is still being used for feed production and failure of one such machinery can be badly affected on feed production and supply of regular feed in the animals. Sheep maintained for blood drawing purposed should be feed regularly, clean their shed regularly, catching them and holding them for blood drawing purposes etc. are Labour consuming and need lot of man power. Approved number of laborer carder position at the Animal Centre is 16 and currently having only 06 laborers to do the ground level work can be identified as the main draw in the current situation. Demand for training and education and other animal ethics related actives require the attention of professional staff attached to the Animal Centre. As there are only two veterinary surgeons in the sections at present and it can be considered as draw back in the supply of professional competencies requested from the veterinary surgeons specialized on Laboratory Animal Science for the National level needs. New innovations were done in research collaborations and findings were presented in the National level scientific forums.

GAP Analysis by using UHC Tool	Accessibility: These services are supplied Island wide to whoever requesting the services from the Laboratory Animal Centre. Sometimes priority was given to MRI and Health Department when supplying Animal Blood for Laboratory Media Preparations. Animal supplies were done based on first come first serve basis, by maintaining a record book to make an entry to the date of request and supply according to priority basis.	Availability: 100% availability is there at the Animal Centre during the government working days and available over the telephone for animal requisition and blood requisition from other universities and other organizations.	Quality: All the staffs that carry out professional &technical level services related to research work are trained in recognized national level universities. Other staffs were given, in house training.	Financial Protection: Funds are provided by the MRI.
Target Areas and Beneficiaries	There is a requirement of introducing alternatives to Animal Experimentations. As such, trainings are needed in alternative methods, in order to reduce the number of animals being used for experimental procedures. This can be done through proper ethical review processes and introducing proper criteria in animal supply, providing training etc. Installation of New Central air conditioning system, introducing new machineries to the feed production area and introducing new blood for laboratory animal colonies, microbiological & genetic monitoring of animal colonies to develop the animal Centre at the MRI for international standards. Two cadre positions for veterinary surgeons were introduced nearly 25 years ago and there is a requirement to increase the cadre position of veterinary by another 2 targeting the next 10 years ahead. Also needs to revise the services and maintenance carder positions and to quire 100 % of these other staff.			
Justification	Department of Laboratory Animal Science is highly involved with research oriented work which requires professional competencies. Having proper infra structure and professional staff can be an added advantage to carry out efficient duties at the animal center.			

Important Assumptions/ Risk/ Conditions	Increase workload, training, and research requirements service component, lack of adequate number of Veterinary Surgeons and supportive staff and Decreasing infrastructure facilities and instruments are the risk factors.	
Vision	To be an internationally accredited Laboratory Animal facility in Sri Lanka	
Mission	Optimally facilitate researchers engaged in Laboratory Animal Science in Sri Lanka	
Goal	1. Introducing new blood (genetic materials) to the existing colony 2. Training researchers according 3 R concept (reduction, refinements and replacement) in animal experimentation 3. Upgrading facilities according to current international standards	
Program Objectives	**Indicators**	**Means of Verification**
1. Importing Laboratory animals such as-Hartley Guinea pigs, New Zealand White rabbits and Wistar rats from the country of origin	• Number of species introduced per year.	• Departmental Records
2. Train the undergraduate, postgraduate students and technicians on laboratory animal science	• The number of alternative (non-animal) experiments done per year in Sri Lanka	• MRI records • National Records of Research
3. Upgrading facilities according to current national and international standards	• Number of activities done to improve the animal living conditions per year and increase the laboratory facilities	• Departmental Records

Output	Indicators	Means of Verification
1. Laboratory animals: Hartley Guinea pigs, New Zealand White rabbits and wistar rats from country of origin (Clea Japan) will be imported	• Number of species of laboratory animals introduced to the animal center.	• Departmental Records
2. Train the undergraduate, postgraduate students and technicians on laboratory animal science	• Number of Researchers trained on laboratory animal science per year	• Departmental Records
3. Upgrading facilities according to current national and international standards	• Number of Facilities of the Animal center upgraded	• Departmental records
	• Number Cadre positions filled at the Animal Center.	• Departmental Records
Strategies/ Major Activities	1. Importing Laboratory animals Guinea pig, New Zeland White rabbits, Wistar rats from country of origin (Clea Japan) 2.Training of researchers to carry out animal experiments in according to 3 R concept 3. Filling the Labour carder positions at the Animal center, MRI.. 4. Re-establishment of central air conditioning facilities in Infectious and non-infectious areas. 5. Color wash the entire animal center 6 Re-establishment of the wall type autoclaves 7. Reestablishment of the washing rooms at the animal center	
Monitoring and evaluation	Monitoring and Evaluation will be done by Head of Department and Director MRI	
Reference to Research	1. Newsletter MRI, 2009. 2. Thammitiyagodage MG, 2014, The Animal Centre at the Medical Research Institute in Sri Lanka. ALN world Animal Laboratory News 2(1)pp16-17. 3. Thammitiyagodage MG, Karunakaran R, Fluctuation of Microenvironment in Laboratory Animal Colonies and its effect on breeding performances of Laboratory Animals maintained at the MRI. International Conference on Japanese Graduates Alumni Association of Sri Lanka. 19th -20th February 2016.	
Prepared By	DrThammi Mitiyagodage (Veterinary Surgeon)- Head of Section	

Program Title	**Department of Virology –MRI**
Focal Point	Head of Virology Department
Back Ground / Situation Analysis	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, with increasing immune – compromised population, especially transplant patient population and the cancer patients have made a great demand on virology services in Sri Lanka. To meet this increasing demand, 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.
GAP Analysis by UHC tool	Equitable distribution of services: All services at the Department are available to people in Sri Lanka Accessibility to all health services: Can be an issue due to logistics Quality of Services: Equal to all patients Financial Protection: Not an issue as all services are free of charge for state sector patients while a very nominal fee is charged from private sector patients
Target Areas and Beneficiaries	People of Sri Lanka
Justification	With the advancement of clinical services, like in rest of the world Sri Lanka is also experiencing increasing transplant patient population who are vulnerable to many viral infections, who will need sophisticated diagnostic services. Other immune-compromised patients, example cancer patients, will also need the same services. Timely diagnosis will help in patient management thereby reducing the morbidity and mortality. With increasing use of antiviral agents the development of resistance will become an issue. Monitoring the anti-viral susceptibility should also be a part of patient management in this context. With emerging and re-emerging infections, clinical diagnostic laboratory services and public health laboratory services play a major role in identification, target prevention and control, and also the monitoring the infection in the community, preventing an outbreak or pandemic situation developing. Timely generation of results is most important in above situations and use of molecular techniques plays a major role too. Therefore it is most important to strengthening of molecular diagnostic facilities including genomic sequencing in par with reference facilities in the region to meet this ever increasing and expanding demand.

Assumptions /Risks / Conditions	1. Timely clinical virology service will improve the quality of management in immune-compromised patients-there by improving morbidity and mortality due to viral infection 2. Timely detection of the viral agent is important to the identification, targeted prevention and control and also in monitoring the infection in the community preventing an outbreak or pandemic situation developing 3. Laboratory based surveillance is important in eradication of viral infections like poliovirus or controlling /preventing infections like influenza / measles 4. Timely generation of results is most important and strengthening of molecular techniques will play a major role in achieving this 5. Quality of the services provided is ensured by implementing quality assurance activities 6. Provision of adequate human resources (Technical Staff, Research Staff, Medical Officers, Specialist Medical Officers) with regular in-services training and provision of physical resources (laboratory space, equipment, regular supply of reagents, consumables, overheads) are most important to achieve the targets	
Vision	To reduce the Morbidity and Mortality from viral infections in Sri Lanka	
Mission	Providing timely services to reduce the Morbidity and Mortality from viral infections and thereby improving the health of people in Sri Lanka	
Goal	1. To provide timely and quality clinical diagnostic services for patient management 2. To provide reference facilities to strengthen the virology services in Sri Lanka 3. To provide public health laboratory services for control of viral infections of public health interest 4. To strengthen national and international collaborative research 5. To strengthen teaching and training activities	
Program Objectives	<u>Indicator</u>	<u>Means of Verification</u>
1. To provide timely and quality clinical diagnostic services for patient management	• No. of samples performed • No. of tests performed	• From Registers and Database at the Department • Statistics provided to MoH
2. To provide reference facilities to strengthen the virology services in Sri Lanka	• No. of reference activities provided	• From Reports, Registers, Records
3. To provide public health laboratory	• No. of surveillance performed • No of outbreaks investigated	• From Reports, Registers, Records

services for control of viral infections of public health interest		• Statistics provided to MoH
4. To strengthen national and international collaborative research	• No. of research conducted	• From MRI Ethics Committee records / Databases • Publications / presentation
5. To strengthen teaching and training activities	• No of training programs / workshops / seminars/ symposiums / in-service training conducted per year	• Records / reports /attendance registers
Output(for above objectives in same numerical order)	**Indicator**	**Means of Verification**
1. Established clinical diagnostic services for patient management	• No of patients with viral infections diagnosed and contributed to patient management	• From Registers and Database at the Department • Statistics provided to MoH
2. Established reference facilities	• No of reference activities performed	• From Reports, Registers, Records
3. Established public health laboratory services	• No. of surveillance performed • No of outbreaks investigated	• From Reports, Registers, Records • Statistics provided to MoH
4. Strengthened national and international collaborative research	• No. of research conducted	• From MRI Ethics Committee records / Databases • Publications / presentation
5. Strengthened teaching and training	• No of training activities conducted	• Records / reports/ attendance registers

Strategies / Activities	1. Establishment of dedicated molecular diagnostic facility 2. Provision of physical resources (laboratory space, equipment, overheads) and ensuring regular supply of reagents, consumables 3. Strengthening of human resources with regular in-services training /external / international training 4. Implementing quality assurance activities (EQAs, accreditation etc) 5. Timely generation of results by attending to logistics 6. Establishment / strengthening of Bio safety level 3 facility 7. Strengthening virology services in Sri Lanka (teaching and training, reference services)
Monitoring and Evaluation	Periodic Monitoring and Evaluation will be done by Director MRI and Head of Department
References	
Prepared by	Dr(Mrs.)Sunethra Gunasena (Consultant Virologist) Head - Department of Virology

Programme Title	Department of Histopathology - MRI	
Focal Point	Head of Department	
Back ground / situation Analysis *(Problem Analysis)	Histopathology Laboratory of MRI is a well-functioning section as evidenced by the number of cases handled each day. The Electron Microscope is also established under the Histopathology section for ease of research and laboratory work The need for a genetic laboratory is also a major concern if we are to progress further in our research and functions as the MRI	
GAP ANALYSIS by using UHC tool	The functions of the Histopathology unit are available to all of Sri Lanka. Accessibility may be an issue due to samples being sent through the hospitals as we do not have collecting centres or a sample transport service in the country. Financial protection of the individuals is not an issue as all services are free to the government sector patients.	
Target areas & Beneficiaries	The need for the Histopathology lab to be upgraded to a reference laboratory and establishment of a genetic lab are the main targets in the coming years.	
Justification	The numbers of Malignancies are ever increasing in Sri Lanka. Therefore the need for accurate diagnosis and treatment are becoming absolutely essential in the current context.	
Assumptions/Risks/Conditions	Increasing burden from malignancies in the next decade.	
Vision	To reduce the Burden from Malignancies is in Sri Lanka	
Mission	Through accurate diagnosis and specialized treatment facilities, provision of timely management to cater to all patients with malignancies of Sri Lanka	
Goal	1. Accurate Diagnosis and treatment of Malignancies countrywide 2. Maintenance of International standards of quality countrywide	
Programme Objectives	**Indicator**	**Means of verification**
1. To ensure accurate diagnosis and treatment of Malignancies	• No of cases diagnosed and treated accurately per year	• Departmental records
2. Ensure international standards quality countrywide	• No of Hospital laboratories quality assured per year	• Departmental records
3. Increasing Research	• No of new research initiated	• Department records

Output 1. Accurate Diagnosis and treatment of malignancies established 2. International standards of quality established at hospitals countrywide. 3. Increased Research Activity	• No of Hospitals established accurate diagnosis and treatment of malignancies • No of Hospitals Established with international quality • No of New research done	• Health Ministry Records • Health Ministry Records • Departmental Records
Strategies / Major Activities	1. Upgrading the Laboratory 2. Installation of new technical equipment 3. Upgrading the Electron Microscope 4. Establishing a new Genetic Laboratory 5. Research into Cardiac disease and Malignancies 6. Nationwide Program with the help of the Ministry of Health to establish accurate diagnosis and treatment of malignancies Island wide 7. Nationwide program to establish international standards of quality in histopathology	
Monitoring & Evaluation	Will be done by the Head of Department and Director MRI	
(*) Reference to Research		
Prepared By	Dr Nishali Ekanayaka (Consultant Histopathologist)	

Programme Title	**Department of Bacteriology** **Food & Water, Enteric reference Serology (Rickettsia &Brucella) and Anaerobic Laboratory - MRI**	
Focal Point	Head of Department	
Back ground / situation Analysis *(Problem Analysis)	The food borne pathogenic diseases have been a significant concern for national health as these conditions have been increasing over time. The MRI Bacteriology and Enteric Department is the sole laboratory for the diseases of Enteric bacteria, Rickettsia, Brucellosis and Anaerobes	
GAP ANALYSIS by using UHC tool	Bacteriology Department caters to the whole of Sri Lanka Financial Protection is not an issue as all services are free to the government sector, and a nominal charge for the private sector	
Target areas & Beneficiaries	General Public of Sri Lanka	
Justification	The numbers of bacteriological samples being received are gradually increasing yearly. Therefore	
Assumptions/Risks/Conditions		
Vision	To safeguard and minimise the Public from Food Borne diseases and Zoonotic diseases	
Mission	To efficiently and rapidly diagnose food and water borne bacteriological conditions in Sri Lanka	
Goal	1. Upgrading the laboratory 2. Expanding the services 3. Strengthening the Diagnostic Facilities	
Programme Objectives	**Indicator**	**Means of Verification**
1. Upgrading the Laboratory to provide accurate results timely and to Have a new laboratory for Food and Water	• Number of new Instruments and technologies introduced to the laboratory per year	• Departmental records
2. Expanding the services of Food testing facilities, early detection of outbreaks and to provide diagnostic facilities for Zoonotic diseases.	• Number of food testing facilities introduced per year • Number of Outbreaks detected early • Number of Zoonotic diagnostics done per year	• Departmental records
3. Strengthening of Diagnostic facilities to anaerobic infection and establishing an Anaerobic Reference lab	• Number of anaerobic infections diagnosed per year	• Departmental Records

Output	Indicator	Means of verification
1. Upgraded Laboratory providing accurate results & new laboratory for food & water	• Number of Tests done	• Departmental Registers
2. Expanded services offering Zoonotic Diagnostic facilities	• Number of Zoonotic tests done per year	• Departmental Registers
3. Anaerobic Diagnostics and reference lab initiated	• Number of Anaerobic Diagnostics done per year	• Departmental Registers
Strategies / Major Activities	1. Establish a new laboratory complex for Food and Water 2. Automation of laboratories with networking with other responsible agencies for food safety 3. Training of staff for new testing methods 4. Establish a diarrhoeal disease surveillance 5. Food borne outbreak surveillance 6. Molecular typing of food borne pathogens for early detection 7. Strengthening laboratory diagnosis of Brucella and Rickettsial disease with the aim of establishing reference laboratory 8. Purchasing relevant equipment	
Monitoring & Evaluation	Monitoring and Evaluation will be done by the Head of Department and Director MRI	
(*) Reference to Research		
Prepared By	Dr Sujatha Pathirage (Consultant Microbiologist)	

Program Title	**Combating Chronic Kidney Disease of Unknown Origin (CKDU Research) – Department of Pharmacology - MRI**
Focal Point	Head Department of Pharmacology
Back Ground / Situation Analysis	CKD has become a major public health problem in the world. There is a high cost involved in the management of end stage renal failure, leading to a substantial burden on global health care resources. (1) The management of CKD is even more difficult in developing countries due to lack of resources and restrictions in health care spending. The morbidity and mortality due to CKD is increasing in Sri Lanka and the burden is even more pronounced in the North Central Province (NCP) of Sri Lanka where underlying causes of CKD remain unrecognized. (2) CKD is defined as kidney damage evidenced by structural or functional abnormalities of kidney with or without decreased GFR more than three months. Recognized causes of CKD include diabetes mellitus, hypertension, glomerulo-nephritis, obstructive uropathy and congenital diseases such as polycystic kidney disease. With the ushering of the 21st century there were reports of increase in prevalence of CKD of NCP in Sri Lanka and was recognized as a major health care problem in the province (3). There was no association with known risk factors in the majority of patients (4) and it was debated whether this was a new disease entity. The new form of the disease is identified as chronic kidney disease of unknown etiology (CKDU). CKD is considered as of unknown origin in absence of a past history of a diabetes mellitus , chronic or severe hypertension, snake bite, glomerulo nephritis or urological disease ; normal Hb A 1c (< 6.5%), BP < 160/100 mmHg untreated or < 140 /90 mmHg up to two antihypertensive medication (5). The NCP where the major burden of CKDU is seen extends over 10530 km2 in the dry zone of the country and the majority of people affected are farmers. Disease mainly affects males from poor socio economic backgrounds who are involved in paddy farming (2). Mild proteinuria is present (<1g/ 24 hours but urinary sediments are normal). Renal biopsies of these patients were reported as interstitial nephritis indicating possible toxin exposure. (6)
Gap Analysis by UHC tool	
Target areas and Beneficiaries	At risk population of North Central Province
Justification	CKDU is increasing in prevalence in NCP and surrounding areas. The treatment incurs colossal amounts from the country's economy. Therefore exploring the possible etiologies is of paramount importance. Prevention of CKDU is the key.
Important Assumptions / Risks / Conditions	<u>Risk Factors for CKDU</u> During the last decade several researches were undertaken to identify the prevalence and etiology of CKDU in NCP of Sri Lanka.

	Possible risk factors are exposure to pesticides, fluorides and heavy metals such as cadmium and lead (7, 8, 9, 10). The etiology of CKDU of Sri Lanka is probably multi factorial involving one or more environmental factors and a possible genetic predisposition of the invulnerable populations. Although no single environmental factor or toxin has been identified it is likely that drinking water is associated with the occurrence of disease. Early detection is possible by screening for proteinuria and control of BP with angiotensin converting enzyme inhibitors may be helpful in delaying the progression to ESRF.(11)	
Vision	Eradication of CKDU from Sri Lanka within 10 years	
Goals	Harnessing knowledge, while gaining from application of best practices and preventing the occurrence of CKDU.	
Program Objectives	**Indicator**	**Means of Verification**
Output	**Indicator**	**Means of Verification**
Activities and Strategies		
Monitoring and Evaluation	Will be done by the Head of Department of Pharmacology and Director MRI	
References	References 1. ESRD as a Window into America's Cost Crisis in Health Care. Felix Knauf and Peter S. Aronson. Journal American Society Nephrology, 2009; doi: 10.1681/ ASN.2009070715 2. Hittarage A. Chronic renal disease in North Central Province of Sri Lanka. Anuradhapura Medical Journal; 2004: 3-5. 3.World Health Organization Sri Lanka. Chronic Kidney Disease of unknown aetiology (CKDu): a new threat to health. www.searo.who.int/LinkFiles/ News_ Letters_ CKDu. Access date 04 April 2012. 4. Athuraliya TN, Abeysekera DT, Amerasinghe PH et al. Prevalence of chronic kidney disease in two tertiary care hospitals: high proportion of cases with uncertain aetiology. Ceylon Medical Journal 2009; 54: 23–25. 5. Ministry of Health Circular No. Epid /392 / 2008 / 25 dated February 10th, 2009 6. Nimmi T.C. Athuraliya, Thilak D.J. Abeysekera, Priyanie H. Amerasinghe, RanjitKumarasiri, PalithaBandara, UpulKarunaratne, Abul H. Milton and Alison L. Jones. Uncertain etiologies of proteinuricchronic kidney disease in rural Sri Lanka. Kidney International 2011; 80: 1212–1221. 7. Peiris-John RJ, Wanigasuriya JK, Wickremasinghe AR, Dissanayake WP, Hittarage A. Exposure to acetylcholinesterase-inhibiting	

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Prepared By	Dr Darshana De Silva (Consultant Pharmacologist) Head of Department

Program Title	Development and Strengthening of Regulation of the Private Health Sector
Focal Point	Directorate of Private Health Sector Development
Background	. Sri Lanka is being often caught as an example among developing countries as one of the unique model health care provider in the world. Sri Lanka provides health care services through well-developed government health care system which is being enjoyed as free health services at the point of delivery through a well-established curative and preventive health care network of which Sri Lankan citizens are very proud of. All the successive governments after the Independence have recognized the people's right to have access to health care services and this privilege is being offered mainly to citizens of the country although non-citizens are also allowed to obtain the services with a minimal payment for some very specialized services if and when they require. At the same time Sri Lanka has offered its citizens as well as non-citizens to have their own choice to make use of the private health service establishments scattered throughout the country. Private medical institutions were also available in Sri Lanka for many decades but tremendous increase in establishing private health institutions and identifying it as an investment opportunity creating competitions among establishments and even among practitioners. Private health institutions ranges from small scale part time practices available in rural corners of the island to very sophisticated private hospitals of which different specialists services are available with high tech facilities. They range from very small laboratories who conduct basic laboratory tests to large scale laboratories who conduct highly specialized tests. They range from home care nursing services to ambulatory emergency care services where "doctor on call" facilities with fully equipped ambulances. The expectation of the Government in general and Ministry of Health in particular that the service seekers will get the "quality efficient and safe health care" from whichever the health service that they reach for their treatment and care irrespective of their payment by direct means or indirect means. In short Government expects even the private health sector provides a quality, efficient and safe health care services to their clients. Thus, the Ministry of Health has recognized its responsibility towards the nation and established a mechanism for the development and regulations of the private health sector. Directorate of Private Health Sector Development was first established in 1998

	with the view of the above and eighteen years have gone since then. The responsibility of private sector regulation has been shifted to Ministry of Health as well as to the Provincial Councils by the 13th Amendments to the Constitution. Private Medical Institutions (Registration) Act No. 21 of 2006(PMI Act) was introduced and made operational since 15th December 2006. PMIR Act is an Act to provide registration, regulation, monitoring, and inspection of Private Medical Institutions and to foster their development. Private Hospitals and Nursing Homes Act which existed so far in way back from 1940s was withdrawn then. Private Health Services Regulatory Council popularly known as PHSRC is a body established to exercise, perform and discharge its powers, duties and functions under PMI Act since 2006. PHSRC is aimed at the registering private medical institutions, fostering development and monitoring of standards to be maintained by the registered Private Medical Institutions and acts as a method of evaluation of standards maintained by them. It further aimed at achieving the objectives to ensure the minimum qualifications for recruitment and minimum standards of training of personnel are adopted by all Private medical Institutions and to ensure the quality of patient care services. It is empowered to investigate any complaints against private medical intuitions and to regulate the fees charged for different services ensure adopting National Guidelines in order to keep up the standards as well as obtaining information and data for the National Grid. The adherence to the National Guidelines in patient care and treatment is mandatory requirement in order to keep up the quality and safety of the patients. Considerations to professional ethics as well as institutional ethics are often being discussed but whether an adequate interest has been paid is doubtful. The constitution of the PHSRC has often being challenged. The Chairman of the PHSRC is Director General of Health Services whereas Director Private Health Sector Development serves as the Secretary to the Council. The membership is composed of 10 more ex officio members namely 9 Provincial Directors of Health Services representing each province and Registrar Sri Lanka Medical Council .There are 16 appointed members to represent the private sector and professionals. Involvement of private care providers in regulatory mechanism and in the regulatory agency is thought to in contrary to best practices and unique to Sri Lanka and even to the South East Asian region. It has been challenged whether the current regulatory mechanism functions are being conducted effectively or not. On the other hand the composition allows the voice of private health sector is heard and get them participated in the decision making process. The Ministry had identified the need of having more power and autonomy in regulations and initiated the process of amending the PMIR Act to include more ex-officio members as well as defining the “Authorized Officers” more correctly.

	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 had been completed. Ministry of Health is in the process of publishing them as gazette notifications after necessary modifications. The infrastructure facilities of private health sector are enormous. Millions of investments have gone into that. However while having many facilities and availability of high tech equipment and technologies it is facing severe constraints in human resources and highly dependent on the health care professionals from different categories of state health services. The services of the medical professionals have been made available to the private sector mainly through the privilege of dual practice that they are enjoying. The challenge faced by the private sector is different when consider the availability of nursing and para medical professionals. The facilities available for the production of their own health professionals are also grossly limited due to many reasons. The inadequacy of qualified trained staff round the clock is causing a severe threat to the quality of health care services provided by private health sector provides. It may even disturb the quality of health care provision through the Government sector also due to more attention is being drawn by the Private sector due to financial benefits. Basic education courses and Refresher courses /Gap filling courses in the field of nursing and nurse assistance are been implemented to cater to the demand of the private health sector. Basic course and a refresher /gap filling course for dental surgery assistants are on the pipe line. The exorbitant charges incurred by private health sector is being dialoged from the recent past. Individual patients and relatives, community groups, patient right movements, media personnel, professional groups and politicians started to raise their voices and a public interest has been created with regards to exorbitant charges charged by private hospitals, health professionals and by even private medical laboratories. PHSRC responded readily by careful analysis of the situation with many consultations of relevant stakeholders and initiated developing maximum charges per specialist consultations and administrative fee for the instruction per specialist consultation. Secondly PHSRC was enthusiastic in developing maximum charges for 33 commonly done medical laboratory tests for large scale laboratories as well as medium and small scale laboratories. Private hospitals, Channeling Centers and Private Medical Laboratories had been requested not to exceed the maximum charges whereas they could charge anything less if they wish to do so. The development of charges for various other procedures is on the pipe line. Consumer Affairs Authority (CAA) also has published a gazette notification

	informing the private medical intuitions to issue a detailed bill for the consumers paying much attention to the consumer's rights. The health seeking behaviors of citizens of Sri Lanka is also unique and they tend to visit a specialist more often even for minor ailments forgetting the important role played by General Practioners (GP) as primary health care professionals although there is a well-established GP network . Perhaps a well-organized, target oriented and result based communication campaign may be needed to change the mind set of people as well as professionals and their practices and behaviors. The GP linked to a designated population and development of proper referral and back referral system is mandatory in bringing this giant task into a success. This may be a paradigm shift of health system in Sri Lanka if it succeeds.
T**arget areas and beneficiaries**	**Strengthening of the regulatory mechanism of private health sector**- Political Leaders, State Health Administrators, Private Health Administrators, Private Health Intuition Owners, Media Personnel, Insurance Agencies **Human Resource development to cater the demands of private health sector** -State Health Administrators, Private Health Administrators, Universities, Training Intuitions, Vocational Training Institutions, Students, Consumers **Adherence to National Guidelines and Treatment Protocolsby private health sector**- Political Leaders, State Health Administrators, Private Health Administrators, Private Health Intuition Owners, Health Professionals,Media Personnel, Consumers, Insurance Agencies **Getting health information from private health sector to the National Grid**- State Health Administrators, Private Health Administrators, Health Professionals Insurance Agencies **GP linked to a designated population and development of proper referral and back referral system**- State Health Administrators, Private Health Administrators, Health Professionals, Media Personnel, Consumers, Insurance Agencies,
Important Assumptions/Risks/Conditions	Strengthening of the regulatory mechanism of private health sector-There will be an opposition in the attempts of strengthening the regulatory mechanism from the private health sector for obvious reasons. However, the real need of such regulatory mechanism will not be hindered as there will be many more advocates who will support for such activity who expects a positive change.

	Human Resource development to cater the demands of private health sector –This will be taken up by most stakeholders very positively. However there will be an opposition from various professional groups with fear of creating competitions Adherence to National Guidelines and Treatment Protocols by private health sector –This will be taken up by most stakeholders very positively. Getting health information from private health sector to the National Grid- This will be taken up by most stakeholders very positively. However there will be an opposition from private sector intuitions as well as health professionals assuming that there will be financial constraints like tax payments. GP linked to a designated population and development of proper referral and back referral system- May need to work hard to bring this paradigm shift after many decades which need multi stakeholder engagements to bring this social change.
Vision	**Safe, efficient and quality health services through Private Health Sector**
Mission	**Mission I :To develop the functioning of the private health sector by streamlining registration of private medical institutions, developing standards and guidelines, providing technical guidance and assistance in human resource development.** **Mission II-To strengthen the regulatory mechanism enforced by working together with Private Health Services Regulatory Council in inspection of institutions, handling complainants against institutions, reducing offences committed by institutions and enforcing relevant penalties.** **Mission III-To develop the quality, efficiency and safety of health services provided by private health sector by enforcing adherence to National Guidelines and Treatment Protocols and developing professional ethics and instructional ethics**
Goal	**Sound Sri Lankan Private Health Sector**
References and Research	*Name of the official who documented the profile: DrKanthiAriyarathne* *Qualifications: MBBS, MSc(Community Medicine),MD(Community Medicine)* *Designation: Director/Private Health Sector Development*

Program Title	Oral Health care Services
Focal point	• Deputy Director General (Dental Services) • Regional Dental Surgeons
Back ground/Situation Analysis ***(Problem Analysis)**	• Oral healthcare services are provided island-wide through the Dental Professionals attached to hospitals,school dental clinics & Medical Officer of Health (MOH)Units. Specialized care units are functioning in tertiary & secondary level institutions. • Dental Public Health Units (DI Colombo, IOH Maharagama,Dental Hospital Peradeniya), School Dental clinics, Adolescent/ Community Dental clinics provide preventive, promotive& curative care for the target groups such as School Children and antenatal mothers etc. • TheNational Oral Health Survey 2002/2003 revealed the prevalence of dental carries among 5 year12 year and 15 year old children are 55%, 40% and 52% respectively. Trend of Dental carries among children is high even at present comparing with available recent data. • Cancers of oral cavity is the commonest cancer among men with low survival rates. Prevention, Early detection & Treatment needed much attention. • Scope of Oral health care provided by the hospital system needs expansion to cater population needs. Caries reduction in early childhood, preventive interventions such as pit and fissure sealant in molar teeth and promotion of oral health in pregnant mothers should be included in routing scope of work in the hospital dental services. National Oral Health Survey is being conducted in 2015/2016.Based on survey results oral health care strategies may be modified.
GAP ANALYSIS by using UHC tool	• Improvement of curative dental services in the country by updating equipment and technologies in hospitals and expanding Dental Specialist Services up to Base Hospitals are needed to provide equitable service for the entire population as private oral care units are limited & costly. • Provision of latest developments in Dentistry in the field of Restorative Dentistry and preventive measures are neededto preserve 20 teeth at 80 years of age. • Activities have to be planned to facilitate the proven link of oral

	health to general health
Target areas & Beneficiaries	• Preschool children and school children screening to identify ECC • school children above 13 years are attended through Adolescent Dental clinics • oral care for Ante natal mothers • Young adults in high Fluoride areas • Improve oral hygiene and prevent periodontal diseases among patients with diagnosed endocrinal diseases and acute cardiovascular diseases (ACVD) • To cover the population in general through regularHospital Dental Services and Mobile Dental services tounreachable areas • Ensure patient safety & quality in oral care services
Justification	The demand for health care is high, while budgets are limited. Therefore emerging strategies and activities of health care provision need to be efficient and equitable. The state sector oral health care system has the responsibility in ensuring good oral health care of the population. There are 1466 Dental Surgeons in the state sector providing services through Hospitals & Adolescent/ Community Dental Clinics. The number of Consultant Dental Surgeons in the state sector is 63. Promotion of oral health, preventing oral diseases and provision of oral health care to people is the primary goal of oral health care system. However it's failure demands sophisticated dental treatments such as composite fillings, root canal treatment, crowns and bridges and dental implants resulting high cost to the patient and the health system. Interventions for dental caries and periodontal diseases have to start from the formative years of teeth and childhood as early as 1 ½ years. Local literature reveals that maximum movement of early childhood caries to be seen in the first 3 years of age. School children up to the age of 13 years are being taken care of mainly by the School Dental Therapists. School Dental Clinics available island wide is 422. There are only 84 Adolescent School Dental Clinics in the country manned by Dental Surgeons to care for the Adolescent children. Hence the urgent need is to establish more Adolescent clinics. The National Oral Health Survey 2002/2003 revealed that the DMFT (Decayed, Missing or Filled Teeth) for 12 year olds is 0.9 which we must try to bring down further or least maintain at that level. Minimum of 1-2 ADCs per MOH area (based on population density) is recommended.

	Oral care during pregnancy improves the general health. Oral screening of antenatal mothers needs attention. Edentulismseen among elderly population affects their nutritional status & quality of life. Prevention of oral cancers to be linked with NCD prevention programmes The problem of Fluorosis is affecting a considerable number of young adults in the North-Western, North-Central and Southern Provinces and many of themcannot afford treatment for their ailment. The establishment of Fluoride treatment centersto this target group is a timely need. The recent researches revealed that satisfactory control of oral hygiene is very much important for the patients with poor glycemic control and ACVD. Therefore special attention has to be given for them.	
Important assumptions/Risks/Conditions	The government shows total commitment in developing oral health care in an equitable manner.	
Vision	Having healthy, smiling Sri Lankan nation with20 functional teeth at the age of 80years	
Mission	Oral health promotion, prevention,intervention and management of all activities pertaining to achieve the vision	
Goal	Twenty functional teeth at 80 years among Sri Lankans	
Program Objectives	**Indicators**	**Means of Verification**
• To finalize the oral health policy	Availability of approved oral health policy and policy implementation planthrough 2017.	Records of DDG office

• To establish community dental services in a phased out manner.	No. MOH areas with community dental units	Database of oral health services
• To improve accessibility to dental care services	Average distance to access a institute with dental care unit	Monthlyperformance Returns at institutional level
• To enhance patient safety & quality of oral care services	No. care points with Dental professionals trained on quality &patient safety.	Monitoring &Evaluation at Regional level.
• To expand specialized oral care units up to Type A Base hospitals	No. of specialized units functioning in IIry&IIIry level hospitals..	Annual Statistics
Output	**Indicators**	**Means of Verification**
• Children at the age of 1 ½ years, 3 years screened for early childhood caries and necessary interventions done	% of registered children screened and treated	Community dental services returns
• Children at grade 1,4,7,10 and 12 screened for oral diseases and interventions done	% of registered children screened and treated Annual 2 % reduction in prevalence of dental caries	dental services returns School Health Returns
• 20% relative reduction of prevalence of dental caries among school children by 2025	% of registered mothers treated	
• Antenatal mothers oral health promotion	% of decline in oral disease burden	Community dental services returns

• Ensure accessibility of Hospital & Adolescent/Community dental services for the entire population • Morbidity & Mortality due to oral cancers are reduced • Quality of oral care services improved	% of detection of PMOD & Oral cancers& treated % of Dental clinics in which Patient safety & quality guidelines are followed	ADC Returns Oral Health Surveillance Oral cancer Surveillance Monitoring at Regional level.
Strategies/Major Activities	• Oral Health Promotion & Oral Disease Prevention Approach. (School health programme, MCH programme& Cancer control programme) • Ensure accessibility to oral health care at Primary care level. • Quality assurance of oral care services. • Regular information system& work performance assessment with necessary interventions. • Strengthen the carder of SDTT and dental technician to improve service coverage. • Capacity building of oral health work force. (Including undertaken of dental assistant training programme)	
Monitoring & Evaluation	Monthly returns from Hospital Dental Clinics & Adolescent Dental Clinics/Community Dental Clinics to besent to Community Unit, Institute of Oral Health/ Maharagama. Evaluation of work performance will be done on quarterly basis. Institute of Oral Health/Maharagama will be the focal point for monitoring &evaluation of the Oral health program.	
(*)Reference to Research	National Oral Health Survey at every 5 years.	

Dr .Indrakumari Fernando Director (Dental Services)

Program Title	**Improvement of tertiary care services at tertiary care institutions by ensuring of the Equality of distribution of human resource and effectiveness of Medical Specialties and sub-specialties.**
Focal Point	Director Tertiary Care Services/DDG MS 1
Background	Improvement of the service and the quality of treatments provided at tertiary care level will enhance the wellbeing of the population of our country. Human resource management and equality in distribution of specialists with the analysis of situation at tertiary care institutions in accordance with the need and demand of the population will play a major role in obtaining the objectives set below.
GAP ANALYSIS by using UHC tool	
Target areas and beneficiaries	Patients attending tertiary care hospitals and subsequently total population of the country
Justification	Sri Lanka is a middle income developing country with a 20.6 million population demonstrating a vibrant public health care system which delivers services free of charge at the point service delivery with many achievements. The level of achievements is reflected by an array of health indicators and social indicators. It ranks higher than the regional average in health care having a high life expectancy and lower maternal and infant mortality rates on par with developed countries. However, the country is grappled with demographic and epidemiologic transition with ageing populations and rising burden of Non-Communicable Diseases despite rising political commitment for prevention and control. Moreover, the total fertility rate (TFR) of Sri Lanka is depicting a rising trend well above replacement level and reported to be 2.3 attributed to contemporary socio-cultural and health determinants. Sri Lanka has a Hierarchical net- work of public hospitals providing outpatient and inpatient care to general public of Sri Lanka based on patient-bed strength and availability of Medical Specialties and diagnostic facilities. They come under the administrative purview of Line Ministry and Provincial Administration comprising of National Hospital of Sri Lanka (NHSL), 20 Teaching Hospitals, 03 Provincial General Hospitals, 18 District. 22 Base-Hospitals Type A, 46 Base Hospitals Type B, 42 Divisional Hospitals Type A (more than 100 patient-beds), 129 Divisional Hospitals Type B (50-100 patient-beds, 322 Divisional Hospitals Type C (less than 50 patient-beds), 474 Primary Health Care Units, 2 Board Managed Hospitals and 05 Special hospitals. The government expenditure for patient care services as capital and

	recurrent expenditure was Rs.1575 Billion in 2012 according to annual report of Ministry of Finance and Planning, 2012, which was 8.8% increase than in 2011. Moreover, Sri Lanka is a country which invests heavily on human resource development with regard to Medical Specialties. ……. Medical Specialists are serving in Public Hospitals in the Country in an array of specialties and sub-specialties as at present. Human Resource for Health (HRH) is a pivotal component of health care system of a country as it consumes the highest share of health budget, fundamental to providing services and managing other resources in the health care system. Medical Specialists are at the Apex of hierarchy of HRH development in Sri Lanka and there is an expanding timely need to harness their potential to improve the health status of people in the country with efficient and effective manner. Sri Lanka is the only country in the world to offer scholarships for overseas training to Postgraduate Medical Doctors as a pre-requisite for board certification as a Medical Specialists at the expense of public expenditure. Hence, Health Policy Makers need a rational basis for strategic planning and projections of HRH pertaining to medical specialties ensuring adequacy and equity of distribution of Medical Specialists in the Country within the context of population characteristics, disease trends and patterns as well as health care needs. Against this backdrop, present study is designed to provide baseline data to achieve the following objectives**:**	
Important Assumptions/Risks/Conditions	Continuous government commitment and increase in health budget with the development of subspecialties in medical field will help to improve the quality of the service provided.	
Objective	**Indicators**	**Means of Verification**
Main Objective To determine HRH need, equity and effectiveness of Medical Specialists and Medical Specialties and sub-specialties in Public Hospitals in Sri Lanka	• Number of specialist per 1000 population in the district	IMMR Health facility survey
Specific Objectives: -To assess equity in distribution of Medical Specialists in Medical Specialties in Provinces, Districts and Hospital Category based on Population characteristics, mortality, morbidity patterns and health care needs	• Number of medical specialist and specialties per number of patients attending hospitals	

To explore patterns of utilization of Medical specialist Care Services in public hospitals	▪ Number of cases treated by the specialties per annum	
• To determine the need for sub-specialties based on morbidity patterns & utilization of services • To determine the effectiveness of sub-specialties based on morbidity patterns & utilization of services	▪ Number of cases transferred to major hospitals for special care.	
Outputs	**Indicators**	**Means of Verification**
Giving priority to the institutions when distributing health manpower		
improvement of quality of services in all tertiary care institutions		
Standardize model for distribution of medical specialists.		
strengthening the patient care system		
Activities	**Expected Results**	**Process Indicators**
Problem Analysis. Identifying the specific health issues in each district in relation to patient care, morbidity and mortality statistics relevant to medical specialties and subspecialties	Identifying the real need of the population	
Assessing the current distribution of medical specialties against the problem identified in each districts.	Find out the mal-distribution and under used resources	
Assessing the supporting facilities such as paramedics nurses and laboratory	Making new infrastructure facilities to upgrade the services	
Making guidelines to distribute and allocating the medical specialists.	continue the services without any interference in future	

Program Title	**Reorganizing and strengthening of laboratory service in government hospitals**
Focal Point	DDG/LS, D/LS
Background	Laboratory service is an important component of health care delivery system. Treatments of patients depend on accurate laboratory investigation reports. The importance of quality in the functioning of healthcare is recognized globally. When the reports are not reliable, it could lead to wrong diagnosis, treatment course may not be compatible with the disease and also increased number of days spends in the hospital. All these adds up to the financial burden. Directorate of Laboratory Services is responsible for establishing and enactment of essential and relevant legislation and also for providing technical and managerial guidelines for the maintenance of laboratories in compliance with nationally and internationally accepted standards. Laboratory services sector of Ministry of Health is aimed at providing high quality laboratory services by ensuring efficiency in the functioning and equity in the clustering of laboratories government laboratories.
GAP ANALYSIS by using UHC tool	See attached document
Target areas and beneficiaries	**Target:** All laboratories in public hospitals, MRI and special campaigns **Beneficiaries:** Laboratory in all categories of public and private hospitals, Patients, all clinicians and other clients of laboratories
Justification	It is observed that due inadequate supply of human resources, financial and logistic resources to the hospitals, quality of most laboratories have deteriorated. Further, laboratories are not routinely observed and supervised as most of the hospital directors, medical superintends and DMOO are over-burden by the routine and urgent administrative activities of the hospital. The situation is being aggravated further due to non-availability of consultants in some of the laboratories to administer the routine activities. Posting of staff, supply of equipment and chemicals do not take place according to a laid down guideline and norms. Most of the consultants do not have confidence on the quality and reliability of the laboratory investigation reports and as such tend to request second investigation to be performed by a private sector laboratory. Quality control and monitoring of routine activities in the laboratories are not taking place according to the guidelines
Important Assumptions/Risks/Conditions	• Firm policy decisions to be taken according to the needs of the country in-spite of any resistance

	• Adherence to policies, regulations and guidelines by all levels of administrators and stakeholders. • Required number of various categories of staff to be trained and posted according to identified requirements • High technology, costly equipment with the consumables to be provided periodically according to the laid down norms for implementation • Informed continuous support from all categories of laboratory staff	
Programe Objectives	***Indicators***	***Mean of verifications***
To provide quality laboratory services by ensuring efficiency in the functioning and equity in the clustering of laboratories in hospitals.	% of government laboratories that are accredited	Survey
	% of randomly selected consultants who are satisfied with laboratory services and results	Survey
	% of randomly selected patients who are at least satisfied with delivery of laboratory services	Survey
Output	**Indicators**	**Mean of verifications**
Clear, coherent and practical policy, standards or norms and regulations that are used for formulation of plans for improving and accreditation of various levels of laboratories	% of major items in the policy standards/norms and regulation that are being implements	Expert review and survey
Motivated, skilled and competent laboratory staff	• % of laboratories with staff according to the approved standards • % of laboratories with staff who performed well based of approved competency check list	Survey
Adequate and appropriate equipment and consumables	% of laboratories which has 25%, 50%, 75% and 100% of equipment according to the approved standards	Survey
Investigations performed according to approved policy, standard and regulations	% of randomly selected laboratories that has the capacity to perform 25%, 50%, 75% and 100% of all the investigations according to approved policy, standards and regulations	Survey
More reliable laboratories reports	% of randomly selected laboratory reports that meet the standard of quality	Survey

Clusters system for delivering laboratory services	% laboratories participated in the clustering system		Survey
Strategies/Major activities	• Formulation of policy, standards and regulations • Hardware acquisition and installation and maintenance • reinforcing capacities of human resources for laboratories • Enhancement of laboratory supply management • accreditation of laboratories and assessment of results • Quality improvement of all laboratories and assessment of results • fostering accountability of the system • formulation of a clustering system for delivery of laboratories services • Implement a monitoring and evaluation system for laboratory services using information technology		
Monitoring and evaluation	***Action***	***Whom***	***When***
	Laboratory review meeting conduct at each hospitals	Head of the institution	Monthly
	Conduct regional Laboratory review meeting	RDHS, Head of the institutions of the region	Every 3 months
	Conduct national level laboratory review meeting	Head of the institution, D/LS, DDG/LS	Annually

GAP ANALYSIS

Activity area	**Equitable distribution of services to all patients of the country**	**Accessibility to all health services by all patients of the country**	**Quality of service offered to all patients of the country**	**Financial protection of all patients of the country**
Laboratory services	All health care facilities provide basic laboratory investigations either by own laboratory or cluster laboratory	Private/ public transport	Laboratories follow quality standards? Laboratories perform internal and external quality assurance?	Patients are requested to do some laboratory tests from private sector even though they are available in government hospitals

Program title	**Asthma and Respiratory Allergies**
Focal point	DDG MS 1
Proposal Submitted by	**Sri Lanka College of Pulmonologists**
Back ground / **Situation** Analysis *(**Problem Analysis**)	Asthma is found to be extremely common in the Sri Lankan population and the asthma deaths in Sri Lanka are one of the highest in the region. (ISSAC data) Allergic rhinitis is also found to be very common. In addition to the morbidity attached to the condition itself, in certain cases controlling the airway disease becomes difficult when allergic rhinitis is also present. Use of inhaled steroids remains low and erratic in the Sri Lankan population due to multiple reasons. Unfortunately, one of the reasons is the poor knowledge and attitudes of the medical practitioners
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	1. All patients with symptoms of asthma and respiratory allergies 2. Medical staff in the primary care settings dealing with acute and chronic asthma
Justification	Asthma and allergic rhinitis affect all age groups and lead to a lot of OPD attendance, hospital admissions and work and school loss causing major socio economic disturbances. These conditions can be very well controlled with the available medications when properly diagnosed, recorded and managed according to the standard guidelines.
Important assumptions / Risks / Conditions	
Vision	To provide a safe and fulfilling life to all Sri Lankans living with asthma and allergies

Mission	To improve asthma related outcomes by providing accessible, equitable and best practiced based care to all Sri Lankans with asthma.
Goal	1. Reduce Asthma Related Morbidity and Mortality. **2.** Integrated and coordinated delivery of asthma care 3. Educating and empowering patients in participating in asthma care. 4. Minimize indoor and out door air pollution including exposure to bio-mass fuels and environmental tobacco-smoke 5. Research into seasonal trends, occupational and other factors unique to Sri Lanka **Goal 1 - Reduce Asthma Related Morbidity and Mortality.** 1. Assessing burden of disease by conducting periodical epidemiological surveys 2. Early detection using standardized protocols for those presenting with symptoms suggestive of asthma. 3. Screening for symptoms suggestive of asthma at Healthy lifestyle centers, school medical examinations, those with known occupational exposures 4. Screening of all adults with newly diagnosed asthma for possible responsible occupational related agents. 5. Developing Best Practice Guidelines in diagnosing and managing asthma at all levels of care ranging from Primary Care settings to Tertiary care settings. 6. Standardized procedures in documenting diagnosis. 7. Universal and uninterrupted access to inhaled preventer asthma medication across all levels of care**.** 8. Developing a system that ensures equitable distribution of essential inhaled preventer and reliever asthma medication**.** 9. Need to be followed up in a dedicated asthma clinic / care setting and development of asthma registries.

	10. Organized structured follow up care with standardized documentation (electronic records / data bases) and structured assessment of asthma control during follow up clinic visits. 11. All patients should have a self-management plan based on clinical para-meters or Peak Flow Monitoring depending on availability of resources. 12. Appropriate triage and access treatment during acute exacerbations. **Goal 2 - Integrated and coordinated delivery of care** 1. Referral of patients with persistent asthma to be managed in dedicated asthma care setting. 2. Developing National Policy of School Based asthma care programs 3. Refer patients with difficult to control asthma to centers with Respiratory Physicians. 4. Developing Specialized Centers of Excellence with necessary resources and expertise to manage "difficult to control asthma". 5. Developing Centers of Excellence to diagnose and manage Occupational asthma 6. Developing partnerships with state and non state stake-holders in care of patients with work related and occupational asthma. 7. Asthma in athletes, standardized protocols and developing centers to diagnose and manage such athletes. Goal – 3 **Educating and empowering patients in participating in asthma care.** 1. Access to health educational material on asthma. 2. Self-management plans**.** 3. Trained health care providers / nurses to educate on the use of inhalers and addressing patients concerns about asthma. 4. Access to information regarding work related and occupational asthma 5. Access to smoking cessation services for asthmatics who smoke. **Goal -4** Minimize indoor and out door air pollution including exposure to bio-mass fuels and environmental tobacco-smoke

	Goal - 5 Research into seasonal trends , occupational and other factors unique to Sri Lanka	
Programe Objectives	**Indicators**	**Means of Verification**
Reduce Asthma Related Morbidity and Mortality **Objective 1** <u>Early detection and screening</u> **Objective 2** <u>Evidence based diagnosis and management</u>	1. Availability of disease burden surveys **2.** Availability of outdoor morbidity data on asthma **3.** Availability of indoor morbidity data on asthma **4.** Availability of indoor mortality data on asthma **5.** Availability of standardized protocols for screening for asthma in all care settings **6.** No of adults with newly diagnosed asthma who are screened for occupational asthma **7.** No of patients who have exposures to known occupational agents who are screened for asthma **8.** Availability of Best Practice Guidelines in the diagnosis and	**1.** SLCP, NCD, NPCCD, CCP, CGP **2.** Ministry of Health **3.** Ministry of Health **4.** Ministry of Health **5.** SLCP, NCD, NPTCCD **6.** Ministry of Health National Guidelines **7.** Ministry of Health National Guidelines **8.** MOH, SLCP

	management of asthma I. Practical Approach to Lung Health Guideline (PAL) ii. National Guidelines on Asthma No of patients with persistent asthma who have documented diagnosis of asthma No patient with persistent asthma who have a organized structured follow up plan No of patients with persistent asthma who are followed up in an asthma clinic / care setting Availability of an asthma register No institution with reporting formats of patients with asthma	 MOH, Directorate of Quality Control SLCP MOH, Directorate of Quality Control SLCP MOH, Directorate of Quality Control MOH, Directorate of Quality Control SLCP MOH, Directorate of Quality Control SLCP
Objective 3 <u>Universal access to preventor asthma medication</u>	No of patients who are prescribed and have access to preventer asthma medication Availability of preventer asthma medication on essential drug list	MOH MOH, Directorate of Quality Control
Objective 4 <u>Equitable distribution of essential asthma medication</u>	Availability of essential prevent or asthma medication Times stock outs of essential preventer asthma medication	MOH, Directorate of Quality Control

Objective 5 <u>Structured organized follow up care</u>	No of institutions with an organized asthma clinic as per National Guidelines No of patients who have a documented follow up and assessment plan	MOH, Directorate of Quality Control SLCP
Objective 6 <u>Emergency Asthma care</u> **Integrated and coordinated delivery of care**	Availability of triage pathways and National Guide Lines on management of acute asthma Availability of a structured referral system to asthma clinics Availability of a National Policy on School based asthma care No of Schools participating in school based asthma care programs Availability of Specialized centers to manage "difficult to control asthma Availability centers that have resources to diagnose and manage occupational asthma Availability of centers that have resources to diagnose and manage asthma in athletes	
Educating and empowering patients in participating in asthma care	No of patients wit access to health educational material on asthma. No of patients provided with a written Self-management plans**.** No of institutions with trained health care providers / nurses to	MOH Quality Control Directorate SLCP MOH Education and Training Directorate MOH

	educate on the use of inhalers and addressing patients concerns about asthma	
	Availability of information regarding work related and occupational asthma	MOH Ministry of Labor
	No of institution that have access to smoking cessation services for asthmatics who smoke.	MOH SLCP NCD NATA
National Plan on indoor and out door air pollution	Availability of a National Plan on reduction of bio-mass fuel exposure	MOH Ministry of Environment
	Availability of Asthma Friendly Schools Policy	MOH School Health Directorate Ministry Of Education
	Availability of a National Plan on out-door air pollution	MOH Ministry of Environment
	Availability of National Plan on " healthy office buildings"	MOH Ministry of Environment Ministry of Labor
Research into seasonal trends , occupational and other factors unique to Sri Lanka	Availability of prioritized areas of asthma research programs and identified sources of funding	MOH NSF SLMA CCP
Strategies / Major Activities	**1. Asthma Detection and diagnosis** Epidemiological Surveys to asses burden of disease.(international Survey of Asthma and Allergies in Childhood "ISSAC study / Adult Asthma Survey) Screening for asthma at healthy living center clinics run by Medical Officers on Non-Communicable Diseases. Development of educational material for Primary Health Care Workers (Public Health Midwives / nursing Sisters/Public Health Inspectors) and Medical Officers of health.	

	Dissemination and implementation of Practical Approach to Lung Health Guideline (PAL) among Primary Care Practitioners / Medical Officers. Updating Current Asthma Management Guidelines Establishment of Asthma Clinics. Training of Asthma Nurse Educators **2. Structured and organized system of documentation for patients with asthma.** Development of validated screening formats Development of standardized documentation formats Paper based or electronic formats **3. Organized and structured follow up care** Development of standardized Follow up formats paper based or electronic formats Check list of things to do during a follow up visit Structured interview formats during follow up All chest physicians run clinics to be provided with spirometrye equipment. PAL Guideline based follow up protocols. **4. Patients to have self-management plan** All patients to be educated and empowered with Self- Management Plans These to be developed by SLCP **5. Organized and structured delivery of emergency care** Development of Asthma guideline Accident and Emergency Care Flow Charts with Triage Pathways

	6. Access to educational material on asthma Patient information leaflets / posters Web based educational material Anti-smoking informational packages National Asthma day Programs 7. **National school based program for children with asthma**. Asthma Education and care package for schools Asthma friendly schools concept **8. Screening for occupational asthma in occupational risk groups** Creating awareness of Occupational Asthma Screening Risk groups Developing a national policy on work related asthma Developing centers of excellence to investigate and manage occupational asthma Access to bronchial challenge tests ImmunocapIgE assays 9. **Developing centers of excellence for the care of "difficult asthma**" Managing patients with "difficult asthma" needs clinical expertise and access to special diagnostic tools Bronchprovocation tests Exhaled breath Nitric – oxide assays IgE assays **10. Asthma in athletes a National program for diagnosis and management of asthma in athletes** A Center of Excellence in diagnosing and managing asthma in athletes Broncho-provocation test

Program title	**Interstitial lung disease (ILD) Program**
Focal point	DDG(MS-I)
Background	Interstitial lung diseases are a heterogeneous group of lung diseases which has a spectrum of disease patterns ranging from a mild form to a severe deadly and disabling form. Some of them like Hypersensitivity pneumonitis, Nonspecific interstitial pneumonia, Respiratory bronchiolitis interstitial lung disease, desquamative interstitial pneumonia have a good prognosis compared to usual interstitial pneumonia which has a progressive disabling course. Exact data on prevalence and incidence of interstitial lung diseases is not known. Most of these patients are mismanaged due to lack of diagnostic facilities. Steps should be taken to increase the detection rate of ILD as some of them can mimic common disorders (e.g. HP can mimic asthma and RBILD can mimic COPD).Facilities for managing patients with ILD should be increased for optimum patient care and to reduce mortality.
Target areas and beneficiary	Patients with interstitial lung diseases and their families. Economic benefit as some of these are related to agriculture and industrial sectors, e.g. hypersensitivity pneumonitis is linked to agriculture sector.
Justification	Early diagnosis will minimize respiratory handicap. Improved services for diagnosis and treatment will reduce mortality and morbidity.
Important assumptions	Detection and treatment of Interstitial lung diseases will get prioritized by all health authorities by providing resources to health sector institutions. Collaboration with Thoracic surgeons for improved availability of lung biopsy services will enhance diagnostic capacity as the diagnosis, and management is multi-disciplinary
Risks	Interstitial lung disease is already a neglected area and there will be an increased demand on the existing health resources like Chest X ray, spirometry, bronchoscopy, lung biopsy and CT Chest facilities. Treatment options range from low cost medications like steroids to high cost treatment modalities like lung transplant for some patients.

Conditions	Provide facilities to all chest clinics and major hospitals to diagnose interstitial lung diseases.eg Improve availability of CT Chest facilities, bronchoscopy + brochoalveolar lavage and spirometry. Increase availability of lung biopsy services (Collaborate with College of Surgeons/Thoracic Surgeons).Increase availability of newer evidence based therapeutic options e.g. pirfenidene for UIP. Consider lung transplant program (Stake holders - thoracic Surgeons)	
Vision	Minimize Interstitial lung disease related morbidity, mortality and respiratory handicap.	
Mission	Establishing a program to diagnose interstitial lung disease early and accurately by increasing diagnostic facilities at Health care institutions. Create a registry for interstitial lung disease to obtain accurate data. Improve treatment facilities for patients with interstitial lung disease.	
Goal	Reduce interstitial lung disease related mortality and morbidity.	
Program objectives	***Indicators***	***means of verification***
	Increase availability of diagnostic facilities at healthcare institutions like CT, spirometry, bronchoscopy with biopsy and BAL, Early referrals for open lung biopsy there by increasing the detection rate of interstitial lung disease. Improve therapeutic options for patients with interstitial lung disease like newer medicines and, provision of long term domiciliary oxygen. Consider Initiating a lung transplant program. • Increase diagnostic facility and increase access to HRCT Scan for all patients suspected of Interstitial Lung Disease on clinical and chest Radiographic evidence. - Standardized HTCT protocol to be developed with College of Radiologists and Association of Radiographers. - Workshops to be conducted to Radiographers on HRCT protocol. - Standardized reporting system to development. - Standardized pathology reporting system to development. - Developing national registries and expert groups on ILD. - Establishing lung transplant program.	Establish a database for interstitial lung disease

	<u>Lung Transplant</u> 1. National lung transplant Registry prioritized patient by independent committee. 2. National Lung Transplant Centre to develop in the National Hospital for Respiratory Diseases, Welisara. 3. Establishing a organ harvesting, retrieval and presentation units based in hospitals and Accident & Emergency. 4. Review human tissue act in keeping with changing needs for lung transplant and public and private stakeholder's needs.	
output	***Indicator***	***Means of verifications***
Deaths related to interstitiallung disease	Incidence of interstitial lung diseases diagnosed by health institutions	Indoor mortality registers Special register for interstitial lung disease
Monitoring and evaluation	Mortality morbidity data from interstitial lung disease registry. Mortality reweaves in health institutions on deaths suspected contributed by ILD.	
References to research	1. American Thoracic Society; European Respiratory Society. American Thoracic Society/European Respiratory Society International Multidisciplinary Consensus Classification of the Idiopathic Interstitial Pneumonias. June 2002 Am J Respir Crit Care Med 2002; 165:277–304. 2. High resolution CT of interstitial lung disease: key findings in common disorders by Schaefer-Prokop, C, Prokop M, Fleischmann D, Herold CJ. European Radiology 2001;11: 373-392	

Program Title	**Lung Cancer**
Focal Point	DDG(MS-I)
Background	Lung cancer is the second most common cancer in Males over the age of 35 in Sri Lanka, second only to Lip, tongue and oral Cancer. Out of these, the largest incidence was of squamous cell neoplasms, according to the National Cancer Registry of 2007. In 2007, Lung cancers were the 9th most common cancer in females. However, we are now seeing a shift towards a younger patient age group, a higher proportion of females and larger incidence of Adenocarcinoma. Most Lung Cancers diagnosed in Sri Lanka are diagnosed at a higher stage and thus, treatment options are limited. Diagnosis of lung cancer is usually by pathological confirmation of histology of small biopsy specimens and relevant immune-histochemical analysis. Even though targeted therapy (TKI etc) is offered to high stage malignancy, testing for EGFR, ALK mutations is currently not performed in the country. Specialized staging investigations like PET-CT scanning is only available to a limited population.
GAP ANALYSIS by using UHC tool	
Target areas and beneficiaries	
Justification	
Important Assumptions/Risks /Conditions	
Vision	To prevent and reduce the incidence of lung cancer in Sri Lanka, employ measures of early detection in diagnosing lung cancer, offer accessible therapeutic options to all patients diagnosed with lung cancer and to provide adequate palliative and end of life care to terminal lung cancer patients.
Mission	
Goals	• Screening and follow up programs for high risk patients • Smoking cessation for suspected patients as well as islandwide smoking cessation initiatives with a smoking cessation program to be incorporated into all Respiratory clinics.

	• Early referral of suspected patients to a specialist Lung Physician from primary care physician • Dedicated Lung Cancer Clinics to be conducted at all hospitals with a Respiratory Physician • Early CECT Chest with appropriate CT staging • Minimally invasive Diagnostic investigations for histological diagnosis to be available at District level with facilities for immunohistochemistry to be available at Tertiary level • Relevant Staging investigations to be available at all tertiary care hospitals • All Tertiary Care Hospitals to conduct Multi Disciplinary Team meetings to decide upon optimal management of lung cancer patients and provide relevant feedback to the Referring physician/ Primary care physician • A Palliative care team should be formed at all Tertiary care hospitals • Follow up of Lung Cancer patients to be carried out at Respiratory Physician led Lung Cancer clinics with special emphasis given to management of special problems (Pleuro-pericardial effusion, Vocal cord paralysis, hypercalcaemia, Airway Obstruction) in supportive care and advanced lung cancer.	
Programe Objectives	***Indicators***	***Means of verifications***
Screening: Definitive criteria need to be established to identify individuals who need to be screened. Age, sex, smoking history, family history, exposure history should be taken into account.		
Smoking: Patients should be advised to stop smoking as soon as the diagnosis of lung cancer is suspected, and benefits of this explained. A dedicated smoking cessation clinic/ programme should be available and should include counseling, behavioral therapy and nicotine replacement therapy options		

Referral: All individuals with suspected lung cancer should be referred to a specialist with expertise in the management of lung disease, for an opinion.		
Diagnostic Investigations: All patients suspected of lung cancer should have access to Chest X-ray and sputum cytology on first admission/visit to primary health care provider.Patients with suspicious SPNs (>10mm and <3cm) and lung masses (>3cm) on Chest X-ray should have a CECT chest within *1 week* of chest x-ray, a diagnostic test such as bronchoscopy, Thoracoscopy, CT-guided- or Ultrasound guided-biopsy or EBUS-TBNA within *1 week* of chest x-ray Patients with Smaller nodules (<10mm) and SPNs that have benign morphology, should be entered into a follow up program (3month, 6 month and yearly Chest x-rays)		
Staging Investigations: Histological conformation of mediastinal nodes should be considered if nodes are >10mm in short axis on CT or nodes are positive on PET-CTEndoscopic assessment of the mediastinal lymph nodes with EBUS-TBNA with or without EUS-FNA should be offered to patients with suspected lung cancer prior to mediastinoscopy.		
Surgery: Patients with Stage I and II NSCLC should be		

considered for curative surgery whenever possible		
Systemic anticancer therapy: First line single agent tyrosine kinase inhibitors should be offered to patients with advanced NSCLC who have a sensitizing EGFR mutation. Adding combination systemic anticancer therapy to a TKI confers no benefit and should not be used.		
Supportive and Palliative Care: All patients with lung cancer should have access to a specialist palliative care team.		
Multidisciplinary teams: All patients with a diagnosis of lung cancer should have their treatment and management planned and directed by a multidisciplinary team, that includes a Pulmonologist, a Radiologist, a Pathologist, a Thoracic Surgeon, a clinical oncologist, a radiation oncologist, a Palliative care team and Social worker.		
Follow up: All patients with lung cancer should ideally be followed up at a Respiratory Physician led Dedicated Lung Cancer Clinic following Surgery or Chemo-radiotherapy. Special attention should be given at these clinic sessions towards addressing Special problems in supportive care and care of advanced lung cancer. Attendance of a specialized palliative care nurse and counselor is preferable in these clinics		

Program title	Management and prevention of Pneumoconiosis
Focal point	DDG(MS-I)
Background	Pneumoconiosis is a well-recognized collection of respiratory diseases which has a spectrum of disease patterns ranging from asymptomatic form to a severe deadly and disabling form. Pneumoconiosis in Sri Lanka includes silicosis; asbestosis and much occupational dust induced respiratory diseases. Exact data on prevalence and incidence of pneumoconiosis is not known and the proportion of work force exposed to these diseases is also not known. However given the mortality and morbidity of them silicosis in particular (The deadliest of pneumoconioses) steps should be taken to prevent and detect pneumoconioses early. Further more data on asbestosis is also unknown but should be eliminated from the country given the mortality and morbidity.
Target areas and beneficiary	Workforce exposed to the risk of pneumoconiosis and their families. Industrial sector.
Justification	Screening program will be able to prevent pneumoconiosis, early detection will minimize further exposure and thereby minimize morbidity and respiratory handicap. Improved services for diagnosis and treatment will reduce mortality and morbidity
Important assumptions	Detection and treatment of pneumoconiosis will get prioritized by all health authorities by providing resources to health sector institutions. Collaboration of occupational health department In Department of labor and public health service will improve registration and health standards of the industries with risk exposures to pneumoconioses.
Risks	Pneumoconiosis is already a neglected area and there will be an increased demand on the existing health resources like Chest X ray ,spirometry ,bronchoscopy , lung biopsy and CT Chest facilities
Conditions	Provide facilities to all chest clinics and major hospitals to diagnose pneumoconiosis.eg Improve availability of CT Chest facilities, bronchoscopy + brochoalveolarlarvage and spirometry. Increase availability of lung biopsy services (Collaborate with College of Surgeons/Thoracic Surgeons)
Vision	Minimize pneumoconiosis (Especially eradicate - silicosis and asbestosis)

Mission	Establishing screening programs to diagnose pneumoconiosis early by increasing diagnostic facilities at Health care institutions. Create a frame work that in cooperate stake holders to form legislature and monitor occupations with risk exposure to pneumoconiosis.	
Goal	Reduce pneumoconiosis related mortality and morbidity	
Program objectives	***Indicators***	***means of verification***
1. To screen the workforce at risk for pneumoconiosis Indicator - number of industries with risk exposures that perform mandatory medical screening for pneumoconioses.		Inspection of industries registered under MOH area annually
2. Increase availability of diagnostic facilities at healthcare institutions like CT ,spirometry, bronchoscopy with biopsy and BAL, Early referrals for open lung biopsy there by increasing the detection rate of pneumoconiosis		Establish a database for pneumoconiosis
output	***Indicators***	***means of verification***
Deaths related to pneumoconiosis	Incidence of pneumoconiosis diagnosed by health institutions	Indoor mortality registers
		Special register for pneumoconiosis
Monitoring and evaluation	Annual reports by MOH - on screening of industries. Mortality reweaves in health institutions on deaths suspectedly contributed by Pneumoconiosis.	

References to research	1. Chi Chiu Leung, Ignatius Tak Sun Yu, Weihong Cheng :Silicosis; Lancet 2012; 379: 2008–18 2. International Labour Office (ILO) Guidelines for the Use of the ILO International Classifica1tion of Radiographs of Pneumoconioses, Revised Edition 2000 (Occupational Safety and Health Series, No. 22). International Labour Office, Geneva, 2002. 3. Siribaddana A, Wickramasekera K, Palipana W M, Peiris M D, AsangaUpul B K, Senevirathna K P Dassanayake D L. A study on silicosis in a silica industry in the Central Province of Sri Lanka and the clinical profile of the patients: Accepted to publish in Ceylon Medical Journal.

Program title	Prevention of COPD.
Focal point	DDG - MS1
Back ground / **Situation** Analysis *(**Problem Analysis**)	
GAP ANALYSIS by using UHC tool	
Target areas & Beneficiaries	
Justification	
Important assumptions / Risks / Conditions	
Vision	To reduce the burden of COPD by advocacy, prevention, early detection and provision of shared care.
Mission	To provide best practice based care so that patients with COPD maintain optimal functional capacity and remain free of exacerbations.

Goal	
	1. Prevention of COPD. 2. Early diagnosis of COPD. 3. Management of Stable COPD. 4. Management of Acute Exacerbations of COPD. 5. Management of End-Stage COPD **1. Goal One** Prevention of COPD. <u>Strategies</u> <u>1.1 Tobacco Smoking</u> ✓ A comprehensive National Policy on regulation of tobacco smoking. ✓ Creating awareness on harmful effects of tobacco smoking(utilizing Schools, religious institutes, community leaders, providing educational material targeting school children and low-socioeconomic groups). ✓ Targeting Current Smokers and increasing access to smoking cessation programs. ✓ Screening of current smokers for COPD. <u>Strategy 1.2</u> <u>Biomass fuels and indoor air pollution</u> ✓ Achieving the National target of reducing the use of bio-mass fuels by 30 % by 2020. ✓ Minimizing or eliminating exposure to other indoor air pollutants ✓ National geological survey on Radon level with relevant stakeholders <u>Strategy 1.3</u>

	Occupational risk factors ✓ Identifying occupational risk factors for COPD ✓ Creating awareness among employers and employees in such risk occupations ✓ Screening of workers for COPD in risk occupations using using standardized questionnaires ✓ Increasing access to standardized tools like spirometry in screening such patients ✓ Developing a comprehensive program in diagnosing, managing and addressing issues such as compensation in a coordinated manner. • **Goal Two** **Early Diagnosis** Strategies 1. Early detection and diagnosing COPD at all levels of care ranging from Primary Care to Tertiary Care settings using standardized diagnostic tools and protocols**.** 2. Increase access to Spirometry for the early diagnosis of respiratory conditions including COPD through identification and training for Spirometry providers. 3. Screening of adults at Healthy Living Centers for symptoms of Chronic Respiratory Diseases including COPD using standardized questionnaire formats and referring them appropriately for Spirometry. 4. Educating Primary Health Care Staff to recognize symptoms of Chronic Respiratory Diseases including COPD (especially those with exposure to bio-mass fuels, smokers, those exposed to environmental tobacco smoke and occupational risk factors). Such individuals will be offered screening with standardized clinical tools and referred for Spirometry. 5. Screening of workers in occupations associated with inorganic or organic dust exposure for COPD. 6. Access to Smoking Cessation services for all smokers.

	• **Goal Three** **Management of Stable COPD** 1. Standardized evidence based Guidelines for managing stable COPD in different care settings ranging from Primary Care to Tertiary Care settings. 2. Standardized procedures in documenting initial diagnosis with assessment of severity, associated co-morbidities, frequency of exacerbations occupational exposures and smoking status. 3. All current smokers to be referred to a Smoking Cessation Program. 4. Organized structured follow up care with standardized documentation and structured assessment of COPD control during follow up clinic visits 5. Patients with a moderate to severe degree of COPD to be managed in specialized clinics supervised by Consultant Respiratory Physicians. 6. All patients with COPD to have increased access to essential inhaled medication. 7. All patients with COPD to be assessed for cardiovascular risk factors. 8. All patients with moderate to severe COPD to have access to structured Pulmonary Rehabilitation Program" 9. All patients with severe to very severe COPD to be assessed for the need of Long Term Oxygen Therapy. 10. All patient with COPD to be provided with emergency self management plans. 11. Recognize that patients with COPD should be offered Pneumococcal and influenza vaccination. • **Goal Four** **Management of Acute Exacerbations of COPD** <u>Strategies</u> 1. Standardized evidence based Guidelines for exacerbations of COPD in different care settings ranging from Primary Care to Tertiary Care settings. 2. Developing appropriate triage for those patients presenting with acute exacerbations of COPD. 3. Increasing availability of Non-Invasive Ventilation (NIV) services for patients presenting with acute exacerbations of COPD.

	4. Standardized system of documenting COPD exacerbations and appropriate referral to specialized care setting . 5. Standardized evidence based Guidelines for exacerbations of COPD in different care settings ranging from Primary Care to Tertiary Care settings. 6. Developing appropriate triage for those patients presenting with acute exacerbations of COPD. 7. Increasing availability of Non-Invasive Ventilation (NIV) services for patients presenting with acute exacerbations of COPD. 8. Standardized system of documenting COPD exacerbations and appropriate referral to specialized care setting . **Goal Five** **Management Of End-Stage COPD** <u>Strategies</u> 1. Access to Community based palliative care services. 2. Advanced directives regarding endo-tracheal intubation and mechanical ventilation 3. Access to social welfare services in low-socioeconomic groups.	
Programe Objectives	**Indicators**	**Means of Verification**
Prevention of COPD	Number of smokers screened for COPD	MOH NCD
	Number of current smokers referred to Smoking Cessation Clinics.	MOH SLCP CCP CGP
	Number of Hospitals with Smoking Cessation Clinics.	MOH NCD SLCP
	Number of patients attending smoking cessation clinic	MOH NCD SLCP
	Number of smoking cessation clinics with access to pharmacological aids to smoking cessation.	MOH NCD SLCP

	Biomass fuels and indoor air pollution achieving the National target of reducing the use of bio-mass fuels by 30 % by 2020	MOH Ministry of Environment Ministry of Power and Energy Samurdi Program NGO
	Number of workers in risk occupations for COPD , who were screened for COPD using standardized questionnaires	MOH Ministry of Labor NIOSH
	Number of workers in risk occupations for COPD , who were screened for COPD using standardized questionnaires	MOH Ministry of Labor NIOSH
	Number of workers in risk occupations for COPD , who were screened with Spirometry for COPD .	MOH Ministry of Labor NIOSH
Performance indicators for delivery of COPD care.	Number of patients with a provisional diagnosis of COPD who were diagnosed using Nationally accepted guideline such as PAL(Practical Approach to Lung Health) or standardized clinical COPD diagnostic tools	SLCP , MOH
	Number of patients who had documentation of clinical diagnosis of COPD with , assessment of severity and associated co-morbidities	SLCP , MOH
	Number of patients with COPD who were screened for possible occupational exposures	SLCP
	Number of patient with who were screened for smoking.	SLCP
	Number of patients with COPD who screened for bio-mass fuel exposures	
	Number of patients with a provisional diagnosis of COPD who were referred for Spirometry	SLCP
	Number of COPD patients that were refered for Spirometry who had a Spirometric diagnosis and classification severity of	SLCP COPD Guidelines

	COPD according to standardized protocols.	
	Number of patients with a provisional diagnosis of COPD who were diagnosed using Nationally accepted guideline such as PAL(Practical Approach to Lung Health) or standardized clinical COPD diagnostic tools	SLCP , MOH
	Number of patients who had documentation of clinical diagnosis of COPD with , assessment of severity and associated co-morbidities	SLCP , MOH
	Number of patients who had a baseline Spirometry measurement done and documented within 6 months of diagnosis	SLCP COPD Guidelines
	Number of patients with moderate to severe COPD who had a Chest Radiograph	S LCP COPD Guidelines
	Number of patients with moderate to severe COPD who had a High Resolution CT scan	SLCP COPD Guidelines
	Number of patients with COPD who had a organized follow up plan.	SLCP COPD Guidelines
	Number of patients who had received health education regarding COPD , diet exercise and use and care of inhaler medication and devices.	SLCP COPD Guidelines
	Number of patients given a written self management plan.	SLCP COPD Guidelines
	Number of COPD patients who had a structured follow up interview	SLCP COPD Guidelines
	Number of patients who had degree of control assessed by standard tools such as the COPD Assessment Test Test (CAT). Number of patients who had a documented Spirometric recording during follow up visit.	SLCP COPD Guidelines

	Number of patients who received standardized care during Acute Exacerbation of COPD (AECOPD) inclusive of monitoring with pulse oxymetry , controlled oxygen , Non-Invasive Ventilation (NIV) oral steroids on discharge	SLCP COPD Guidelines A and E Operational Manual
	Number of patients being readmitted within 3 months following a previous admission for AECOPD.	SLCP COPD Guidelines
	Number of patients presenting with AECOPD who were referred to Pulmonary Rehabilitation Program	SLCP COPD Guidelines College of Physiotherapists
	Number of patients presenting with AECOPD who were referred for assessment for Home Oxygen.	SLCP COPD Guidelines
	Number of patients presenting with AECOPD who were referred for cardio-vascular risk assessment.	SLCP COPD Guidelines
	Number of months during the quarter were there were stock outs of essential COPD medication and inhaler devices	MOH
	Availability of COPD clinic	MOH , Hospital Directors
	Availability of COPD register	MOH , Hospital Directors , SLCP
	Standardized documentation in COPD register	MOH , Hospital Directors , SLCP
	Availability of health educational material	SLCP
	Standardized documentation and follow up book.	SLCP
	Standard formats for requesting of COPD medication	SLCP , MOH
	Availability of Spiromerty	MOH
	Standardized protocols practiced during performance of Spirometry	SLCP , College of Physiotherapists
	Availability of smoking cessation clinics	MOH ,NCD , SLCP

	Availability of Pulmonary Rehabilitation program	SLCP , College of Physiotherapists
	Access to Pneumococcal and Seasonal viral influenza vaccination	MOH ,SLCP
	Access to palliative care services for patients with end-stage COPD	MOH ,SLCP
	Program of screening for Lung Cancer in patients with COPD	SLCP COPD Guidelines
	Access to Lung transplant Program in patients with end-stage COPD	SLCP COPD Guidelines
Output (Please prepare separate indicators for each output)	Indicators	Means of Verification
Strategies / Major Activities		
Monitoring & Evaluation		
(*) Reference to Research		

Names of officials who documented the profile =

Sri Lanka College of Pulmonologists

Program Title	National Program for Reduction of the morbidity and mortality due to **Pneumonia** in Sri Lanka.
Focal Point	DDG/ MS I & Director NPTCCD
Proposal Submitted by	**Sri Lanka College of Pulmonologists**
Background	. Pneumonia is one of the leading causes of morbidity and mortality in Sri Lanka. It affects the complete spectrum of age groups and has a poor out come mainly in extremes of age, patients with other co-morbidities and pregnancy. It was reported as the main cause of maternal deaths in 2014. (FHB / Annual Health Bulletin)
Gap Analysis	Described at the end of the proposal
Target areas and beneficiaries	Patients with Pneumonia in all the age groups.
Justification	In spite of improved health care facilities, novel treatment and diagnostic modalities, the rates of complications and deaths due to pneumonia remains a burden. The emerging trends of novel viral pathogens and multi resistant gram negative bacteria poses significant challenges in diagnosis and management. According to the census, elderly population of Sri Lanka is rising in number with the changes of demographic pattern. The increasing incidence of Diabetes, Bronchiactasis and stagnation due to obesity are emerging health issues in elders. This will further increase the burden of pneumonia. Most deaths due to Pneumonia occur as delays in initiation of proper management. Lack of adherence to standard protocols and guidelines are a main issue in the treatment settings.
Important Assumptions/Risks/Conditions	Proper diagnosis, effective referral system and Shared care including follow up and rehabilitation.
Vision	Improve quality of care of patients with Pneumonia and those who are at risk of getting Pneumonia
Mission	Reduction of the deaths and disability due to pneumonia by a pragmatic approach of management
Goal	Reduction of deaths and disability due to pneumonia in Sri Lanka by

<table>
<tr><td></td><td colspan="2">50% in 2020</td></tr>
<tr><td rowspan="2">Program Objectives

1. Reduction of morbidity due to Pneumonia by 50% in 2020.
2. Reduction of Mortality due to Pneumonia in 2020.</td><td>Indicators</td><td>Means of Verification</td></tr>
<tr><td>• Incidence rate of Pneumonia
• Course specific mortality rate due to Pneumonia</td><td>IMMR</td></tr>
<tr><td>Output</td><td colspan="2"></td></tr>
<tr><td>Program Strategies and activities</td><td colspan="2"><u>1. Early diagnosis and assessment with a validated tool:</u>

a. Encouraging the population to seek early medical intervention, specially if the symptoms are suggestive of viral infection (?influenza), in pregnancy ,with other medical co-morbidities, immune suppression, in extremes of age and has persistent symptoms not improving within a given time period through Dissemination of information via mass media and opportunistic leaflet distribution (e.g. at OPDs/Clinics) .

b. Capacity building of the medical practitioners in each level to practice the standard management protocols given by the NPTCCD.

Use the validated tools in each centre to assess the severity of LRTI .

(CURB-65 or CRB-65 will be an option)
At the primary care level, OPDs and PCUs use the physiological parameters to record and asses the severity
(1) Temperature (2) Respiratory rate (3) Saturation (by pulse oxymeter) (4) Pulse rate (5) Systolic and Diastolic Blood pressure (6) level of consciousness (by AVPU or GCS)

(2) Investigations on admission on high risk categories.

a. A chest X-ray
b. Routinely provided the facility to perform Sputum for Acid Fast Bacilli (AFB) in patients with cough > 2 weeks, systemic features (low grade fever, loss of appetite, loss of weight, persistent symptoms in spite of treatment)
c. prevention of unnecessary use of antibiotics by proceeding with investigations that support to discriminate between viral and bacterial etiology (Pro calcitonin) be available at the OPD/PCU level and at the private sector at an affordable price with rapid results.</td></tr>
</table>

2.Initiation of treatment early with appropriate escalation of care:

a. Early commencement of appropriate antibiotics/anti virals within 4 hours of admission according to the local guidelines.

b. Encouragement of obtaining blood cultures and sputum for bacterial and AFB without delay before commencing the appropriate treatment.

c. Critically ill patients should be resuscitated and managed at the PCU

d. Regular assessment of inward Patients.

3.Monitoring response to treatment and detecting complications early;

a. Validated monitoring system in place with a plan for escalation. Use the EWS parameters.

b. Monitor the response for treatment with appropriate clinical (Temperature, Saturation, Heamodynamic status), chemical (e.g. CRP) and radiological (CXR/ USS chest) modalities, antibiotic sensitivity tests, development of para pneumonic effusions, abscess formation etc.

c. Screening for resistant gram negatives (Acinetobacter, Klebsiella and other enterobactereceae), MRSA, fungal pathogens, Pneumocystis and novel viruses in intubated patients.

d. Consultant microbiologist opinion for management of all the patients with patients who has Pneumonia with positive investigation results.

e. MDT (Multi disciplinary Team) consisting of a Physician, Respiratory Physician, Microbiologist, Anesthetist/Critical care Physician, Nurse In charge and Physiotherapist for the management of complicated patients, critically ill patients and pregnant and post partum patients.

- **Follow up :**
  Standards follow up care according to the Guidelines and protocols.

- **Prevention and Surveillance :**

	a. Vaccination against Strept. pneumoniae and influenza should be considered and made available in selected high risk patient group b. Surveillance to identify epidemiological factors predisposing to severe acute respiratory infections, identify the etiological pattern, distribution, and the antibiotic sensitivity patterns of organisms. c. Formulate an internal and national clinical audits to regularly update and improve patients care services. d. Antibiotic stewardship in cooperated and legal backing through departmental circulars.
Monitoring and evaluation of the program	Quarterly review meetings and clinical audits in institutional level Annual review meeting in National level
References and Research	Annual Health Bulletin

Gap Analysis

Program Name	**Accessibility**	**Equity**	**Quality**	**Financial Protection**
Morbidity and mortality reduction of pneumonia	Satisfactory	Services available	Issues in early detection, standard care, rehabilitation and follow up	High out of pocket expenditure for investigation and treatment

Programme title	Sri Lanka College of Venereologists (SLCV)
Focal point	President, Sri Lanka College of Venereologists and Director, National STD/AIDS Control Programme (implementing entity).
Background/ situation analysis* (Problem analysis)	**Epidemic status:** **HIV:** Low prevalent country, estimated HIV prevalence among adults (15-49 years) less than 0.1% and among most at risk populations < 1%. Sex ratio 2.8:1 (2015), Cumulative total of HIV cases were 2308. Approximately 4.5 new cases are reported per week. Probable modes of transmission in 2015; male-female 49%, male-male 37%, mother-child 3%, IDU 1%, and no data 10%. Estimates for 2015 shows that number of PLHIV was 4200, incidence 550 cases/year. **Other STIs:** Overall, about 10,000-14,000 STD cases per year are reported to the NSACP. The number reported in the year 2015 was 13,852. The most common STDs reported to the NSACP in 2015 were Genital herpes (21%), Non-gonococcal inflammations (16%), Genital warts (14%), Syphilis (8%), and Gonorrhoea (3%). **Epidemic focus**: the HIV epidemic is kept under surveillance from behavioural factors to reporting of AIDS cases. Although the epidemic status of any risk populations has not reached concentrated epidemic level (5%), the current focus is on FSWs and the MSM that have the greatest epidemic potential. Other people with multiple sexual partners (OPWMP) also need to be focused. **Risk and vulnerabilities: Push factors** Clandestine but flourishing sex industry, low level of condom use, concurrent and multiple sexual relationships among key population. Presence of legal barriers, Significant level of stigma and discrimination by healthcare and other settings for people living with HIV and for key populations, the presence of a large youth population and internal and external migration are risk factors. **Risk and vulnerabilities: Pull factors** Low partner exchange rate, Low level of sexually transmitted infections (STI), availability and accessibility to free health services from the state sector, high literacy rate, and a low level of drug injectors are protective factors.
GAP ANALYSIS by using UHC tool	**Equitable distribution of services to all patients of the country:** this is very variable due to distance issues and not having STD clinics in some districts. **Accessibility to all health services by all patients of the country**: accessibility is affected by the distance as well as due to stigma and discrimination. **Quality of service offered to all patients of the country**: quality of service is variable based on the facilities available. **Financial protection of all patients of the country**: free government health service but service access is low due to stigma and discrimination attached to these type of clinics.

Target area & Beneficiaries	**1) Prevention of transmission of sexually transmitted infections; Beneficiaries:** include all the key populations, which include most-at-risk populations (FSW, MSM, BB, DU, STI clinic attendees, Clients of sex workers), vulnerable populations (migrants, prisoners, tourist industry workers), people living with HIV and general population groups. This also includes prevention of possible transfusion transmitted infections through donor screening. Screening of antenatal mothers for syphilis and HIV **2) Diagnosis, treatment and care; Beneficiaries:** Adults, adolescents and children with STI including HIV. Prophylaxis treatments for different exposure situations such as occupational and non occupational exposures, and victims of sexual abuse. **3) Promotion of sexual health; Beneficiaries:** General population groups, school children, youths out of school, people with mental and physical disabilities, people with chronic illnesses, prisoners, refugees, and illegal immigrants **4) Strategic information management; Beneficiaries:** Programme planners, implementers, researchers, stakeholders, law and policy makers **5) Health system strengthening; Beneficiaries:** Key populations and general population. **6) Supportive environment; Beneficiaries:** Most at risk populations, vulnerable populations and people living with HIV.
Justification	• To achieve universal health coverage (UHC), indicators of MDGs and sustainable development goals (SDG), it is necessary to prevent and control the sexually transmitted infections and to promote sexual health. • Currently Sri Lanka is experiencing an increasing number of new HIV cases and new HIV infections while having low level of fluctuating bacterial infections and slightly increasing viral STDs. • Provision of ART to people living with HIV has shown to reduce their viral load and hence infectivity. Therefore. provision of ART to all eligible people infected with HIV is an essential requirement to maintain their health as well as to prevent further transmission. • Untreated STDs are facilitating transmission and acquisition of HIV and STI related complications. Therefore it is important to provide STD treatment facilities to all the needy populations. • Prevention of mother to child transmission of HIV and syphilis can be achieved by screening and treating all infected women during pregnancy. This will save lots of money and other resources needed to treat infected children subsequently.
Important Assumptions/ Risks conditions	**Assumptions** • Current vulnerabilities and risk situation remain for the period of the health master plan. • Population continue to rely on government health service • Community, faith based and civil society individuals and organizations will not oppose the implementation of the plan. **Risk conditions** • Proliferation of vulnerabilities and risk increasing more new HIV and STI cases such as

	○ Influx of foreign migrant workers infected with HIV and HIV care tourism (Medical tourism), internal and external migration ○ The presence of a large youth population ○ Clandestine but flourishing sex industry ○ Low level of condom use ○ Concurrent sexual relationships among key populations • Financial crisis in procurement of ART for HIV patients and issues related to ART supply chain management. • Community, faith based and civil society individuals and organizations can oppose the implementation of the plan.	
Vision	Quality sexual health services for a healthier nation	
Mission	Contributing to healthier nation through sexual health promotion, emphasizing prevention, control and provision of quality services for sexually transmitted infection including HIV	
Goal	**Goal 1**: Prevention and control of sexually transmitted infections including HIV **Goal 2**: Provision of treatment, care and support services for infected and affected individuals **Goal 3**: Promotion of sexual health	
Programme Objective	Indicators	Means of Verification
Prevention and control of sexually transmitted infections including HIV	Percentage of key populations, FSW, MSM, PWID living with HIV (impact indicator)	Programmatic data, NSACP Integrated bio-behavioural surveillance (IBBS)
	Percentage of key populations reached with HIV prevention programmes (outcome indicator)	Programmatic data, NSACP IBBS
	Percentage of adults aged 15-49 who had more than one sexual partner in the past 12 months who report the use of condoms during their last intercourse (outcome indicator)	Programmatic data, NSACP IBBS
	Percentage of antenatal care attendees positive for syphilis (outcome indicator)	Programmatic data, NSACP Sero-surveillance, NSACP
Provision of diagnosis, treatment and care for infected and affected people	Percentage of eligible adults and children currently receiving antiretroviral therapy	Programmatic data, NSACP (Cohort analysis)
	Percentage of adults and children with HIV known to be on treatment 12 months after initiation of antiretroviral therapy (outcome indicator)	Programmatic data, NSACP (Cohort analysis)
Promotion of sexual health	The proportion of the population that has ever received counselling on sexual health or sexuality	Special surveys
Provision of strategic information	Availability and accessibility to complete information on indicators listed in the strategic plan document	

management service	(outcome indicator)	
Strengthening of Health systems	Number and Percentage of designated government sectors that have implemented HIV/AIDS activities (outcome indicator)	Programmatic data, NSACP (Multisectoral unit)
Creating a supportive and enabling environment	People living with HIV stigma index (outcome indicator)	PLHIV stigma Index
Output	Indicators	Means of Verifications
Prevention and control of sexually transmitted infections including HIV	1. Number of samples screened for STI (HIV, Syphilis) 2. Number of IEC programmes conducted and population groups covered 3. Percentage of MARP (FSW, MSM, DU, BB) who received a prevention programme 4. Percentage of MARPs and prisoners who received HIV counselling and testing 5. Percentage of HIV infected mothers who received ART for PMTCT 6. Percentage of MARPs who received an HIV test 7. Number of condom distributed	Programmatic data, NSACP IBBS Sero-surveillance data of the NSACP
Provision of diagnosis, treatment and care for infected and affected people	8. Number of patients registered 9. Number of STI cases reported and managed 10. Number and percentage of PLHIV on treatment from the estimates 11. Percentage of eligible adults and children currently receiving ART 12. Percentage of adults and children with HIV known to be on treatment at 12, 24, and 60 months after initiation of ART 13. Percentage of adults and children enrolled in HIV care who had TB status assessed and recorded 14. Percentage of estimated HIV positive incident TB cases that received treatment for both TB and HIV	Progress performance indicators of the NG-PR of the GFATM NSACP ART cohort analysis

Promotion of sexual health	15. Number of people who received counselling on sexual health or sexuality 16. Number of health education programmes in which sexual health or sexuality was discussed 17. Availability of national sexual health strategies and plans	Programmatic data, NSACP
Provision of strategic information management service	18. Availability of updated Multisectoral M&E plan and activity plan 19. Publication of annual report 20. Annual web updates of STI data 21. Availability of annual update on research gaps and research agenda 22. Routine sero surveillance and behavioural surveys conducted as planned 23. Preparation and availability of international data reporting for national indicators (GARPR, SAARC reports etc)	Programmatic data, NSACP
Strengthening of Health systems	24. Number of new STD clinics established 25. Number of newly identified cadre by category of staff 26. Proportion of cadre positions filled by adequately skilled persons 27. Number of induction and in-service training programmes conducted 28. Proportion of STD clinics filled by a consultant 29. Proportion of STD clinics with different services available such as Microscopy, on site HIV testing, on site CD4 counts, Viral load, ART facility 30. Availability of updated national standard operational procedures.	Programmatic data, NSACP Facility surveys
Creating a supportive and enabling environment	31. Number of health education programmes where a discussion of STI stigma and discrimination included for different groups including PLHIV, healthcare workers 32. Number of advocacy programmes conducted for law and policy makers and law enforcement agencies 33. Number of PLHIV and civil society organizations supported	Programmatic data, NSACP
Strategies/Major Activities	Main strategic directions (SD) SD 1: **Prevention** SD 2: **Diagnosis, treatment and care** SD 3: **Promotion of sexual health**	

SD 4: **Strategic information management**
SD 5: **Health system strengthening**
SD 6: **Supportive environment**

Guiding principles for the national STI and HIV strategic plan

1. Implementation of evidence based strategies
2. Rights based approach
3. Gender equality and equity
4. Stakeholder involvement
5. Multi-level and multi-sectoral approach
6. Partnership
7. Universal health coverage (UHC) in terms of equity, accessibility, quality and financial protection

SD 1: Prevention

Strategy 1.1: Prevention of transmission of HIV among key affected populations

Comprehensive interventions for female sex workers (FSW), men who have sex with men (MSM), people who use drugs (PWUD) /people who inject drugs (PWID) and beach boys (BB), people living with HIV (PLHIV)

- Improve access to HIV testing services through various approaches (outreach programmes, community testing, and testing at non-health setting etc)
- Comprehensive Condom Programming (CCP) for most-at-risk populations
- Behaviour change modification through outreach and peer education models
- STI prevention and diagnosis: testing, and treatment
- Targeted and group specific IEC and BCC through suitable channels of communication
- Community involvement and implementing a comprehensive prevention programs

Strategy 1.2: Prevention of transmission of HIV among vulnerable groups

Vulnerable populations: Migrant populations, prisoners, armed forces and police personnel and tourist industry workers

- Population specific IEC and BCC programmes on improving awareness among vulnerable populations
- Ensure diagnostic, treatment and care services for vulnerable populations
- Provision of continuity for HIV treatment for prisoners, HIV related policy for prisoners
- Implement a range of STI and HIV preventive services for vulnerable populations

Strategy 1.3: Prevention of transmission of STI and HIV among general population including young people

	• STI/HIV awareness programmes among general population using various channels of communication especially mass media • Ministry of Education to expand life-skills education in schools, and include STI/HIV and sexual health in the curriculum • Expand STI/HIV diagnosis and treatment services with social marketing of services • Stigma reduction interventions for healthcare workers and communities • Condom promotion programmes and condom social marketing • Improving access to HIV testing services (HTS) and introduction of HIV testing at non-health settings **Strategy 1.4. : Elimination of mother to child transmission of HIV (EMTCT) and congenital syphilis** • Primary prevention of HIV transmission among women in childbearing age • Prevention of unintended pregnancies among women living with HIV through enabling them to make informed choices • Ensure high level commitment and advocacy to eliminate the incidence of congenital Syphilis • Increase access to and quality of syphilis and HIV services at maternal and child health services • Prevention of HIV transmission from women living with HIV to their children by promotion and integration/linkage of EMTCT with related services • Strengthen surveillance, monitoring and evaluation systems **Strategy 1.5: Prevention of transmission through infected blood** • Support and maintain efficient screening of donated blood, its rational use and assure quality to prevent transmission of infections (HIV, hepatitis viruses, and other infectious agents). • Introduction of new testing technologies for blood screening to reduce window period donors • Strengthen the post-exposure prophylaxis for occupational exposure to HIV among health care workers. **Strategy 1.6 Maintain quality and coverage of STI services** • Upgrade all STD clinics to provide comprehensive STI care for MARPS as well as general population. • Continue training programmes for government and private sector providers in delivering quality STI care • Provincial Health administration to support maintaining comprehensive STI care at provincial STD clinics. • Strengthening the monitoring and provide technical support to provincial STD clinics.

SD 2: Diagnosis, treatment and care

- Review existing HIV testing policies and update guidelines for HIV Testing Services (HTS).
- Promote and provide HTS in clinical and non-clinical settings with human resources and infrastructure facilities.
- Uninterrupted supply chain management of antiretrovirals (ARVs) for adults, adolescents and children and pregnant mothers living with HIV.
- Maintain the model of continuum of care for PLHIV linking between the care facilities, community, home and other services
- Strengthen prophylaxis, diagnosis and treatment for co-infections and co-morbidities in all treatment and care programmes
- Ensure HBV vaccinations availability to all persons at risk.
- Scale up geographic coverage, through identifying and starting new HIV clinics with human resources and infrastructure
- Planning and implementation of induction training and in-services training for health staff on good practises and right based approaches in STI/HIV care settings.
- Strengthen the mechanisms for collaboration between HIV and TB activities

SD 3: Promotion of sexual health

- Integrate sexual health into public health programmes
- Develop and promote consensus in the definition and classification of sexuality and sexual problems
- Develop specific national sexual health strategies and plans
- Involvement of mass media in introducing the issues of responsible sexual behaviours
- Implementation of parent education programmes as agents in promoting sexually responsible behaviour
- Promote the understanding of the spectrum of female and male identities
- Decrease homophobia both among individuals of all sexual orientations
- Promotion of culture of reporting sexual violence and health seeking behaviour for victims of sexual violence
- Promote and provide age appropriate sexuality education
- Integrate sexuality education into the general curriculum of education
- Provide sexuality education to special populations such as persons with mental and physical disabilities, prisoners, illegal immigrants, refugees etc
- Promotion of basic sexual health education for health professionals specializing in STI and HIV/AIDS prevention and control programmes
- Promote sexual health research and evaluation

SD 4: Strategic Information Management Systems

	• Implement the National Strategic Information Management Plan (National M&E plan) • Improving the mechanisms of monitoring HIV related data from all sectors including civil society organizations. • Strengthen HIV surveillance, second generation HIV and STI surveillance • Mode of HIV transmission studies to be systematized and regularized. • Integrated biological and behavioural data among key populations in the country to be scaled up, systematized and conducted • Conduction of periodic national population-based surveys (e.g. demographic and health surveys) • Develop and implement research agenda particularly in areas where vulnerabilities are known but risks and prevalence are lesser known e.g. prisoners, military personnel, young people, etc. • Build research capacity and culture within Sri Lanka • Regular mapping exercises for key populations. • Strengthen drug resistance monitoring **SD 5: Health Systems Strengthening** • Capacity building of existing health infrastructure to cater to all needs of STI and HIV services • Capacity building of laboratory service in the STI and HIV managements, decentralize laboratory facilities for CD4 count and viral load testing, include biochemical test in identified centres • Identify and create cadre for STI clinics including laboratory services and fill cadre positions with adequately skilled personnel • Training and capacity building of human resource by conducting induction training and in-service training or on the job training • Establish an STI virology laboratory in the country with HIV drug resistance surveillance • Build capacities of civil societies (NGO and community based organizations) working for STI and HIV prevention • Establish quality management systems to address clinical care, laboratory testing and workplace improvement whether in government or in private sector facilities. • Develop or update national standard operational procedures for STI and HIV healthcare • Review, development, implementation and adaptation of strategic policy frameworks, policies, legislation/regulations that create the environment for an effective response to HIV, and partnerships that contribute to a better response. **SD 6: Supportive environment** • Development and implementation of culturally sound and evidence-based

	campaigns that combat stigma and discrimination against PLHIV and promote positive examples of living positive • Advocacy and capacity building of healthcare workers and social service providers to enhance access of services for PLHIV and marginalized groups like sex workers, men who have sex with men, drug users, migrant workers, etc. • Support relevant ministries to develop supportive sectoral policies on the basis of the national AIDS law and national AIDS policy, for example the ministries of health, education, labour and social welfare • Provide organizational and technical support to community-based organizations of marginalized groups and young people, so that they can contribute to the national response and advocate for their needs • Reviewing, and where necessary, revising policies and programmes to reduce gender-based inequities, and ensuring human rights protection for key populations • Leverage broad participation and collaboration of stakeholders through building coalitions and partnerships with a range of stakeholders which are essential for scaling up efforts towards universal access • Strengthen collaboration between HIV and other health programmes to facilitate programme coordination and to align programme targets, guidelines, services and resources • Advocate with local governments to ensure adequate funding for HIV programme at provincial and district levels under the decentralized health system • Implement and monitor the programmes supported by internal and external funding sources for the maximum use of resources • Social protection interventions targeted for PLHIV • Strengthen policy to create an enabling environment for the national response to HIV and AIDS • Involvement of police and other law enforcing agencies to create enabling environment for carrying out interventions for high risk and vulnerable populations
Monitoring and Evaluation	There is an M&E organizational structure establish under the national STD/AIDS control programme filled with adequately competent individuals to meet M&E needs of the NSACP. Strategic Information Management Unit and the Epidemiology Unit are the two main units established to monitor the programme activities and objectives. M&E is guided by the national level HIV multi-sectoral M&E plan developed in align with the National Strategic Plan of the NSACP. In addition, non-governmental entities have their own M&E plans and linked to the national M&E plan.

	Data for the M&E indicators are generated through various means such as HIV sentinel surveillance, behavioral surveillance and STI surveillance, Routine programme data, Mapping and size estimation of most at risk populations, special surveys.
(*) Reference to Research	1. National STD/AIDS Control Programme. Annual Report 2014/15 Colombo: National STD/AIDS Control Programme, Ministry of Health; 2015. 2. National STD/AIDS Control Program. Integrated Biological and Behavioural Surveillance (IBBS) Survey among Key Populations at Higher Risk of HIV in Sri Lanka. Colombo: Ministry of Health, National STD/AIDS Control Programme; 2014. 3. National STD/AIDS Control Programme. National HIV Monitoring and Evaluation Plan - Sri Lanka 2013-2017. Colombo: Ministry of Health, National STD/AIDS Control Programme; 2013. 4. National STD/AIDS Control Programme. National size estimation of most-at-risk populations (MARPs) for HIV in Sri Lanka. Colombo: Ministry of Health, National STD/AIDS Control Programme; November 2013. 5. National HIV Monitoring & Evaluation Plan 2013-2017 - Sri Lanka Colombo: National STD/AIDS Control Programme; February 2013.

Name of officials who documented the profile

Dr Ajith Karawita,

Consultant Venereologist and the

President of the Sri Lanka College of Venereologists

No 29, De Saram Place,

Colombo 10.

<table>
<tr><td>Program title</td><td>Action Plan for provision of
Otolaryngology and Head &Neck Services
in Sri Lanka</td></tr>
<tr><td>Focal point</td><td>DDG (MS I)
College of Otorhinolaryngologists and Head & Neck surgeons of Sri Lanka</td></tr>
<tr><td>Back ground / Situation Analysis *(Problem Analysis)</td><td>Present ENT Specialists cadre - Government sector 46 Specialists & Private sector 9 Specialists. Annually 2-3 newly qualified specialists return to the country..
NHSL, LRH, CNTH, TH Kandy, TH Karapitiya, TH Jaffna, TH A’Pura and PGH Kurunegala have 2 or more ENT specialists thus providing 24x7x365 day services. Many hospitals have shared wards and clinics (with OMF/Eye) with limited operating theatre times for routines and casualties. Facilities for essential investigations and imaging are limited. Lack essential equipment for audiology and surgical procedures. Inadequate support staff, audio technicians, speech and Language are also issues specially at Provincial level. Enthusiasiastic and energetic newly qualified surgeons returning from overseas training placed in such places tend to get disheartened and lose their skill and the much needed experienceTherefore implementation of a comprehensive action plan needs consultation and full cooperation of the provincial governments with the centre.</td></tr>
<tr><td>GAP ANALYSIS by using UHC tool</td><td>
<table>
<tr><th><u>Equitable distribution</u> of services to all patients of the country</th><th><u>Accessibility</u> to all health services by all patients of the country</th><th><u>Quality of Service</u> offered to all patients of the country</th><th><u>Financial Protection</u> of all patients of the country</th></tr>
<tr><td>No equal distribution in all districts in Sri Lanka</td><td>Most of the services are accessible only in Teaching hospitals</td><td>Quality service only in few TH in Sri Lanka. Lack of trained staffs in all categories and modern equipment,</td><td>Out of pocket expenses are very high for prostheses & treatment devices.</td></tr>
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			lab facilities are constraints.	
Target areas & Beneficiaries	Patients needing services of ENT surgeons			
Justification	Total 84 carders of ENT Surgeons care is not widely distributed in Sri Lanka. Lack of trained staff & equipment, limited infrastructure facilities & equipment are some major issues currently prevailing in Sri Lanka.			
Important assumptions / Risks / Conditions				
Vision	Healthy nation with free of ENT issues			
Mission	Provision of quality assured integrated ENT care			
Goal				
Programe Objectives 1. To appoint two ENT Surgeons above all hospitals above BH Type A 2. To appoint One ENT Surgeon for identified Type B BH 3. Establish Consultant lead outreach clinics & Day case surgeries in near by hospitals with facilities 4. Creation of ENT sub-specialties (Skull base surgeries & Auto neurology in NHSL & all THs 5. To established multi-disciplinary staffed with well equipped ENT units	Indicators 1. Proportion of BHs with ENT Surgeons 2. Number of out-reach clinics established		Means of Verification 1. Carder information	
Output 1. Number of patients visited to ENT clinics 2. Number of admissions to ENT wards	Indicators		Means of Verification	

3. Number of ENT surgeries conducted in ENT (Please prepare separate indicators for each output)		
Strategies / Major Activities	<u>Carder revision/ Capacity building</u> 1. Create 2-3 new posts of ENT Surgeons per year (total identified carder 84). Carder – 2 ENT surgeons per each BH Type A , One ENT Surgeon per identified BH Type B 2. Introducing new sub specialties such as skull base surgeries and otoneurology within next 3-5years in all the major teaching hospitals such as NHSL, TH Kandy, TH Jaffna, and TH Karapitiya 3. Appoint 4 Medical Officers for each ENT Specialist in base level hospitals and more staff in teaching hospitals according to the patients count 4. Provision of Speech & Language therapists for each ENT Unit (Paediatric hospitals with Cochlear Implantation Programme must have 4-5 Speech & Language Therapists) 5. Appointment of an Audiologic Scientist/ Audio Technicians for each unit with Cochlear Implantation programme. 6. Increase training capacity of Auto laryngologists (5 per year) 7. Introduce a short term overseas training on Skull based surgeries/ LASER navigation surgeries with GoSL funding <u>Infra-structure / Facility development</u> 1. Upgrading existing ENT wards (Male & Female), clinics & Operating theatres to standard level (Provision of infrastructure & equipment before appointing new ENT Surgeons) 2. Implement a system of Out-reach clinics or Day case surgeries for ENT patients lead by Consultant ENT Surgeons 3. Each ENT clinic equipped with sound proof audiologic testing facilities, nasal endoscopies, fibro optic nasolaryngoscopies 4. Each ENT unit should have facilities for pure Tone Audiometry (PTA), Tympanometry and Oto Acoustic Emission (AEO) screening as the basic minimum. Units in higher levels should have facilities for ABR/ASSR/VEMP	

	and other advanced facilities depending on the expertise provided. 5. Establishment of Sleep Assessment facilities in major hospitals 6. Establishment of temporal bone & Cadaveric dissection Labs in all major hospitals 7. Implementation of National Programme of prevention of deafness(NGO assistance may be obtained if GOSL funds are not available)
Monitoring & Evaluation	Periodic review meetings with CORLHNS with Ministry of Health. To establish a system of statistics on performances to the Statistics Unit of Ministry of Health
(*)Reference to Research	College of Otorhino laryngologists and Head & Neck surgeons of Sri Lanka

Programme Title	Medical Supply Management in State Sector Hospitals / Health Institutions
Focal Point	Director, Medical Supply Division
Background	The Medical Supplies Division (MSD) of Ministry of Health is the main central organization responsible for providing all pharmaceuticals, surgical items, Laboratory & X ray items, radioactive items and printed materials etc. needed by hospitals and other healthcare institutions. In addition MSD is responsible for supplying all dangerous drugs & essential medical items which are not available in the open market even to the private sector. Having identified role of MSD as "equitable timely distribution of supplies, procured based on its' estimates and delivery schedules", main functions of MSD are estimation, indenting, storing, controlling processes, distribution& accounting with proper surveillance &monitoring of the medical supplies to government health institutions in Sri Lanka. SPC is the procuring agency for MSD and is responsible for timely procurement and supply following regulations as requested & agreed upon with MSD. MSD handles and responsible for supplying of 19281 items including 1309 pharmaceutical items (920 in formulary), 10508 surgical items (4348 in formulary) and 7464 diagnostic items (3768 in the formulary). The consolidated forecasted national estimation which is submitted to SPC as annual orders for procurement is prepared by MSD based on institutional estimates collected directly from central ministry institutions and through RDHSs (district estimates) from provincial institutions under relevant RDHSs. The stocks of items procured and supplied by SPC following proper procurement t procedures are temporarily stored at MSD (in MSD main store or sub shores - Wellawatta, Angoda, Digana and Welisara) with 2-3 months buffer stocks until such are distributed periodically directly to central ministry institutions and RMSDs under relevant RDHSs mainly based on their demand / request. Through RMSDs, items are distributed to provincial institutions under relevant RDHSs. This whole process now is being operated through a web based data base and supply chain management soft wear - MSMIS (Medical Supplies Management Information System which has been implemented after situation & process analysisstudies,with the objective of making the supply chain management of medical supplies more efficient. It directly connects Medical supplies Division (MSD) to SPC, 50 line ministry institutions & 26 RMSDD through a VPN data exchanging system.. As per the requests of the other medical institutions, system will be expanded this year to provincial hospitals, which are dealing with RMSDD.

In order to achieve this government policy of free medicine, Ministry of health has allocated 45 billion rupees recurrent budget to MSD which is 1/3 of total health ministry recurrent budget. it has shown drastic increase year by year. MSD handles around 90 million average daily receipts and 80 million worth issues to institutions.

MSD is operated through five sections such as Technical Section managed by one Senior Assistant Director and 10 Assistant Directors, Finance Section managed by Accountant (Finance) and Accountant (supply), Administrative Section managed by Administrative Officer and IT Section managed by Deputy Director (ICT) as well as Planning and Quality Management Unit. The overall supervision and management responsibility lies with Director (MSD) supported by Deputy Director.

Gap Analysis

A Medical supplies division of the Ministry of health responsible for distribution ofall pharmaceuticals, surgical items, Laboratory & X ray items, radioactive items and printed materials etc with the different level of health institute through the supply chain management process of MSD. The Ministry of Health experiences that any disturbance of thechain management process of MSDincreasesthe out of pocket expenditure of the patient. MSD has identified following gaps of the supply chain management process.

- Frequent Out of stock situations
- Quality failure situation
- Waste and expiry items
- Central and institutional store capacities
- Transport facilities
- Infrastructure facilities

Gaps	Accessibility	Equity	Quality of care	Financial protection
Frequent Out of stock situations	Impaired in higher level institutions because of overcrowding due to bypassing of primary level institutions.	Highly affected to equity distribution of drugs.	Decrease the quality of care of the institutions.	Increase financial burden of patient.

	Quality failure situation of the items	Accessibility of care decrease (Patients deviate to private sector)	Equity distribution also affected	Less quality of care, Morbidity & mortality rises.	Patients deviate to private sector resulting increase out of pocket expenses.
	Waste and expiry items	Due to Waste and expiry items decrease the accessibility of the care.	Equity distribution also affected		
	Central and institutional store capacities				

Finally, MSD has planned to organize proper supply chain management process to reduce the financial burden of the patient.

Target Area and Beneficiaries	**Target:** All Line Ministry Hospitals / Health institutions / All RMSDs **Beneficiaries:** Patients seeking services from state sector hospitals / private sector hospitals. Health care providers and all responsible staff categories
Justification	Annually Ministry of Health spent about 30% of Health budget to supply pharmaceuticals, surgical items, laboratory items etc. The main challenges at MSD are to prevent frequent out of stock situations and quality failure situation, to minimize waste and expiry items to improve central and institutional store capacities. Improvement of transport capacity at MSD and RMSDD is also a challenge. The expansion of MSD staff with exposure to modern technologies of SCM The expansion of the MSMIS at the level of provincial hospitals is another need. Overcome the above issues is a challenge face by MSD. Therefore It is essential to reprogramming drug management to meet this through a standard structured program for the next decade.

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Important assumptions/risk/conditions	• Improved store spaces, better storeroom conditions reduce the annual wastage of drugs. • Required amount of deferent levels of staff to be trained and positioned according to identified requirements. • On time reporting minimizes the delay of drugs and other medical items to the relevant places. • Adherence to laid down guidelines and instructions by all levels of officers.

Vision	To be a central of excellence in Sri Lanka in Medical Supplies Management	
Mission	By ensuring continuous availability of medical supplies for patient care services in government sector hospitals through well established effective and efficient medical supplies management system coordinated, facilitated & controlled by MSD operated by skillful dedicated and satisfied MSD staff also linking with network of central, provincial ministry and institutions in order to provide optimum contribution to the Ministry of Health to achieve its vision - healthier nation	
Goal	Equitable timely distribution of quality medical supplies to institutions for successful health care service	
Objective	" To supply right item (medical supplies) of right quality in right quantities to the right place at right time at right affordable cost with least wastage**"**	
Objective	**Indicators**	**Means of verification**
To ensure the efficient and effective supply of quality medical items to relevant health institutions.	• % of hospitals which have > 90 availability of essential drugs throughout the year	• Survey • MSMIS data • Reports from institutions •
Output	**Indicators**	**Means of verification**
Availability of medical items	• % of essential drugs which were 100% available throughout the year	• Survey • MSMIS data • Reports from institutions
	• % of items which were supplied according to due delivery schedule	• Survey • MSMIS data

Adequate store facilities	• % of consignments returned due to lack of storage capacity	• MSMIS data • SPC invoices
Supply of good quality items	• No of quality failed items reported throughout the year	• Quality failed reports
Minimized expired items	• average no of expired items during the year	• Hospital reports • Verification reports
Conduction of regular DTC meeting	• % of health institutions conducting regular DTC meetings.	• DTC meeting reports

Strategies/ Major activities			
Monitoring and Evaluation	**Action**	**Who**	**When**
	Institutional review meetings(DTC)	• Director / Medical superintendent • Superintendent Pharmacist • Superintendent Radiographer /MLT	Once a months
	Provincial and Regional review meetings(DTC)	• PDHS • RDHS	Once in 3 months
	National level review meetings	• DGHS	Once in 3 months
	Medical supplies Review meeting Quality failure review Local purchase review	• DGHS • DDG(MS) • D/MSD	Weekly
	Institutional surveys	• D/ MSD	Bi weekly

Annex 01

Activity Area	Equitable distribution of services to all patients of the country	Accessibility to all health services by all patients of the country	Quality of services offered to all patients of the country	Financial protection of all patients of the country
Medical Supplies	- Whether there is a continuous supply of pharmaceuticals including essential drugs and other medical items for all government sector health institutions? - Whether there is a timely supply of pharmaceuticals and other medical items for all government sector health institutions?	- Public transport	- Delay in supply drugs and other medical items to relevant health institutions. - Lack of essential drugs - Poor credibility towards the government drugs	Patients purchase expensive drugs from private pharmacies as the physician prescribe the brand name without prescribing the medical name of the drug.