

**National Strategic Plan on Prevention &
Control of Cancer in Sri Lanka (2020-2025)
& Activity Plan**



**National Cancer Control Programme
Ministry of Health and Indigenous
Medical Services**



Abbreviations

AHB	Annual Health Bulletin
CBE	Clinical breast examination
CBO	Community based organizations
CMC	Colombo Municipal Council
CoE	Center of excellence
CPHNO	community public health nursing officers
CSO	Civil society organizations
CT	Computed tomography
e-MIS	electronic management information system
FHW	Family health workers
F-O-P -	Front of pack labeling
GOSL	Government of Sri Lanka
HBCR	Hospital based cancer registry
HBV	Hepatitis B virus
HPV	Human papilloma virus
HSEP	Health Sector Enhancing Project
ICD	International Classification of Diseases
IMMR	Indoor Morbidity and Mortality Register
imPACT	integrated mission of Programs of Action for Cancer Therapy
IARC /IACR	International Agency for Research on Cancer
LA	Linear accelerators
LMIC	low and middle income countries
OMF	Oral and Maxillofacial
OPMD	Oral potentially malignant disorders
M&E	Monitoring & Evaluation
M& M	Mortality and morbidity

MRD	Minimal residual disease
MRI	Magnetic resonance imaging
MSD	Medical supplies division
NAC	National advisory committee
NATA	National Authority on Tobacco & Alcohol
NCDs	Non-Communicable Diseases
NCCP	National Cancer Control Program
NGO	Nongovernmental organizations
NHSL	National Hospital of Sri Lanka
NMBRO	
PBCT	Population Based Cancer Registries
PET	Positron emission tomography
PGIM	Post Graduate Institute of Medicine
PMCI	Primary level medical institutions
QA	Quality assurance
RMSD	Regional medical supply division
RSO	Radiation safety officer
SBCC	Social Behavioral Change Communication strategy
SDGs	Sustainable Development Goals
SOP	Standard Operation Procedures
SLCR	Sri Lanka Cancer Registry
SPECT	Single photon emission computed tomography
SUP	Scale up plans
TAC	Technical Advisory Committee
UHC	Universal Health Coverage
VCT	Vocational training center
WHO –FCTC	World Health Organization Framework Convention on Tobacco Control

WHO	World Health Organization
WWC	Well women clinics

Executive Summary

The first National Policy and Strategic framework on Prevention and Control of Cancer in Sri Lanka was developed in 2015. The main aim of the policy was to reduce the occurrence of new cancers, reduce the mortality rate and improve survival and the quality of people living with cancer. The national strategy was implemented by the National Cancer Control Program with several stakeholders including the provincial health services. An evaluation of the plan was done in 2019 which identified several strengths and weaknesses and made recommendations to be included in the revised NSP (2020-2025). A multi-sectoral expert group developed a revised strategic plan taking into consideration the recommendations of the review panel, country situation regarding prevalence of risk factors, access to services, availability of infrastructure, workforce and cost effectiveness of interventions. The areas to be covered by a cancer control strategy encompass all aspects of cancer: prevention, early detection, diagnostics, comprehensive treatment, survivorship rehabilitation and palliative care.

The revised NSP was based on a set of guiding principles. The vision, mission and Goal remained the same and revised strategic objectives and strategic directions were identified. The Goal of the national cancer control strategy is to reduce the incidence of preventable cancers, detect early detectable cancers and provide continuum of care to all cancer patients in an equitable manner. The NCCP will spearhead the national response with multiple stakeholders. Political commitment will be displayed by overseeing the progress of the current NSP, allocating funds and participating at National Health Council meetings which will take up chronic NCDs and cancer as an agenda item. The revised NSP derives its mandate from the overarching National Health Policy and National Health Strategic Master Plan and harmonizes with several health and non-health related policies as several interventions are implemented through integration into existing programs in order to increase the coverage and quality of activities and to be cost effective.

The revised NSP gives priority to prevention and calls for strengthening of primordial and primary prevention which encompass a social behavioral change communication strategy to improve health literacy of people, behavior change of population and individuals to adopt healthy life styles to reduce the occurrence of cancer. Providing knowledge on availability of services, accessing services, and legal

milieu in the country which protects people from being exposed to cancer related risk factors will also be addressed. The revised NSP has included several other strategies to promote early detection through creating awareness on common signs and symptoms to identify cancers early and access timely access to services and increasing screening opportunities by strengthening primary, secondary and tertiary level services common cancers such as breast, cervix and oral cancers. Early cancer detection Clinics will be established in each province to increase population coverage for screening and counseling. Screening is linked to provision of treatment and care. Opportunities are provided for a large segment of the society to reduce cancer related risk factors through health promoting settings in schools, workplaces, hospitals, universities, vocational training centers and villages.

Every diagnosed adult and paediatric patient with cancer should have access to treatment. Each province will have a center of excellence and it will network with satellite centers of secondary and other tertiary levels. Clinical and management guidelines for each level which covers medical, radiological, surgical and gynecological oncology will be prepared by specialists. Diagnostics and treatment facilities, human resources will be identified for each level after a needs assessment and scale up plans will be prepared to provide services based on availability of resources. Survivorship, rehabilitation and palliative care will be included in the continuum of care for which healthcare workers, community organizations, families and caregivers will be trained. A strategic information and management unit will be established in the national program to collect timely and accurate information from cancer registries for policy formulation and program monitoring and management. A Monitoring and evaluation plan with a performance framework will be developed to monitor and evaluate program performance. Establishing an electronic management information system will complement the data management and also help develop linkages with supply management chains. Research in the fields of epidemiology, laboratory, treatment and care are encouraged.

The National Cancer Control Program developed this strategic plan with local and international expertise to provide an overarching framework to guide and coordinate activities in a systematic manner to provide the best for the people of Sri Lanka.

National Strategic Plan on Prevention & Control of Cancer in Sri Lanka (2020-2025)

Introduction

Cancer is a large group of diseases that can start in almost any organ or tissue of the body. One defining feature of cancer is the rapid creation of abnormal cells which generally arise because of alterations in the DNA of cells. The cell changes are multifactorial in origin. These cells grow uncontrollably and go beyond their usual boundaries to invade adjoining parts of the body and/or spread to other organs. The latter process is called metastasizing and is a major cause of death from cancer. Other terms used for cancer are neoplasms and malignant tumours^{1,2}.

The risk factors for cancer can be broadly categorized into four types namely 1) behavioural risk factors that include tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity; 2) biological risk factors: overweight, obesity, age, sex of the individual; 3) environmental risk factors: exposure to environmental carcinogens such as chemicals agents and certain viruses, bacteria and parasites; and 4) genetic risk factors². Prevention and control of risk factors, strengthening health systems, empowering and engaging communities and multiple stakeholders are the foundations of reducing the incidence of cancer and improving survival and quality of life of people living with cancer². The risk factors are interconnected at the individual and contextual levels thus estimating the specific contribution of each of these risk factors is difficult and may underestimate the cumulative potential risk².

Global Situation

Globally, 5-10% of all cancers are attributed to genetic defects and 90-95% to environmental and behavioral lifestyle factors such as tobacco (25%), alcohol (4-5%), nutrition and physical inactivity (3-4%) and infections (13%)². Tobacco use is the most important risk factor for cancer and is responsible for approximately 22% of cancer deaths².

In 2018, nearly 18.1 million were diagnosed with cancer around the world and it became the second leading cause of death globally. In the same year, cancer accounted for an estimated 9.6 million deaths, or one in six deaths. The International Classification of Diseases (revision 11) lists more than 600 types of cancers. Globally, the most frequently diagnosed cancer is lung cancer (11.6% of all cases), followed by female breast (11.6%) and colorectal cancers (10.2%)².

The world will see a 60% increase in cancer over the next two decades and by 2040 about 29-37 million new cancer cases will be detected². The greatest increase (an estimated 81%) in new cases will occur in low and middle income countries (LMIC) due to demographic changes, such as ageing of the population, and increasing exposure to behavioral, infectious, environmental and occupational risk factors. It is estimated that one in 5 men and one in 6 women worldwide develop cancer during their lifetime².

The global death toll for cancer in 2018, translated to one in 8 men and one in 11 women dying from cancer. Cancer is the cause of about 30% of all premature deaths from chronic Non-Communicable Diseases (NCDs) among adults aged 30-69². Survival in some countries is currently low as health systems are not well prepared or equipped to manage this growing burden, and current budgetary allocation and global resource mobilization are markedly insufficient².

The urgency of the chronic NCD problem led to adoption of the Sustainable Development Goals (SDGs) and their target 3.4: “By 2030, reduce by one third premature mortality from NCD through prevention and treatment and promote mental health and well-being”².

In this background governments are committed to accelerate the national response to prevent and control cancer by developing policies and a set of prioritized strategies and interventions which are cost-effective, accessible and available to all citizens in keeping with the country situations and adhering to global best practices.

Sri Lankan Situation

Sri Lanka has an outstanding track record of achieving remarkable public health goals where successive governments have invested in a non-fee levying public education system and a strong performing health system which implements evidence based low cost interventions which enabled to deliver excellent health outcomes especially in maternal and child health and in controlling communicable diseases. Today, there is growing awareness and concern about the large and escalating burden of NCDs which accounts for almost 83% of total deaths in the country and the proportional mortality due to cancer is estimated to be 14%³.

In many countries, the rapidly expanding global cancer epidemic is a result of demographic changes leading to increasing elderly populations and socioeconomic changes which have led to adoption of lifestyles such as use of tobacco and alcohol, consuming high-calorie, high fat unhealthy diets, physical

inactivity and exposure to chemicals and toxins as a part of on-going globalization and industrialization. Sri Lanka is no exception to these changes and is currently experiencing demographic, epidemiological and socio-economic transitions which have fueled the above risk factors.

The country is in an advanced stage of demographic transition with the adult life expectancy reaching 75.3 years⁴. Urbanization, industrialization, ease of internal and external migration, access to a variety of channels of communication, liberalization of trade and marketing policies with the adoption of open economy policies during the last few decades have resulted in lifestyle transformations and related factors which have affected the health status of the population causing an upsurge in chronic NCDs such as cardiovascular diseases, diabetes, cancers and chronic respiratory diseases^{4,5,6,7,8,9}.

It is estimated that nearly 23.4% of premature deaths in the country were due to cancer¹⁰. Projected statistics of Globocan 2018, observes that the annual number of cancer incidence is 23,530 and 14,013 deaths¹¹. In this gross analysis viz all ages and both sexes, it is estimated that the incidence of breast cancer to be the highest (13.1%), followed by lip and oral cavity (9.1%) and lung (6.1%). The Globocan estimate for annual female incidence cancer cases of all ages is 12,885 with breast cancer accounting for 24% (n=3051), cervical cancer 8.8% (n=1136), thyroid 8.1% (n=1143), ovary 6.6% (n=856), colorectal 5.5% (n=707)¹¹. The number of projected new cases among males is 10,645, lip and oral cavity cancers accounting for 14.8% (n=1576), lung 10% (n=1065), oesophagus 10.2% (n=771), colo-rectum 6.9% (n=734), stomach 5.5% (n=589)¹¹. As per these estimates the risk of developing a cancer before the age of 75 years for all sexes is 9.1%³.

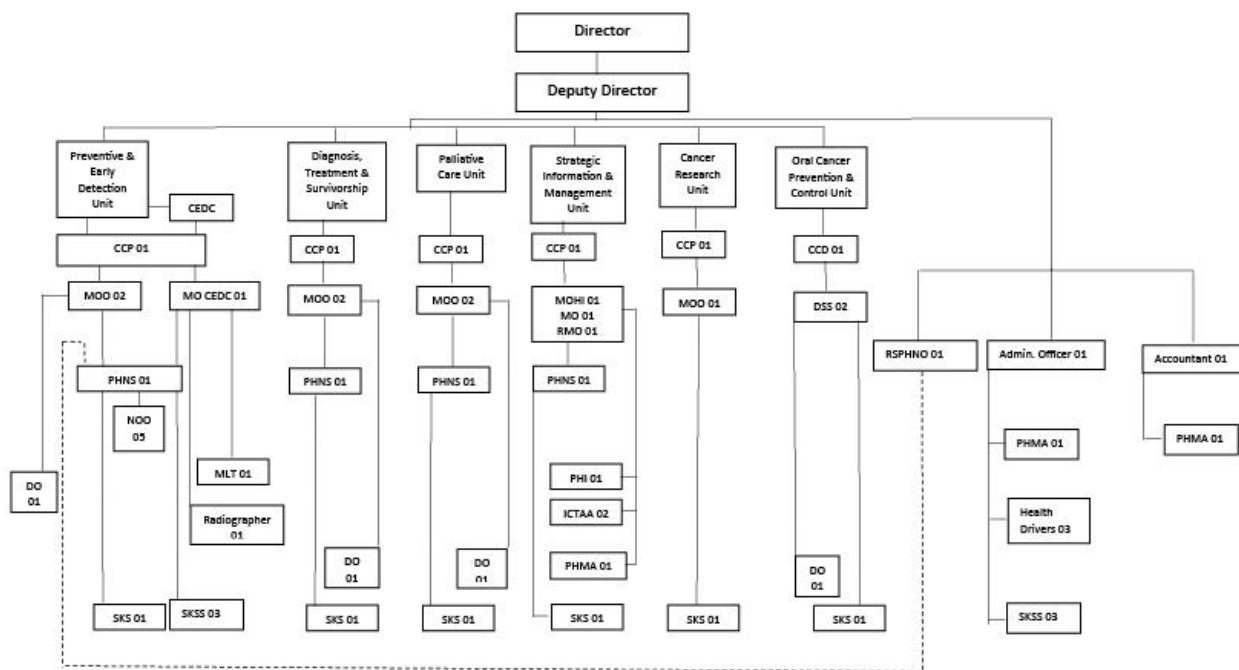
Around 30% of global cancer deaths are due to tobacco use. In Sri Lanka, tobacco kills around 12,351 people each year and is the cause of 10% of all deaths in the country⁴. In 2016, cardiovascular diseases reported the highest mortality (31 per 100,000 population) and cancers (23 per 100,000 population) were the 3rd highest cause of mortality contributing 11.5% of hospital deaths⁴. It should be noted that only 30-40% of deaths take place in government hospitals⁴. According to the Annual Health Bulletin (AHB) in 2016 a total of 29,457 cancer patients were registered in all cancer treatment centers in the country⁴ (There may be duplication of cases and are not strictly incidence cases, further there will be underreporting as well). Accurate figures cannot be obtained until a fully operational quality assured national cancer registry is available in the country. It is estimated that the risk of dying from cancer before the age of 75 years is 6.2 for males and 4.9 for females and 5.5 for both³.

Breast cancer is reported to be the commonest cancer among women in Sri Lanka¹². In 2014, 3065 new cases of breast cancer were detected. The crude rate per 100,000 Population is 28.8. The age standardized incidence rate for females is 24.3 per 100,000 Population¹². The breast cancer incidence appears to be rising rapidly particularly among postmenopausal women in Sri Lanka. This increase in breast cancer among postmenopausal women is a significant feature which needs urgent attention particularly since Sri Lanka has a rapidly ageing population. Cervical cancer is the third commonest cancer among females in Sri Lanka. In 2014, 1049 cases of cervical cancer were identified. The Crude rate per 100,000 Population is 9.8 and the Age Standardized Rate is 8.2 per 100,000 Population¹².

National Cancer Control Programme

The National Cancer Control Programme (NCCP) of the Ministry of Health is the main government organization which coordinates the national response to prevention and control of cancer activities in Sri Lanka. It is under the Non Communicable Disease Bureau of the Ministry of Health which is headed by the Deputy Director General of Non Communicable Diseases of the Ministry of Health, Sri Lanka. Director/NCCP, deputy Director/NCCP and a senior management team provides leadership and coordinates in partnership with several stakeholders in the preventive and cancer control activities in Sri Lanka. National Cancer Control Programme administratively comes under the line ministry while cancer care hospitals are under either the line ministry or the administration of provincial health authorities.

NATIONAL CANCER CONTROL PROGRAMME of SRI LANKA
ORGANOGRAM



Sri Lanka has a National Cancer Control Policy approved by the Parliament in 2015. The National Advisory committee (NAC) is the statutory body for prevention and control of cancer in Sri Lanka. The meetings are chaired by the Secretary of Health and are held every quarter of the year.

The aim of The National Cancer Control Programme is to provide a comprehensive programme of prevention and control of cancer in Sri Lanka, by integrating evidence-based strategies and improving health systems. It focuses on primary prevention, early detection, diagnosis and treatment, rehabilitation, survivorship, palliative care and surveillance. The NCCP activities include provision of comprehensive and equity of preventive and curative services across all levels of health services, workforce development, research, data collection and analysis for action and monitoring and evaluation of services.

The Provincial Directors of Health Services and Regional Directors of Health Services are the focal points at provincial and district levels respectively for prevention and control of cancer activities. They coordinate activities through establishment of district cancer control committees headed by the

Regional Director of Health Services and with the participation of MO/NCD, MO/MCH, RE, RDS, MOOH, consultants in curative & preventive sector etc.

While 90% of inpatient care is delivered within the public sector, outpatient care in Sri Lanka is delivered more equally between the public and private systems. Although cancer-specific data is not available, it is assumed that a similar distribution exists in cancer care too. In the public sector, patients have access to free medical, surgical and radiation oncology services. These include expensive novel systemic therapies, which are provided after case by case assessment and approval by MoH.

Sri Lanka's curative healthcare system consists of three tiers. Primary level includes Primary Medical Care Units (PMU) and Divisional Hospitals (DH, n=480). These are called Primary Medical Care Institutions and there are 996 of them throughout the country. They are non-specialist institutions and most are under the Provincial administration. The secondary level includes district general hospitals (DGH, n=19) and base hospitals (BH, n=74), which provide specialized care. A total of 98 such institutions exist across the country, 18 of which are under the central ministry. Specialized care is also provided by tertiary-level institutions (national hospital, teaching hospitals (TH, n=16) and provincial general hospitals n=23)^{6,19}. Cancer services are delivered at the National Cancer Institute Sri Lanka, as well as 7 teaching and 11 general hospitals⁶. In the private sector, although outpatient cancer care is found in many parts of the country, inpatient care is limited to few of the major cities. In Colombo, there is a single dedicated private cancer hospital⁶.

A formalized National Policy and Strategic Framework for Prevention and Control of cancer together with the National Policy was prepared in 2015 to respond to the increasing numbers of people were developing and dying from cancer⁵. National cancer control activities are carried out as per this policy and strategic plan. The Technical Advisory Committee (TAC) which consists of specialists in related cancer control activities provide technical inputs related to the respective specialized areas. Five committees with TOR were appointed in 2020, by the Secretary of Health on the recommendations of the imPACT review in Oct 2019. They are: Preventive & Early Detection TAC, Diagnostic & Treatment TAC, Oral Health TAC, Cancer Registry & Information TAC and Palliative Care TAC. The National Advisory Committee (NAC) shall oversee the progress of activities of the NSP as given in the National Monitoring & Evaluation Plan.

In 2019, an expert review by the integrated mission of Programs of Action for Cancer Therapy (imPACT) took place to evaluate the NSP⁹. The expert committee identified best practices which have to be

sustained and certain gaps and made recommendations to be included in the next revised strategy to alleviate the challenges.

Challenges to prevention and control of cancer in Sri Lanka

The report highlights the high prevalence rates of cancer causing risk factors among adults and school children which were reported in surveys^{8,9,13} (Annex -1) and the coverage of screening programs despite implementing evidence based interventions including WHO recommended “Best Buys” using the life-cycle approach. It is necessary to sustain the integrated approach with other chronic disease control activities to implement interventions to reduce risk factors for cancer using the life-cycle approach. Limited and unequal distribution of infrastructure facilities for diagnostics and treatment and care and workforce capacity especially medical and paramedical personnel with specialist training across the country has been a major hindrance for cancer treatment and care activities. It has resulted in long waiting times at clinics to seek care, long waiting times to receive cancer confirmation reports, diagnostics and treatment. Health system reorientation is necessary to increase coverage and quality of prevention, early detection and treatment and care. Survivorship, rehabilitation and palliative care teams have to be trained at facility and community and residential level. It was observed that a large majority of patients present to health services in advanced cancer stages. Standard Operation Procedures (SOPs), guidelines and protocols stratified as per the health service level for diagnostics and treatment and care are not available. Quality assurance systems are poor. Steps should be taken to sustain the legal milieu which has been established to reduce tobacco and alcohol related risk factors and it is vital to implement other laws related to healthy diets, indoor and outdoor air pollution, radiation and cytotoxic wastes in hospitals. Lack of an electronic management information system (e-MIS) is impeding accurate data collection. Cancer registries are not maximally operated. Limited workforce capacity at the central level hindered coordination and monitoring and evaluation of the implementation process and limited infrastructure and workforce capacity at provincial level hinders program implementation.

National Strategic Plan

The National Strategic Plan was revised, by a multi-sectoral expert group, taking note of the recommendations given by the imPACT review panel, responding to the demographic, epidemiological and socio-economic transitions the country is facing, local research and survey findings, new technological developments, patient’s expectations, human resource and infrastructure capacity

especially for diagnostics and treatment and care, equity of services, access and availability of services for universal coverage, gaps in health promotion and prevention, finances and primary healthcare systems strengthening that is taking place in the country and international recommendations. The overall purpose of this NSP is linking public health policies to clinical outcomes to reduce the incidence and impact of the increasing trend of cancers and to provide continuum of care with equitable access for people living with cancers to increase survival and improve quality of life in partnership with multi-sectoral stakeholders. The NSP also address

According to Global experts, around 30% of cancers are preventable, for another third effective treatment is possible depending on early detection and availability of resources and for the remaining third with advanced disease pain relief and palliation can be provided to improve quality of life². In this background, the revised NSP is structured to encompass core components which are considered as the foundation of a National cancer prevention & control program²: leadership and governance, prevention, early detection, diagnostics and treatment, survivorship, rehabilitation and palliative care, strategic information & management and research.

The present strategy derives its mandate from the overarching National Health Policy and aligned to the National Health Strategic Master Plan 2016-2025, Global Action Plan for Prevention and Control of NCDs and National Multisectoral Action Plan for the Prevention and Control of Non Communicable Diseases in Sri Lanka (2016-2020). It also harmonize with other relevant health policies such as the National Policy and Strategic Framework for Prevention and Control of Chronic NCDs, National Nutrition Policy, National Maternal and Child Health Policy, National Strategic Plan for Well Woman Clinics, National Health Promotion Policy, School Health Policy, National Policy on Healthcare Quality & Safety, The National Oral Health Policy, The National Policy on Alcohol Control, The National Palliative Policy and Strategic Plan, The National Agriculture Policy, National Environment Policy and treaties such as World Health Organization Framework Convention on Tobacco Control (WHO FCTC) and other supportive policies.

The present NSP is guided by a set of public health principles, a vision and a mission, goal, seven strategic objectives with seven strategies and strategic directions which serve as pillars for implementing evidence based interventions and suitable for the country situation to achieve the desired outcomes through the healthcare delivery system. Health system is the main vehicle which deliver interventions to the community or medical institutions. Hence, the revised NSP is organized on the six building blocks of health systems to provide effective, comprehensive continuum cancer prevention and control for all Sri

Lankans. It defines the implementation process and results based indicator framework for monitoring and evaluation. The NCCP will spearhead the national response (Strategy 1).

Since most cancers are linked to tobacco and alcohol use, unhealthy diet, physical inactivity and exposure to environmental and occupational risk factor, primordial and Primary Prevention of cancer is given high priority. Evidenced based cost effective interventions especially the WHO recommended “Best Buys”¹⁴ will be strengthened and scaled up integrated to other health and non-health sectors to reach all citizens including high risk populations across the life cycle (Strategy-2).

Early detection through screening and early diagnosis to detect pre-cancerous lesions through increasing patient’s awareness of signs and symptoms and provision of services at each healthcare level and referral for specialized services are addressed in the NSP (Strategy 3).

In order to mitigate the shortages of diagnostics and treatment facilities and workforce and provincial and district level disparities for treatment and care, the revised NSP is introducing a “Model of Treatment & Care” of integrated patient centered care with improved diagnostics and updated treatment pathways. Each province shall have a center of excellence (CoE) in a phased manner at the tertiary care level for treatment and care for both adults and children. The CoE will network with satellite treatment centers of the secondary and other tertiary level (Strategy 4) and an Early Detection Clinic for common cancers such as breast, cervical and oral cancer (Strategy 3). An effective referral and back referral system will be initiated across the three levels of healthcare. Operational and clinical care SOP /guidelines and protocols will be developed for each level of service to improve the quality of services. This NSP calls for strengthening survivorship, rehabilitation, palliative by enhancing services at each healthcare level and promoting community and home based care to improve the quality of life of people living with cancer (Strategy 5) .

Infrastructure facilities and workforce development will be done in a phased manner as per the Scale up plans (SUP). Capacity building of healthcare workers, community members, families and care givers will be planned as per a SUP in order to implement prevention activities, for early detection of cancers and provision of continuum of care to reduce mortality and increase survivorship and improve quality of life.

There is a dire need to strengthen cancer strategic information and management system to provide comprehensive, accurate and timely data for decision making (Strategy 6). Cancer research will be encouraged to provide evidence for action (Strategy-7).

Cancer prevention and control interventions will be integrated to the “shared care cluster system”. Sri Lanka is embarking on a Health Sector Enhancing Project (HSEP) and is adopting a “shared care cluster system” (clustering a group of primary level medical institutions (PMCl) around a apex hospital which is either a Base Hospital or a higher level hospital ¹⁴ and demarcates a catchment population for the cluster) to strengthen primary healthcare which will be linked to secondary and tertiary level specialized centers with a referral and a back referral system which enables follow up of patients and minimize loss to follow up. This approach will also ensure equity to access for treatment and care and reduce out-of-pocket expenditure incurred by households for cancer.

Implementation of cancer control measures will be a shared responsibility of several stakeholders including government in particular health services, nongovernmental organizations (NGO), civil society organizations (CSO), community based organizations (CBO), academia, professional organizations, communities, patient groups and their families. The national response will be supported by political leadership, adequate fund allocation, infrastructure and human resource development and mobilization and monitoring and evaluation (Strategy-1). The NSP will be evaluated through a robust monitoring and evaluation mechanism that critically includes a performance framework. A external mid review will provide an analysis of the outcomes for fine tuning while an end term review will throw light on the impact the current NSP has made to reduce the burden of cancer in Sri Lanka (Strategy-1).

Sri Lanka is committed to achieve the following globally set targets by 2025⁷

1. A 25% reduction in premature mortality from cancer
2. A 10% relative reduction in the use of alcohol
3. A 10% relative reduction in the prevalence of insufficient physical activity
4. A 30% relative reduction in mean population intake of salt /sodium
5. A 30% relative reduction in prevalence of current tobacco use in persons aged over 15 years
6. An 80% availability of affordable basic technologies and essential medicines including generics, required to treat major non communicable diseases in both public and private facilities

Guiding Principles

- Political commitment
- Human right approach

- Gender sensitive & Protection of the right to health
- Protecting and promoting Equity and social justice
- Universal coverage
- Being consistent with the National Health Policy and other existing/relevant government economic and development policies for an integrated approach across the life course
- Evidence-based cost effective person-centered quality interventions, giving equal importance to primary, secondary and tertiary preventive measures and encompassing entire continuum of care
- Multidisciplinary, multi-sectorial coordinated approaches and encouraging appropriate public – private partnerships
- Community and family empowerment, ownership and participation

Vision

‘A country with a low incidence of preventable cancers and high survival rates with good quality of life and minimal disabilities & suffering from effects of cancers’

Mission

To reduce the incidence of cancers by controlling and combating determinants of cancers, ensuring early detection and providing a holistic and accessible continuum of cancer care which address curative treatment options to end of life care through an evidence-based approach’

Goal

To reduce the incidence of preventable cancers, to detect early detectable cancers at an early stage and to provide holistic cancer care to all cancer patients in the country in an equitable manner.

Strategic Objectives of the NSP

- 1) High level leadership, advocacy and governance to accelerate the national response for prevention and control of cancer with a robust integrated, coordinated multi-sectoral, multi- disciplinary national program with community engagement
- 2) Primordial and primary prevention of cancers by addressing risk factors and determinants throughout the life-cycle

- 3) Advocate for screening and early diagnosis through improved health literacy, availability of services for rapid diagnosis of cancers and linking to ensure early treatment and care.
- 4) Ensure sustained and equitable access to diagnosis and treatment and care facilities for cancers.
- 5) Ensure access & availability of survivorship, rehabilitation and palliative care facilities at all health service levels and at community level for cancer patients and support to their families and care givers
- 6) Strengthen cancer information systems and surveillance to provide accurate and timely data to monitor the progress and evaluate the outcomes of cancer control actions.
- 7) Promote research and utilization of its findings for prevention and control of cancers.

Strategic Objective 1:

High level leadership, advocacy and governance to accelerate the national response for prevention and control of cancer with a robust integrated, coordinated multi-sectoral, multi- disciplinary national program with community engagement

Strategy-1	Strategic Directions
Leadership, advocacy & governance	1.1 Providing highest political leadership to acknowledge cancer prevention and control as a national development challenge
	1.2 Strengthen the National Cancer Control Program for advocacy and good governance
	1.3 Strengthen Provincial teams for prevention and control of cancer

Strategic Objective 2 :

Primordial & primary prevention of cancers by addressing risk factors and determinants throughout the life-cycle

Strategy-2	Strategic Directions (SD)
Primordial and primary prevention	2.1. Community education & empowerment for adoption of healthy lifestyles (reduce use of tobacco, areca nut and alcohol, consume healthy food, increase physical activities and adopt safe sexual and reproductive health) to reduce the incidence of cancer among different target groups across the life-cycle

	<p>2.2. Establishment of health promoting settings for cancer prevention and control in schools, Youth settings, work places, hospitals, estates and villages</p>
	<p>2.3. Reduce the incidence of cancer due to lifestyle risk factors (tobacco and alcohol use, areca-nut use, consumption of unhealthy diets, physical inactivity)</p> <p>Sub-strategic Directions of SD-2.3</p> <p>2.3.1. Strengthen tobacco control to reduce the current tobacco use by 30% in persons aged over 15 years and protect non- smokers from exposure to tobacco by –products</p> <p>2.3.2. Reduce the incidence of cancer due to current areca-nut use in persons aged over 15 years by 30%</p> <p>2.3.3. Reduce the incidence of cancer by increasing use of healthy diets high in fruits and vegetables and low in saturated/trans-fats and low in sugar and salt</p> <p>2.3.4. Reduce the incidence of cancer by a relative reduction of 10% of insufficient physical activity</p> <p>2.3.5. Reduce the incidence of cancer by a relative reduction of 10% in alcohol consumption and exposure of children to alcohol</p>
	<p>2.4 Reduce the incidence of cancers by reducing exposure to environmental and occupational risk factors</p>
	<p>2.5 Reduce the incidence of cancer by reducing exposure to infectious agents</p>

Strategic Objective 3:

Advocate for screening and early diagnosis through improved health literacy, availability of services for rapid diagnosis of cancers and linking to ensure early treatment and care.

Strategy-3	Strategic Directions
	<p>3.1 Increase knowledge of general public, including high risk populations and individuals on common sign and symptoms of cancers, myths and</p>

Early detection of cancers	misconceptions, accessibility and availability of early detection services to improve early utilization of services
	3.2 Strengthen primary health services for screening and early diagnosis of breast, cervix and oral cavity cancers within the “shared care cluster system” and link positive cases to apex hospitals for high quality cost effective treatment
	3.3 Strengthen timely access to services for suspected and diagnosed patients with cancers
	3.4 Building public/private partnerships for screening and early diagnosis of cancers to increase coverage

Strategic objective 4:

Ensure sustained and equitable access to diagnosis and treatment and care facilities for cancers.

Strategy -4	Strategic Directions
Diagnostics, treatment & care	4.1 Increase accessibility and availability of diagnosis and comprehensive treatment & care by establishment of centers of excellence and satellite treatment and care centers in secondary and tertiary levels
	4.2 Increase accessibility and availability of infrastructure for cancer diagnostics (laboratory and pathology, medical imaging) and human resources at CoE, secondary and tertiary care levels for provision of continuum of care
	4.3 Establish genetic marker testing & other advances in cancer care
	4.4 Increase accessibility and availability of comprehensive high-quality cancer treatment and care facilities
	4.5 Ensure provision of high quality diagnosis and treatment pathways for patients with common cancers (breast, cervical, oral and thyroid cancer)
	4.6 Ensure safety of healthcare workers and patients exposed to radiation and cytotoxic materials
	4.7 Improve accessibility and availability of cost effective evidence based Paediatric oncology services

Strategic Objective 5:

Ensure access & availability of survivorship, rehabilitation and palliative care facilities at all health service levels and at community level for cancer patients and support to their families and care givers

Strategy -5	Strategic Directions
Survivorship, rehabilitation and palliative care	5.1 Establishing survivorship care and rehabilitative care at primary, secondary and tertiary care services
	5.2 Facilitate the effective integration of specialist palliative care services across all levels of healthcare (tertiary, secondary and primary) and community level
	5.3 Develop knowledge and skills for palliative care among cancer treatment and care service providers of different health service levels and community care providers
	5.4 Develop partnerships with other government, non-government organizations (private sector hospitals, NGOs, CSOs) and General Practitioners to provide basic palliative care
	5.5 Ensure availability of essential drugs and technologies for provision of palliative care at each level of care

Strategic Objective 6:

Strengthen cancer information systems and surveillance to provide accurate and timely data to monitor the progress and evaluate the outcomes of cancer control actions.

Strategy -6	Strategic Directions
Strategic Information & Management	6.1. Strategic information for monitoring & evaluation of national response to cancer prevention and control in Sri Lanka
	6.2. Strengthening Population Based Cancer Registries (PBCR) to be in par with IARC /IACR standards
	6.3. Establish HBCR in all cancer treatment centers and ensure reporting to SLCR

	6.4. Expand pathology based cancer registries to all pathology laboratories (Histopathology /Hematology /Oral Pathology) and ensure timely reporting to SLCR
	6.5. Integrate cancer registry information system into electronic patient management information systems in CoE secondary and tertiary hospitals and link to NCCP e-MIS
	6.6. Improving the quality & coverage of cancer incidence & mortality data
	6.7. Linking e-MIS with information and surveillance systems of other relevant health sector facilities for prevention & control of cancers

Strategic objective 7:

Promote research and utilization of its findings for prevention and control of cancers

Strategy -7	Strategic Directions
Research	7.1. Identify research priorities on prevention and control of cancer
	7.2. Promote a conducive environment for cancer research
	7.3. Translate research evidence into practice to strengthen preventive services, treatment and care services

Strategy: Leadership, advocacy and governances

Strategic Objective: 1

High level leadership, advocacy and governance to accelerate the national response for prevention and control of cancer with a robust integrated, coordinated multi-sectoral, multi-disciplinary national program with community engagement

Rationale

The Government of Sri Lanka, has pledged to achieve SDGs by 2030 and the revised NSP will accelerate interventions to reduce the incidence and mortality due to cancer **with improvement of the quality of life**. Although the health sector has the primary role and responsibility to respond to the challenges of prevention and control of cancer, the Government of Sri Lanka is engaging several stakeholders including community engagement to implement the evidenced based cost effective interventions identified in the National Strategic Plan (2020-2025). The NCCP will spearhead the national response with the support of several stakeholders.

High level political leadership will be provided to raise the priority accorded to chronic NCDs inclusive of cancer as a national development issue which undermines the country macroeconomics, household expenditure given the strong links between cancer and poverty, social inequalities, lack of access to affordable basic services, loss of productivity due to illness and premature death. Thus leadership is required to mandate integrate health in all national policies (HiAP) and plans across all relevant government ministries and departments for effective engagement of stakeholders in the national response and providing adequate financial sustainability and catalyzing support from donor agencies as an investment case to maintain the integrity of policies and program objectives.



The National Cancer Control Program (NCCP) at the central level is the key organization that needs strengthening as a governance body to effect policy coherence across sectors, coordination of interventions and advocate for the sustainable application of legislative, regulatory and fiscal measures which are already in place and initiate new ones where appropriate. A well-structured and coordinated national program at the central level is a requirement to work in partnership with provincial health authorities which are the key players in implementation with other health ministry institutions, non-health sector ministries and departments, non-government organizations, community based organizations, people living with cancer, their families, care givers and the community. National focal

points will be entrusted with coordination and monitoring and evaluation of interventions and reporting regularly to the higher achy. The NCCP will be supported by several national, provincial, district level committees and Clinical Boards to monitor and evaluate the progress of interventions.

Strategy 1 – Leadership, advocacy & Governance

Strategic Direction 1.1	Providing highest political leadership to acknowledge cancer prevention and control as a national development challenge
	Main activities
	1 Prevention and control of NCDs to be taken up as an agenda item at the National Health Council
	2 Appoint a high level committee at Presidential Secretariat to monitor and report to His Excellency the President on the challenges of current interventions
	3 Lobby for adequate financial allocation for the costed National Prevention & Control Action Plan through government annual budgetary support and contributions of development partners

Strategic Direction 1.2	Strengthen the National Cancer Control Program for advocacy and good governance
	Main activities
	1 Cancer control to be considered as an agenda item at the NCD Council Chaired by the Hon. Minister
	2 Ensure activities of different units within the Ministry of Health, other ministries, private sector and community is coordinated and implemented as per the NSP by appointing trained coordinators with TOR aligning with the NCD Multisectoral Action Plan
	3. Further strengthen the multi-sectoral, multi-disciplinary National Advisory Committee (NAC) with a revised TOR

4.	Appoint Technical Advisory Committees (TAC) with TOR to synthesize issues and recommendations
5.	Conduct regular meetings with NAC/TAC/and prepare progress reports to be presented to the NCD Council and National Health Council
6	Liaise with sub-committee of Presidential Secretariat regularly
7	Advocate to mainstream cancer prevention and control activities in the respective health, non-health sector service delivery platforms, private health sector and relevant stakeholder
8	Advocate for implementation of legislations, regulations to implement cancer control activities and initiate new ones when required
9	Ensure development and implementations of SOP/Guidelines/Protocols for different activities (diagnostics/treatment & care) for different service levels, NGOs, CBOs, hospices, home based care
10.	Develop Plans for infrastructure including diagnostics and Workforce Development and submit to Ministry of Health annually
11	Ensure continuous supply of medicines and other health commodities by linking Supply Management Chains of treatment centers with Regional Medical Supplies Divisions (RMSD) and Central Medical Supplies Division (MSD) and e-MIS of NCCP
12	Establish Provincial/District Committees with TORs and support preparing annual Action Plans with M&E indicators
13.	Ensure trained medical and para-medical personnel for various domains (clinical, laboratory, pathology, radiology) are mobilized in a phased manner for cancer treatment and care across all service levels
14.	Conduct Quarterly meetings with Provincial authorities to ensure implementation of activities and use of financial allocations appropriately and submit reports to NAC
15	Prepare Model Financial Projections using a costed Action Plan for budgetary support & liaise with Ministry of Finance
15	Prepare a comprehensive Annual Report every year
16	Advocate to include Cancer Control as an agenda item in other National Level Committees coordinated by Ministry of Health – NCD Board,

		Health Promotion, Family Health, School Health, Environment & Occupational Health, Estate & Urban Health, Oral Health etc
	17	Develop a M&E Plan with a performance framework
	18	Plan midterm and end term evaluation of the NSP

Strategic Direction 1.3	Strengthen Provincial teams for prevention and control of cancer	
	Main activities	
	1	Capacity building of team members to facilitate interventions for prevention and control of cancer through Provincial Committee, Provincial Plan, Provincial review
	2.	Conduct advocacy meetings for relevant health, non-health, private sector, community on prevention and control of cancer
	3.	Conduct awareness and skills development for families of people living with cancer and caregivers on improving the quality of life of people living with cancer and link people living with cancer to hospice care, rehabilitation and palliative care services
	5.	Participate in quarterly M&E review meetings and submit a report to NAC

Strategy :2- Primordial & Primary Prevention

Strategic Objective : 2

Primordial & primary prevention of cancers by addressing risk factors and determinants throughout the life-cycle

Rationale

Prevention means eliminating or minimizing exposure to the causes of cancer, and includes reducing individual susceptibility to the effect of such causes². This approach offers the greatest public health potential and the most cost-effective long-term method of cancer control^{2,6}. The important cancer related behavioral risk factors are use of tobacco and its by products, arecanut in the betel quid, harmful use of alcohol, unhealthy diet, physical inactivity and exposure to environmental factors which cause outdoor and indoor air pollution. The prevalence of all these behavioral and environmental risk factors is high in Sri Lanka among both adults and in and out school children (Annex-1). They are also risk factors for other chronic diseases, including cardiovascular disease, diabetes and chronic respiratory diseases. The leading cause of death in Sri Lanka is cardiovascular disease and the prevalence of diabetes and chronic respiratory tract infections are on the increase³. Therefore the joint effect or the “shared risk factor” concept^{15,16} and the fact that single risk factors have multiple health consequences was taken into account when primordial and primary prevention interventions for cancer control were planned. In order to maximize synergies and increase population coverage cancer prevention and control interventions were integrated using the lifecycle approach to other health sector and relevant non-health sector platforms such as the NCD program, urban and estate health program, agriculture programs, environment programs and family health program to reach a large segment of the general population including high risk populations and people in geographically isolated areas.

The revised NSP has focused on strengthening and scaling up initiated interventions giving high priority to “Best Buy” interventions¹⁴ and service packages identified in the Essential Health Services package for Universal Health Coverage (UHC)¹⁷. The expected outcome is to reduce the prevalence of risk factors for cancer which would eventually reduce people developing cancer and other chronic NCDs, be able to lead a healthy life and reduce the burden on the health sector.

The Interventions in the revised NSP are aimed to reduce the prevalence of tobacco and smokeless tobacco use, protecting non-smokers from being exposed to tobacco smoke and regulating tobacco products as given in the National Authority on Tobacco & Alcohol Act of 2006 and the MPOWER package

.The revised NSP is advocating for introduction of new regulations in addition to existing tobacco regulations to prevent importation of varieties of tobacco and areca-nut preparations (such as Paan Masala, Babul, Mawa, Red tooth powder and Salah etc.) from neighboring countries which has resulted in an increasing prevalence of Oral sub-mucous Fibrosis (OSMF) which is an OPMD predicting future oral cancer burden in younger age groups. .

Interventions to reduce consumption of alcohol will be addressed through advocating for enforcement of already initiated pricing policies such as excise tax increases on alcoholic beverages, regulating commercial and public availability of alcohol and restricting or ban on alcohol advertising and promotions (Best Buys) and also for enforcing laws on sale of alcohol to minors and drink driving offences aligning with the Sri Lanka National Policy on Alcohol Control¹⁸. Partnerships with civil society organizations such as ADIC which is reaching out to the school-aged and adult population to increase awareness through social media and health promotion at schools will be strengthened.

The revised NSP through Health Promoting settings in schools, universities, vocational training centers (VTC), hospitals, workplaces and communities will promote healthy lifestyles in the context of the 5 principles of health promotion as specified in the Ottawa Charter²⁰ inclusive of consumption of healthy diets, access to physical activities, promotion and protection of breast feeding^{15, 16, 17}. The settings approach will not only reduce the incidence of chronic NCDs including cancers but reduce inequalities, gives opportunity for male participation and provide social justice while reducing the burden on health services. The revised NSP will promote the implementation of school and workplace canteen policies, advocate for enforcement of laws for sale of sugar-sweetened beverages (SSB) for children, front of pack labeling (F-O-P) of foods and drinks to enable public to select healthy foods, reduce salt intake and replace trans-fat with unsaturated fats. Advocacy to the Ministry of Agriculture to provide fruits and vegetables to schools, hospitals and workplaces is essential.

In an attempt to reduce infectious risk factors, the revised NSP is advocating for sustainability of human papilloma virus (HPV) vaccination program in the Expanded Program of Immunization (EPI), increasing coverage of HPV vaccination from 66.8% in 2018¹⁰ to 90% by 2025²¹ to fulfill the global targets and increase the coverage and quality of screening programs for women in the 35 year and 45 year age cohort for prevention of cancer cervix and immunization of at risk healthcare workers for hepatitis B to prevent liver cancer. Exposure to environment risk factors is being addressed with not only health sector but also in collaboration with Agriculture sector, Municipal Councils, Ministry of Industry and Central

Environmental Authority NMBRO. All these efforts are carried out using an integrated approach with other health sector and non-health sector platforms as reduction of risk factors have a major impact on the cancer burden in a country as well as other disease conditions that share these risks.

As a cross-cutting measure, a Social Behavioral Change Communication strategy (SBCC) will be implemented to increase health literacy of citizens to educate and empower communities to change community and individual behaviors. It will address the social and health dimensions related to risk factors, the need to reduce tobacco and alcohol use to prevent a variety of cancers, recognize that an unhealthy diet and physical inactivity are risk factors linked to overweight and obesity and cancer, high salt diet is linked to high blood pressure and cancers and on accessibility and availability of services in order to increase population coverage so that citizens are able to reach health services without delay and avail of services and also to achieve universal coverage of some of the interventions and educate people on legislations and regulations enforced by the Government of Sri Lanka (GOSL) to reduce cancer related risk factors.

The revised NSP is also advocating for a strengthened health service to carry out primary prevention interventions. The NCCP will advocate for smooth progress of the primary healthcare strengthening program through the “shared care cluster” system so that there will be equity of services and achieve UHC that no one will be left behind of availing cancer preventive care services which will be linked to curative specialized care for cancer.

Strategy -2 Primordial and primary prevention

Strategic Direction 2.1	Community education & empowerment for adoption of healthy lifestyles (reduce use of tobacco, areca nut and alcohol, consume healthy food, increase physical activities and adopt safe sexual and reproductive health) to reduce the incidence of cancer among different target groups across the life-cycle
	Main activities
	2.1 Develop and implement a cancer related Social Behavior Change Communication (SBCC) strategy which includes cancer specific tailor made messages to provide correct knowledge on healthy lifestyles, positive behavior change strategies, regulations and legislations on tobacco, areca-nut, alcohol, unhealthy foods for different target groups through the lifecycle approach

	2.2	Develop and Implement a mass media campaign to reach general public
	2.3	Develop and implement special programmes for high risk and special target groups

Strategic Direction 2.2	Establishment of health promoting settings for cancer prevention and control in schools, Youth settings, work places, hospitals, estates and villages	
	Main activities	
	1	Strengthen school health promoting settings to reduce the risk of chronic NCDs including cancer with M & E plan
	2	Develop health promoting setting for universities, training colleges and VTCs to reduce the risk of chronic NCDs including cancer with M & E plan
	3	Develop/strengthen health promoting settings in work places to reduce the risk of chronic NCDs including cancer with M & E plan
	4	Develop/strengthen health promoting settings in hospitals to reduce the risk of chronic NCDs including cancer with M & E plan
	5	Develop health promoting settings in estates to reduce the risk of chronic NCDs including cancer with M & E plan
	6	Develop /strengthen health promoting settings in villages to reduce the risk of chronic NCDs including cancer with M& E plan

Strategic Direction 2.3	Reduce the incidence of cancer due to lifestyle risk factors (tobacco and alcohol use, areca-nut use, consumption of unhealthy diets, physical inactivity)	
Sub-strategic Direction 2.3.1	30% relative reduction in prevalence of use of current tobacco/tobacco products in persons aged over 15 years and protecting non- smokers from exposure to tobacco by -products	
	Main activities	

	1	Advocate and support implementation of Sri Lanka National Policy on Tobacco Control and NATA act
	2	Promote strengthening tobacco cessation services to all those who want to quit by introducing counseling services, toll-free quit line
	3	Establish tobacco cessation clinic sessions in hospital with oral and Maxillofacial units which are first-line treatment centers for OPMD and oral cancer
	4	Support training of healthcare workers and volunteers on tobacco cessation services
	5	Warn and educate public on the harms of tobacco use and second-hand smoke on the development of cancers using all modes of communication
SSD-2.3.2		Reduce incidence of oral cancer by a 30% relative reduction in prevalence of current areca-nut use in persons aged over 15 years
		Main activities
	1	Enact laws prohibiting imports, manufacture and sale of chewable areca-nut products
	2	Develop guidelines for law enforcement on areca-nut use
	3	Formulate preventive policies to protect people from areca-nut use
	4	Mass media campaigns to educate public on the harms of Areca-nut
	5	Develop/introduce alternatives to areca-nut and smokeless tobacco products
SSD-2.3.3		To increase use of healthy diets high in fruits and vegetables and low in saturated/trans-fats and low in sugar and salt
		Main activities
	1	Advocate for the implementation of National Nutrition Policy, Guidelines of healthy foods, National Salt Reduction Strategy, National Agriculture Policy
	2	Support the enforcement of regulations and legislation to control and or ban on advertising of unhealthy foods and drinks and to eliminate industrially produced trans-fat
	3	Support Implementation of legislation on marketing of food and non- alcoholic beverages for children and monitoring and evaluation of the same
	4	Advocate for implementation of front-of- pack (FOP) labeling as given in the Food Act

	5	Support implementation, monitoring and evaluation of school canteen policy and workplace canteen policy
	6	Advocate to sustain imposed sugar taxes
	7	Advocate to make fresh vegetables and fruit available
SSD- 2.3.4	10% relative reduction in prevalence of insufficient physical activity	
	1	Advocate for the implementation of National Guidelines on Physical Activity,
	2	BCC strategy to promote public awareness about the links between overweight, obesity and cancer recognizing that physical inactivity is a risk factor for cancer
	3	Support development and implementation of legislation for establishment of environments supportive for physical activity
	4	Introduce /Implement exercise prescription programme for recommended people who are attending to health care settings
SSD-2.3.5	10% relative reduction in alcohol consumption and exposure of children to alcohol	
	Major activities	
	1	Support implementation of Sri Lanka National Policy on Alcohol Control and NATA act
	2	Include messages especially for young people about alcohol related cancer using gender specific messages into SBCC strategy
	3	Include the influence of alcohol on development of cancers into the School Health Promotion Program and school curriculum
	4	Strengthen collection of hospital data on alcohol related problems (e.g. alcoholic cirrhosis)

Strategic Direction 2.4.	To reduce the incidence of cancer by reducing exposure to infectious agents	
	Main activities	
	1	Include promotion of healthy sexual and reproductive behaviors and the need of HPV vaccination in the SBCC strategy
	2	Advocate for sustainability of HPV vaccination program

	3	Advocate for sustainability of HBV vaccination for public sector healthcare workers and of routine vaccination of at risk private sector workers
--	---	--------------------------------------------------------------------------------------------------------------------------------------------------

Strategic Direction 2.5	To reduce the incidence of cancers by reducing exposure to environmental and occupational risk factors	
	Main activities	
	1	Advocacy to integrate cancer prevention and control measures into existing occupational health and safety policies to create healthier and safer workplaces
	2	Advocate to monitor pollutant levels (air, water) regularly and report to relevant authorities
	3	Advocate for a policy on safe disposal of toxic wastes such as industrial, nuclear, laboratory and clinical waste, cytotoxic and electronic waste
	4	Advocate for the development of compendiums on environment toxins and Industries emitting toxins to environment (air, water)
	5	Advocate to develop a policy to reduce indoor air pollution
	6	Include indoor air pollution (switch from using solid fuels in home cooking) in to the SBCC strategy.
	7	Support the implementation of regulations issued by the CEA regarding open burning of refuse or other combustible matters inclusive of plastics.
	8	Support the outdoor air quality monitoring system (Eg established jointly by the CMC and NBRO to monitor air quality in Colombo and suburbs)

Strategy: 3 Screening and Early Diagnosis

Strategic Objective -3

Advocate for screening and early diagnosis through improved health literacy, availability of services for rapid diagnosis of cancers and linking to services for early treatment and care.

Rationale

The goal of early detection in cancer programs is detection of a disease at its early stage when it has a high potential for cure (e.g. breast and cervix cancer)^{21, 22, 23}. There are two strategies for early detection: screening and early diagnosis²². Screening is a public health strategy used to identify unrecognized cancer or pre-cancerous lesions in an apparently healthy target population by the application of a test, examination or a procedure rapidly and easily in order to provide treatment which can reduce the risk of the lesion developing into a cancer^{21, 22, 23}.

Early diagnosis is defined as the early identification of cancer in patients who have signs or symptoms of the disease^{21, 22, 23}. This contrasts with cancer screening which is applied to an asymptomatic apparently healthy target population. Early diagnosis of symptomatic cases and providing effective treatment should reduce the prevalence of advanced disease, reduce mortality and increase survival and higher costs for treating advanced cases. In 2018, 52% of cervical cancer was diagnosed in late stages (Stage 3&4)⁹. Clinical breast examination (CBE) is also done in WWC and HLCs and 33% were diagnosed in late stage disease (stage 3 &4)⁹. Similarly oral health clinics are responsible in examining for oral pre-cancer or cancer lesions but 72% for oral cancers were diagnosed in stage 3 or 4⁹. Treatment of cancers found at an early stage is less aggressive, less expensive and more effective, with higher long-term survival rates and better quality of life therefore affordable access to timely, adequate, effective treatment is an essential component in early detection programs^{21, 22, .}

The revised NSP will address three steps which are required for effective early diagnosis of cancer: presentation, diagnosis and treatment²². Thus interventions will be to increase awareness and ability of the general public including target groups to identify and avail of screening services promptly when symptoms of suspected cancer arise, health care providers have the competency to recognize early signs and symptoms of cancer with accurate, accessible laboratory services and imaging devices, referral everyone for high-quality, affordable health services to initiate cancer therapy.

Prevention of cervical cancer through screening linked to timely treatment of pre-cancerous lesions is classified as a “Best Buy” intervention by the WHO¹⁴ which is practiced in the country. The National Cervical Cancer Screening Program (NCCSP) was initiated in 1996 in well woman clinics (WWC) under the purview of the Family Health Bureau is as of today a well -organized population based program which is guided by a National Strategic Plan (2019-2023)¹². The target set by Sri Lanka is to reduce the incidence of cervical cancer by 60% by 2030¹² to reach the threshold of 4 per 100,000 women-year for elimination as a public health problem.

As per the WHO recommendations, target populations for screening are two sets of 35 year old and 45 year old women cohorts attending Well Women Clinics (WWC). According to data of FHB, as of end 2017, papanicolaou smear screening coverage among the 35 year old cohort was 53.3%²⁴. Family Health Workers (FHW) identifies women in these age groups from the eligible families register and educate them on the need to screen for cervical cancer. For screening to be effective it should cover a substantial proportion of the population and at least 80% of the target population should be screened²³. In order to increase the coverage and quality of screening, the revised NSP will advocate to increase the number of WWC to achieve the set target of one WWC per 15,000 populations, capacity building of healthcare workers and increase the health literacy among people to access services using the SBCC strategy and Health Promoting Settings. The FHB is planning to shift the cytology based screening to HPV screening¹². The pilot study results will be released soon¹². The revised NSP will support opportunistic cervical cytology screening in Healthy Lifestyle clinics (HLC) and at the NCCP early detection clinic for women in 35-60 year age group and at STD/HIV clinics and in some gynecological clinics, private hospitals and Family Planning Association of Sri Lanka²⁴. The NCCP will advocate establishing Early detection clinics in each district since there is evidence of increasing numbers accessing these services, waiting time for screening and receiving results is less, availability of counseling, referrals are done without delay.

A National Plan for Early detection of Breast Cancer will be developed with Multisectoral participation taking into consideration the lack of specialists and mammography facilities across the country⁹. The Breast Cancer Prevention Program is carried out mainly at WWC¹² and HLC¹². The strategy adopted for breast cancer screening is by clinical breast examination (CBE) by a healthcare worker including the public health midwife (PHM) as per the guidelines. Women attending WWC and HLCs are also given knowledge and skills for self- breast examination (SBE)¹². Only suspected cases are referred to secondary or tertiary level for further assessment including mammography⁹. Breast clinics are established in 24 hospitals covering the whole country to provide counselling, survivorship support and basic palliative care. These clinics also serve as walk-in clinics for CBE. Since the leading cancer in women is breast

cancer, the revised NSP is addressing the need to initiate DNA based genetic testing for BRAC -1 and 2 genes for women who are at a higher risk of breast cancer.

In Sri Lanka, oral cancer is the leading cancer among men and is usually diagnosed in the low-socio-economic populations (farmers, mine workers, bus drivers, daily wages, fishermen, plantation workers, etc.). The NCCP has identified the above main risk populations for oral cancers as users of tobacco in any form (smoking, smokeless tobacco use especially chewing betel quid on a daily basis, using areca nut and lime in the betel quid) and alcohol users as per the National Oral Health Policy. The Oral Cancer Screening program is well documented with detailed guidelines on management of oral potentially malignant disorders (OPMD) is available. The screening programme has a good network of health facilities and a good referral system from primary health care to specialized oral and maxillofacial facilities or treatment and care. However, OPMD/oral cancer screening programme in the country is still not well organized and the present NSP is taking steps to formalize the program by developing a National Plan for Early detection of Oral Cancer with Multisectoral participation. The mass media campaign included in the SBCC strategy will create public awareness on risk factors and avoidance of such risks, self-examination methods, and access and availability of services. It was also observed that patients bypass Western curative services and tend to seek traditional methods to avoid surgery leading to late referral with advanced disease.

The NSP in its SBCC strategy will include interventions to increase the knowledge of public including target group on signs and symptoms of common cancers (breast, cervix, oral cavity), myths and misconceptions, accessibility and availability of services to improve health seeking behaviors and facilitate the coverage for early detection of cancer and continuum of care. Updating the knowledge of FHW, primary healthcare providers and of the General Practitioners on early detection will be a consideration in the NSP.

This NSP calls for an effective referral and back referral system for patients across the three levels of healthcare, developing infrastructure facilities to provide cost effective standardized quality services using evidence based guidelines/protocols and SOPs across all levels of health services, capacity building of healthcare workers in order for early detection of cancers, counseling, familial risk assessment and provision of continuum of care to reduce mortality and increase survivorship and quality of life.

Based on the principals of screening, a national population based screening program for thyroid cancer is not considered at present until national level evidence is gathered although an increase of cases

were noted. A colorectal cancer screening program is also not considered at present given the epidemiology of the cancer and resource availability.

Strategy 3 – Early detection of cancers

Strategic Direction 3.1	Increase knowledge of general public, including high risk populations and individuals on common sign and symptoms of cancers, myths and misconceptions, accessibility and availability of early detection services to improve early utilization of services	
	Main activities	
	1	Introduce cancer related strategies in the BCC strategy
	2	Integrate messages on screening and early detection of breast, cervical and oral cancer to existing community support groups
	3	Empowerment of women on self- breast examination/Be Breast aware (>20 years)
	4	Empowerment of self-mouth examination of people with risky habits which promote cancer (use of tobacco, areca-nut, alcohol

Strategic Direction 3.2	Strengthen primary health services for screening and early diagnosis of breast, cervix and oral cavity cancers within the “shared care cluster system” and link positive cases to CoE or satellite treatment centers as appropriate for high quality cost effective treatment	
	Main activities	
	1	Develop out-reach and workplace programs for screening and early diagnosis of cancer among high-risk and special target groups
	2	Developing a Scale up Plan to increase screening facilities in each district as per targets
	3	Support capacity building of all categories of staff involved in cancer screening and early diagnosis across all health levels
	4	Prepare guidelines for primary care physicians on referral pathways and train them
	5	Support introduction of HPV –DNA testing

	6	Establishing Quality Assurance (QA) approaches for screening and early diagnosis services
--	---	-------------------------------------------------------------------------------------------

Strategic Direction 3.3	Ensure timely access to services for suspected and diagnosed patients with cancers	
	Main activities	
	1	Ensure all centers of excellence are equipped to confirm the diagnosis of referral cases of suspected breast, cervical and oral cancer and other cancers such as thyroid, prostate, colo-rectum
	2.	Establish One stop Early Diagnosis Clinics in each province with required infrastructure and diagnostics to detect, confirm and refer patients with common cancers (breast, cervix and oral)
	3	Ensure Breast Clinics are established in all districts with TOR including provision of mammography to promote early detection
	4	Ensure Colposcopy facilities are available in all districts with TOR for early detection of pre-cancerous lesions and cervical cancer
	5	Establish links with STD/HIV clinics to provide continuum of care for those diagnosed in the respective clinics

Strategic Direction 3.4	Building public/private partnerships for screening and early diagnosis of cancers to increase coverage	
	Main activities	
	1	Advocacy to support screening (breast, cervix, oral) in the private sector hospitals/clinics and share guidelines
	2	Establishing referral and back referral mechanism for the private sector hospitals
	3	Support leading private sector hospitals to establish HBCR / reporting mechanisms

Strategy 4 Diagnostics and Treatment & Care

Strategic Objective 4:

Ensure sustained and equitable access to diagnosis and treatment facilities for cancers.

Rationale

Sri Lanka gives priority to prevention of cancers while also investing in screening, early diagnosis and provision of continuum of care. An excellent screening programme would be inappropriate without being linked to effective treatment measures. Similarly, it is not useful to develop treatment capacity without encouraging early detection. Timeliness of diagnosis is a crucial element in achieving successful treatment outcomes. The revised NSP is prepared with the objective of linking the chain of events that is required for provision of the full spectrum of services for cancer care.

Diagnosis of cancer spans from the time of identification of signs or symptoms or the availability of a screening test result to confirmation of the diagnosis based on the histo-pathological result. The need for an accurate and a timely diagnosis cannot be underestimated. Delays in confirmation can have significant psychological effects on the patient and the family, defaulting for treatment or late access to healthcare services which may even impact on the likely effectiveness of treatment. The NCCP is mindful that, lack of available technologies to screen, diagnose and treat in a timely manner contributes to patients being diagnosed in advanced stages which increase death rates.

Once the diagnosis is confirmed there are other laboratory diagnostics (biological, microbiological, hematological, immunohistochemistry etc.) and medical diagnostic imaging (ultra-sound, radiography, computed tomography -CT, magnetic resonance imaging-MRI, single photon emission computed tomography –SPECT, positron emission tomography-PET) which is essential for decision making on clinical management which includes staging and extent of the disease, monitoring response to treatment, palliation, rehabilitation, follow up and for preventive actions including surveillance. The imPACT review has observed that there is a severe shortage and mal-distribution of the available diagnostics⁹.

Treatment aims to cure some of the early detected cancers, prolong life and improve the quality of remaining life by providing recommended treatment regimens. In this background, the revised NSP will focus on strengthening health systems to provide equity of care with cost effective evidence based treatment pathways for the most common adult and paediatric cancers in the country. Treatment will

be linked to survivorship care, rehabilitation and palliative care. Guidelines for treatment and care of each stage of each cancer will be developed by a group of experts to maintain standards and quality of care.

The Apeksha Hospital in Maharagama will be the epi-center for treatment and care for adults and children with upgraded State-of-The-Art diagnostics powered by technology and treatment modalities. GOSL will invest in setting up two Bone Marrow Transplant units in Apeksha Hospital Maharagama and National Hospital of Sri Lanka (NHSL) Colombo for blood and bone marrow cancers.

Taking into consideration the disparities observed in access and availability of infrastructure facilities and human resources for diagnostics and treatment, the plan is to develop in a phased out manner, a “Treatment & Care Model “ with a center of excellence (CoE) in each province which ensures equitable access to any citizen in the country. The CoE will serve as the hub for treatment and care in each province and secondary and tertiary care levels will have satellite centers which will network and liaise with the CoE. The NCCP will take steps to integrate continuum of care into the “shared care cluster” system which would increase access to services by populations living in geographically isolated areas. Evidence based clinical and management guidelines, an essential drug list, referral, follow up and evaluation systems will be introduced and continuous training of health professionals in different sub-specialties will be addressed. Patient-centered multidisciplinary care for both adults and children will encompass Medical oncology, Radiation Oncology, Surgical Oncology and gynaecological –oncology. The decision as to which cancers are treated at which of the levels of care will depend on the particular cancer, the stage at diagnosis, the type of treatment required and the availability of suitable infrastructure, as well as the availability of well-trained and experienced professionals. Patient inclusiveness will be introduced to cancer management and developing the management plan will be done in consultation with the patient depending on the literacy level of the patient or with a family member. Each CoE will be linked to clinics such as Breast Care Clinics and Colposcopy Clinics. Establishment of Tumour Boards in each province will facilitate decision making and monitoring and evaluation. CoEs will be linked to Apeksha Hospital.

The CoE will be first established in Western Province, Northern Province and Southern Province as the numbers of cancer patients reported from these provinces rank among the highest and will be phased out to cover all 9 provinces. A Scale up Plan in establishing CoE and satellite treatment centers in secondary and tertiary levels with required infrastructure and human resources for other provinces will

be developed. Treatment centers will be addressing not only managing all aspects of the cancer itself, but also rehabilitation, palliative care and the psychosocial needs of the patients and their families and caregivers.

A needs assessment will be conducted to gather data to prepare a scale up plan (SUP) for essential diagnostics, infrastructure and human resources for medical imaging and nuclear medicine for each level. The SUP shall contain a list of general medical devices and specific medical devices for imaging by cancer type for both adults and children based on WHO recommended medical devices²². Similarly, the infrastructure requirement list will consist of radiation and other safety protection items. The expertise of a medical physicist will be obtained to develop quality management inclusive of clinical audits which will check performance against standards. Capacity building of healthcare staff on diagnostics and safety measures will be included in the plan. Supply of diagnostics will be ensured by linking to the Supply Chain of the Central Medical Supplies Division (MSD) and Regional Medical Supply Divisions (RMSD) and e-MIS of NCCP .

Similarly, through expert consultations evidence-based treatment and care clinical guidelines which enable providing new treatment pathways, essential oncology medicinal drug lists for adult and pediatric oncology, referral and back referral systems, follow up and an evaluation system will be developed. Capacity building of healthcare workers for treatment and care and deployment will be done as per a Scale up Plan in a phased manner. A continuous supply of medicines and other commodities needed to provide treatment will be ensured by linking treatment centers to the Supply Chain of the Central MSD & RMSDs and the e-MIS of NCCP. Quality assurance and quality control systems inclusive of clinical audits will be included.

Strategy – Diagnostics, treatment and care

Strategic Direction 4.1	Increase accessibility and availability of diagnosis and comprehensive treatment & care by establishment of centers of excellence and satellite treatment and care centers in secondary and tertiary levels	
	Main activities	
	1.	Establish a Center of Excellence for cancer prevention, control and care in each Province with operational guidelines

	2.	Establish cancer care centers in secondary and tertiary care level with operational guidelines
	3.	Develop four technical sub-committees for radiation safety, Laboratory and diagnostic pathology, diagnostic radiology, and treatment under the Technical Advisory Committee (TAC) of diagnosis and treatment
	4.	Identify the structure of multidisciplinary teams for center of excellence, secondary and tertiary levels as appropriate
	5.	Develop National Guidelines for diagnosis, treatment and follow up for common cancers including minimum standards of care at each service level and quality control measures
	6.	Establish multidisciplinary tumor review Boards for diagnosis, treatment and rehabilitation in each province and conduct regular audits with monthly Mortality and Morbidity (M&M) meetings.
	7.	Develop Essential Oncology Medicine Drug lists for common Adult and Pediatric cancers
	8	Develop a Procurement and Supply Management Plan (inclusive of equipment, medicines and other medical commodities) and link it to the Procurement and Supply Management Chain of the Medical Supplies Division (MSD)
	9	Scale up day treatment units (dedicated day hospitals) with dedicated staff
	10	Build public-private partnership for diagnosis and treatment with appropriate referral mechanism

Strategic Direction 4.2	Increase accessibility and availability of infrastructure for cancer diagnostics (laboratory and pathology, medical imaging) and human resources at CoE, secondary and tertiary care levels for provision of continuum of care	
	Main activities	
	1	Conduct a needs assessment for cancer diagnostics including infrastructures, human resources, training needs for medical and para - medical staff for each service level

	2	Develop a Scale up Plan (SUP) with process indicators based on the needs assessment for cancer laboratory and pathology diagnostics, medical imaging for each service level (infrastructure facilities, human resources included)
	3	Develop guidelines /Protocols/ SOPs for cancer laboratory and pathology diagnosis and medical imaging
	4	Develop a capacity building plan for all categories of healthcare workers in diagnostics
	5	Ensure capacity building of medical and paramedical staff (international and local training) as per SUP in diagnostics
	6	Establish QA systems in diagnostics

Strategic Direction 4.3	Establish genetic marker testing & other advances in cancer care	
	Main activities	
	1	Develop testing for genetic markers including detection of minimal residual disease (MRD) at Apeksha Hospital and National Hospital of Sri Lanka ^L _{SEP}
	2	Establish a cyclotron facility for the production of PET radiopharmaceuticals- Radiation
	3	Assess needs for Gallium 68 Generator to start the PET/CT imaging - Radiation
	4	Appointing an expert panel to conduct a feasibility study to establish a research reactor project

Strategic Direction-4.4	Increase accessibility and availability of comprehensive high-quality cancer treatment and care facilities	
	Main activities	
	1	Develop a National Scale up Plan of action and guidelines to expand quality assured radiotherapy capacity island-wide including having a central –Radio-Pharmacy

	2	Install linear accelerators (LA) with CT stimulators to deliver External Beam Radiation Therapy in place of Co-60 radiotherapy equipment (2D to 3D conversion)
	3	Provide CT simulators and HDR brachytherapy (Internal Radiation Therapy) machines to all radiotherapy centers
	4	Improve brachytherapy unit at main cancer center with interstitial brachytherapy technique to improve head & neck and cervical cancer management
	5	Ensure availability of critical surgical sub-specialty services to support cancer treatment and care at all treatment centers with adequate resources
	6	Develop stem cell transplant facilities in Sri Lanka with SOP/guidelines and dedicated haematology wards in identified centres
	7	Ensure each center of excellence in each province has a Radiologist trained in Nuclear Medicine
	8	Develop a capacity building plan and ensure training for all categories of healthcare workers in providing comprehensive treatment and care
	9.	Develop a treatment and follow up policy for CoE

Strategic Direction-4. 5	Ensure provision of high quality diagnosis and treatment pathways for patients with common cancers (breast, cervical, oral and thyroid cancer)	
	Main activities	
	1	Introduce laser treatment facilities for treatment of oral cancer and oral potentially malignant disorders (OPMD) and pre-cancer cervix lesions at provincial cancer management centers
	2	Develop referral pathway plans with guidelines which links early detection and provision of treatment and follow up for breast, cervical and oral cancers
	3	Expansion of radioiodine treatment facilities to Rathnapura, Jaffna, and Baticaloa
	4	Promote reconstructive surgical care as an essential technique for breast and oral cancer treatment

	5	Establish four digital mammography facilities with guidelines to hospitals in four selected districts (Hambanthota, Monaragala, Ampara and Vavuniya)
	6	Strengthen and scale up Breast Clinics linking to CoE with provision of counselling etc.
	7	Establish a QA system for treatment services
	8	Provide colposcopy facilities for all CoE for management of cervical cancer
	9.	Develop guidelines for Breast Care Clinics & Colposcopy Clinics and capacity building of service providers

Strategic Direction 4.6	Ensure safety of healthcare workers and patients exposed to radiation and cytotoxic materials	
	Main activities	
	1	Develop a comprehensive National guideline on cytotoxic and radiation safety and management
	2	Strengthen the supply chain to ensure regular supply of radiotherapy auxiliary equipment for safety (positioning aids, dosimetry and QA equipment, TLD chips, brachytherapy applicators and catheters)
	3	Install Iron chambers to regularly monitor the dose of radioactive treatment to ensure radiation protection of patients
	4	Appointment of radiation safety officer (RSO) for each cancer treatment centre and develop TOR for RSO
	5	Enforce the knowledge and practice of radiation protection in diagnostic imaging ^[L] _[SEP]
	6	Develop M & E plan to regularly monitor radiation levels of all healthcare workers and patients exposed to radiation
	7	Establish SOPs for laboratory safety and waste disposal of clinical materials
	8	Appoint a safety officers for laboratories with TOR
	9	Appoint a safety officer for cytotoxic drugs and develop a TOR

Strategic Direction-4.7	Improve accessibility and availability of cost effective evidence based Paediatric oncology services	
	1	Identify the common paediatric cancers, multidisciplinary care needed for them and develop a plan of action for management at each service level
	2	Integrate pediatric cancer management into centers of excellence
	3	Enhance Training of pediatric oncologists
	4	Appoint Pediatric oncologists for each CoE
	5	Train pediatric multidisciplinary teams for pediatric care at the level of center of excellence, secondary and tertiary care levels with a network
	6	Develop guidelines/protocols/SOP for paediatric cancer care
	7	Develop National Essential Paediatric Oncology Medicine List

DRAFT

Strategy 5 - Survivorship, Rehabilitation and Palliative care

Strategic Objective 5:

Ensure access & availability of survivorship, rehabilitation and palliative care facilities at all health service levels and at community level for cancer patients and support to their families and care givers

Rationale

The number of cancer survivors is expected to increase as the GOSL is investing in cancer care for early detection and linking early detected patients for provision of comprehensive care with evidence based cost effective treatment pathways thus their health needs must be addressed by the health system. Survivorship care includes prevention and surveillance for recurrent and new cancers, management of long-term toxicity and co-morbid conditions and surveillance and management of psychosocial effects^{2,16,22,25}. Survivorship care should be delivered after completion of treatment and should be coordinated by care teams that include a primary care physician. A National Survivorship Plan will be developed for adults and children by identifying the basic components for survivorship. There are about 600-700 paediatric cancer cases detected annually and they need multi-disciplinary survivorship care during their transition from childhood into adulthood⁹. The care team will be developing individual plans adapting to the needs, preferences, of each patient and available resources and the capacity of the health system^{16,25}. Consideration will also be given to patients who do not complete recommended treatment.

Rehabilitation and palliative care are two essential components in continuum of cancer care^{2,25,26}. People living with cancer need physical, psychological and social rehabilitation to improve their quality of life^{2,25,26} by reducing the disabling effect of cancer and its treatment and should be able to support for mobility, self-care, emotional well-being, spirituality, vocational pursuits, social interactions to perform everyday activities to live as independently as possible². Rehabilitation should be provided as early as possible after treatment and within the community where the person lives^{25,26}. The type and intensity of rehabilitation depends on the type and severity of the impairment, and the type and magnitude of the treatment provided. Rehabilitation for cancer patients will be provided through the existing public physical and psychosocial rehabilitation services^{25,26}.

Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means

of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual (WHO 2016)^{2,26}. In Sri Lanka, the need for rehabilitation and palliative care is increasing owing to the aging population and the rising prevalence of NCDs. Since almost 83% of all deaths in Sri Lanka are due to NCDs^{3,7} the revised NSP is providing for rehabilitation, pain relief and palliation as the National Health Policy identifies the need for palliative care to all patients who need such care for them to live and die in dignity.

Available data show more than 70% of oral cancer, more than 50% of cervical cancer and more than 30% of breast cancer cases present at late stages of cancer⁹. With the available data on incidence and cancer stage, an estimate is that there are more than 15000 cancer patients in need of palliative care at any point of time²⁶. Currently, out of all cancer and non-cancer patients needing palliative care, less than 1% have access to palliative care services²⁶. Very few of the patients with diseases other than cancer in need of palliative care have access to proper palliative care²⁶. In this scenario, patients and their families and the general public should be aware of the availability of palliative care and how best it could be utilized. The revised NSP in its SBCC strategy will include interventions to create awareness among these groups for them to avail of these services and to harness their support for cancer care.

National Strategic Framework for Palliative care was developed in Sri Lanka and this revised NSP supports its strategies. In the Government sector, specialist palliative care is available in 24 cancer treatment centers distributed in the country. Apeksha hospital has a fully-fledged out-patient palliative care service 6 days of the week being the epicenter for treatment and care. In addition there are 5 hospitals providing formal palliative care (TH-Karapitiya, TH- Ratnapura, DGH- NuwaraEliya and Moneragala). Ministry of Health has trained and mobilized 86 Community Public Health Nursing Officers (CPHNO) attached to primary healthcare units to provide home based care. TH-Karapitiya provides Hospice care and there are about 7 home-based programmes and 9 hospice services provided by civil society organizations (CSO). They collaborate with Government sector cancer treatment centers. The revised NSP recognizes the need to integrate palliative care as an essential component of comprehensive healthcare across all levels of healthcare services and community. Operational guidelines with service packages for each level including home based care will be developed to maintain standards and quality of care. The revised NSP is also addressing the need of infrastructure and human resource development for delivery of palliative care at both institutional and community level, warranting a legislative framework for delivery of palliative care and continuous supply of essential medicines and technologies.

Capacity building of institutional and home based care givers will be undertaken by the NCCP with the Task Force for Palliative Care of the Sri Lanka Medical Association and the Palliative Care Association of Sri Lanka. The Post Graduate Institute of Medicine (PGIM) has initiated a one year full time Post Graduate Diploma course in Palliative Medicine in 2018²⁶. Further, palliative care will be introduced into relevant undergraduate medical disciplines, post basic nursing training course and relevant paramedical courses in the near future. The revised NSP is promoting partnerships with government and non-government organizations to deliver palliative care, empower family members, care givers and general public for provision of palliative care and research on suitable models for implementation of palliative care.

Strategic Direction 5.1	Establishing survivorship care and rehabilitative care at primary, secondary and tertiary care services	
	Main activities	
	1	Create survivorship care teams at centers of excellence and at other treatment centers
	2	Train primary, secondary and tertiary care personnel to provide survivorship
	3.	Develop guidelines for survivorship care and referral pathways for such care
	4	Include survivorship in the SBCC strategy
	5	Integrate cancer rehabilitation into the existing physical social and psychological rehabilitation services
	6.	Strengthen Breast clinic services with facilities for counselling and follow-up and develop SOPs/guidelines/protocols
	7.	Establish cancer support groups

Strategic Direction 5.2	Facilitate the effective integration of specialist palliative care services across all levels of healthcare (tertiary, secondary and primary) and community level	
	Main activities	
	1	Advocacy to make palliative care an essential component of comprehensive healthcare

	2	Integrate palliative care into healthcare system at primary, secondary and tertiary healthcare services
	3	Strengthen legislative provisions for delivery of palliative care
	4	Commence palliative care consult services at the main cancer treatment centers and introduce to other treatment centers in a phased manner
	5	Establish palliative care units at different service levels including community and home based care with SOP/guidelines/protocols
	6	Promote provision of basic palliative care services in hospice, CSO and home based care
	7.	Ensure M&E using national indicators

Strategic Direction 5.3	Develop knowledge and skills for palliative care among cancer treatment and care service providers of different health service levels and community care providers	
	Main activities	
	1	Develop multi-disciplinary teams with TOR to provide palliative care for each service level and at community level (inclusive of Community Public Health Nursing Officers)
	2	Ensure inclusion of palliative care in basic undergraduate training programs in Medicine, Paediatrics, Nursing, Pharmacy and other relevant health disciplines
	3	Conduct in-service training programs on palliative care for medical officers/nurses/pharmacists/physiotherapists and other relevant health staff
	4	Train general practitioners on provision of basic palliative care

Strategic Direction 5.4	Develop partnerships with other government, non-government organizations (private sector hospitals, NGOs, CSOs) and General Practitioners to provide basic palliative care	
	Main activities	
	1	Educate general public on pain relief and palliation and services available in the SBCC strategy
	2	Develop standards and accreditation systems to strengthen palliative care services in hospices, NGOs and Community Service Organizations
	3	Develop linkages with Private Medical Practitioner Associations
	4	Empower family members, caregivers, general public for provision of basic palliative care and liaise them with government healthcare providers /Private Practitioners
	5	Advocate PGIM to sustain training in survivorship and palliation
	6	Ensure CPHNO provide basic palliative care as per their TOR

Strategic Direction 5.5	Ensure availability of essential drugs and technologies for provision of palliative care at each level of care	
	Main activities	
	1	Ensure essential medicines (including morphine) are continuously available at each service level by linking to Supply Management Chain of Regional MSDs and Central MSD
	2	Ensure availability of equipment and medical technologies identified in guidelines are continuously available at each service level by linking to Regional MSDs and Central MSD

Strategic Information & Management

Strategic Objective 6

Strengthen cancer information systems and surveillance to provide accurate and timely data to monitor the progress and evaluate the outcomes of cancer control actions.

Rationale

The purpose of having a cancer information system is to provide accurate, timely and complete data on a continuing basis on cancer incidence, prevalence, determinants of cancer, types of cancers, diagnostic methods, stage distribution, treatment patterns and outcomes, mortality and survival for monitoring and evaluation of interventions. Such generated data is useful for National Cancer Control Programme for planning & implementation of future preventive and treatment programmes, formulate national policy and conduct epidemiological research. The NCCP will establish a Strategic Information and Management (SIM) unit which will be dedicated to capture the multitude of information generated during cancer prevention and control activities. An electronic Management Information System (e-MIS) will be established to replace the paper based data system for M&E. It will be fed with routine data on program management, surveillance data of cancer registries and research data.

Disease registers is an integral component of information systems. It is a part of the surveillance system for several diseases, but they have been more important, and successful, for cancer than for any other condition. There are three major two types of registries: (i) Population based cancer registry (PBCR) which collects information from multiple sources on all reported neoplasms occurring in a geographically defined population, (ii) Hospital based cancer registry (HBCR) which collects data on cancer patients attending for treatment one or more health facilities (iii) Pathology based cancer registry which collects newly diagnosed cancers from one or more pathology laboratories giving the earliest 'snap shot' picture of cancer profile.

At present there are two types of population based registries in Sri Lanka and they are the Sri Lanka Cancer Registry (SLCR) and the Colombo Population-Based Cancer Register. In 1980, NCCP became the formalized source for maintaining the Sri Lanka Cancer Registry (SLCR) which is the principal source of data for the entire country and gather data from cancer treatment centers from the public and private hospitals, pathology laboratories and Oral and Maxillofacial (OMF) units in the public sector⁹. In 1985 active data collection of hospital-based cancer incidence was commenced.

Cancer registration for the SLCR is based on a passive notification system mixed method of both active & passive notification system where the notified cancer cases are reported using Standard National Cancer Surveillance Forms (NCSFs) and data entered by the online portal (web data base NCCPSL) and/or electronic transfer of data. Data is entered and analyzed using a software recommended by IACR/IACR name CANREG 5 and a quality assurance system is established which enables international reporting and contributing to computing global burden of cancer and local burden⁹. SLCR is yet to incorporate entire private sector cancer incidence data and country wide cancer mortality data enabling international accreditation⁹.

The Colombo PBCR was established in 2012 and provides inputs to the SLCR. The revised NSP is focusing on initially strengthening the Colombo PBCR and scaling up in a phased manner to other locations based on the reporting trend and resources²¹. A new PBCR for the Northern Province has been initiated⁹. A hospital based registry (HBCR) is maintained at the main treatment center at the Apeksha Hospital in Maharagama²¹. The hospital Management Information System is operational in this hospital but the data collected through that system unfortunately does not support the hospital cancer registry and it needs to be integrated to generate data for the hospital based cancer registry. The revised NSP will strengthen this HBCR to provide valuable sources of information regarding methods of diagnosis, stage distribution, treatment methods, response to treatment, and survival and integrate it to the hospital MIS. Lack of infrastructure facilities and human resources hinder the smooth operation of the registry. Further, accurate information on cancer incidence is unobtainable because of case referral and population coverage issues as Apeksha Hospital is the epicenter for treatment⁹. Some provincial hospitals, like the Karapitiya Teaching Hospital will be supported to initiate a HBCR as there are medical records and existing information system is adequate for a cancer registry⁹. Indoor Morbidity and Mortality Register (IMMR) will also be linked to the HBCR⁹.

Registrar General's Department (RGD) which collects data on vital events through the civil registration system is a useful source which provides information on deaths from cancer in the population. The NCCP will develop a strong link with the RGs department which is mandated to register all deaths in the country. Data on deaths due to cancer in Colombo hospitals are reported to the Colombo based Cancer register by the Registrars of Deaths. However, mortality statistics are produced according to the underlying cause of death, which may not necessarily equate with the presence of a particular cancer. Yet, mortality data is useful for triangulation of data. In this scenario, a central level coordination of data management at the NCCP is a need.

The NCCP will work with relevant stake holders Ministry of Justice to enact legislations to make cancer a notifiable disease which will facilitate reporting to become mandatory. Therefore all institutions identified by the NCCP such as health insurance companies, department of Indigenous Medicine possessing cancer related data will be mandated to provide data to the SLCR.

STEPS survey provides population level data on behavioral and metabolic risk factors for chronic NCDs. The NCCP will coordinate with the NCD unit to integrate STEPS surveillance system into the cancer information system in order to provide evidence to be used for planning and monitoring national cancer prevention programmes as well as serving as an international standard for comparison purposes. The revised NSP is aiming to link cancer information system with other screening programs such as Cervical Cancer screening program of the FHB and data bases related to HPV and HBV vaccination to make optimal use of such data.

Defining the role of SLCR and the essential links from which it has to collect data to plan for effective action has to be identified. Similarly the strategic locations for new PBCR and HBCR and data bases for them have to be identified. Guidelines and formats have to be provided to gather complete, accurate and timely data for reporting without duplication and to maintain uniformity of data management and standards. The revised NSP is striving for infrastructure development and deployment of human resources. Staff training is necessary with a skill mixture especially to analyze collected data to document cancer patterns in the country, cancer burden, mortality rates, treatment pathways used and clinical outcomes, survival rates, evaluating trends in the cancer incidence over time, and for monitoring and evaluation of programmes which are valuable data for situation analysis, research on the causes and control of cancer and policy formulation.

Strategic Direction 6.1	Strategic information for monitoring & evaluation of national response to cancer prevention and control in Sri Lanka	
	Main activities	
	1	Establish a dedicated Strategic Information and Management Unit (SIM) at the NCCP with infrastructure and trained human resources
	2	Develop an Electronic Management Information System (eMIS) at the NCCP to monitor prevention & control of cancers in Sri Lanka

	3.	Maintain SLCR with linkages to all PBCR and HBCR, other surveillance systems and programmatic data from relevant sources
	3	Compile and disseminate information related to prevention & control of cancers using appropriate media using data visualization techniques to websites, social media using relevant dash boards and to print and electronic media and relevant stakeholders
	4	Generate Annual Reports, relevant sections of other regular publications (Annual Health Bulletin, Annual Performance Report of Ministry of Health Etc) appropriate to target audience in timely manner

Strategic Direction 6.2	Strengthening Population Based Cancer Registries (PBCR) to be in par with IARC /IACR standards	
	Main activities	
	1	Strengthening the Colombo based PBCR to generate timely reports and scaling up to other locations (Districts /Provinces) in a phased-out manner
	2	Update Standard Operational Procedures (guidelines with reporting formats, indicators) for PBCR according to the IARC/IACR standards
	3	Developing a plan for infrastructure and human resources and ensure resources are available to collect continuous, accurate, timely data and analyze for action
	4	Develop a training plan to train officers involved in cancer surveillance & death registration (hospital staff of public and private sector, death registrars etc) to provide comprehensive, timely, confidential data as per IARC/ IACR standards
	5	Link all PBCRs to Sri Lanka Cancer Registry (SLCR) to generate timely reports and link SLCR to NCCP e-MIS
	6	Continue the existing Collaborative Research Agreement with IARC to further strengthen PBCR initiatives

Strategic Direction 6.3	Establish HBCR in all cancer treatment centers and ensure reporting to SLCR	
	Main activities	
	1	Develop Standard Operational Procedures (guidelines with reporting formats, indicators) for initiating and maintaining HBCR
	2	Train staff of treatment centers on management of comprehensive and confidential data
	3	Monitor progress by NCCP and timely reporting to SLCR based on the identified indicators
	4	Establish Hospital based Paediatric cancer registry for Sri Lanka in par with Global Initiative for Paediatric Cancers
	5.	Link all HBCRs to Sri Lanka Cancer Registry (SLCR) to generate timely reports and link SLCR to NCCP e-MIS

Strategic Direction 6.4	Expand pathology based cancer registries to all pathology laboratories (Histopathology /Haematology /Oral Pathology) and ensure timely reporting to SLCR	
	1	Update Standard Operational Procedures (guidelines with reporting formats, indicators) to streamline pathology-based cancer registration
	2	Train staff at pathology laboratories on management of comprehensive and confidential data
	3	Monitor progress by NCCP and timely reporting to SLCR based on the identified indicators

Strategic Direction 6.5	Integrate cancer registry information system into electronic patient management information systems in CoE secondary and tertiary hospitals and link to NCCP e-MIS	
	Main activities	
	1	Select the variables that needs to be shared across hospital levels (from point of diagnosis & point of treatment) while maintaining confidentiality

	2	Incorporate relevant details to cancer registry information system from non-oncological settings where surgical or medical interventions are conducted (eg. Oro Maxilla Facial units, Gastro Intestinal Units, Genito Urinary Units, Neuro Surgical Units Etc)
--	---	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Strategic Direction 6.6	Improving the quality & coverage of cancer incidence & mortality data	
	Main activities	
	1	Ensure uniform latest coding of International Classification of Diseases (ICD) to code both morbidity & mortality of different cancers
	2.	Train staff of Medical Statistics Unit, NIHS, Registrar General's Department)on data collection, data entry and analysis
	3	Further strengthening cancer registry legal framework towards declaring as a disease for mandatory reporting

Strategic Direction 6.7	Linking e-MIS with information and surveillance systems of other relevant health sector facilities for prevention & control of cancers	
	Main activities	
	1	Integrate chronic NCD risk factor surveillance systems (STEPS survey, HLC Information System) to the NCCP information system
	2	Integrate cervical cancer screening information system to the cancer information system
	3.	Integrate HPV and HBV vaccination data to the cancer information system
	4	Integrate hospital dental clinic data on OPMD to cancer information system

Strategy 7- Research in Prevention and Control of Cancers

Strategic Objective 7

Promote research and utilization of its findings for prevention and control of cancers

Rationale

Cancer research in Sri Lanka is carried out to identify causes and develop policy and strategies for prevention, diagnosis, treatment and care, and cure. Cancer research was focused mainly on behavioral risk factors and the revised NSP is identifying the need to increase the scope to focus on all the pillars of cancer control continuum. It will focus on research on health systems and policies, epidemiological and laboratory research, clinical research to determine the effectiveness of clinical algorithms given in local guidelines and adherence to clinical guidelines, impact of treatment pathways and comparisons to select cost effective treatment modalities, drug toxicities and co-infections, radiation oncology, radiation safety measures. The NCCP is also seeking for research evidence on genetic aspects of cancers, health systems response to provision of services at different service levels to both adults and children, patient satisfaction, service providers attitudes, accessibility of services to all population groups equally and in a timely manner, waiting times for diagnosis, diagnostic assessments, availability of infrastructure and human resources and its impact on patient management, quality of life and survival rates. Since the revised NSP has given due consideration to survivorship, rehabilitation and palliative care research evidence on the implementation of such interventions and its impact will be useful to monitor and evaluate the progress and outcome. The NCCP requires the cooperation and collaboration of a wide group of stakeholders from the government health and non-health sector, professional colleges, academia, private sector, community including support groups, patients themselves and their families and caregivers.

Strategic Direction 7.1	Identify research priorities on prevention and control of cancer	
	Main activities	
	1	Strengthen the Research Committee by engaging multi-sectoral, multi-disciplinary stakeholders
	2	Develop a Research Agenda inclusive of all pillars of continuum of prevention and control of cancer

Strategic Direction 7.2	Promote a conducive environment for cancer research	
	Main activities	
	1	Disseminate research opportunities and priority areas through web pages, social media etc
	2	Promote Post Graduate trainees to test clinical algorithms
	3	Advocate for a research budget
	4.	Develop research infrastructure facilities
	5	Link with local organizations e.g. National Science Foundation, Atomic Energy Authority, Central Environmental Authority, to include cancer research
	6	Advocate to include an award for cancer research in Presidential Scientists Awards
	7	Build partnerships with International agencies e.g. IARC for collaborative research

Strategic Direction 7.3	Translate research evidence into practice to strengthen preventive services, treatment and care services	
	Main activities	
	1	Research committee to formulate recommendations to strengthen policy formulation and programme management
	2	Annual reports to highlight cancer research findings in Sri Lanka and gaps

Annex-1

Prevalence of cancer related risk factors in Sri Lanka and health and economic consequences

The STEPS survey of 2015 has highlighted the magnitude of the tobacco problem when it records that nearly 45.7% males of 15-69 years consume tobacco in either smoke or smokeless form¹¹. Among males 29.4% were current tobacco smokers and 26.4% were current smokeless tobacco users. In women smokeless tobacco use (5.3%) was more prevalent than tobacco smoking (0.1%). The Global School-based Health Surveillance System survey (GSBHSS) (2016) done among 13-17 year old students recorded the prevalence of current use of any form of tobacco to be 9.2% with 3.5% being current tobacco smokers and 2.3% were smokeless tobacco users.

Non-smokers who breathe in the smoke of others (also called second-hand smoke or environmental tobacco smoke) are at increased risk for lung cancer. GSBHSS reports that a significant amount (42.3%) of students was exposed to secondhand smoke as either a parent or guardians were smokers. Most of these products are imported from neighboring countries. The best approach to preventing tobacco-related cancer is preventing the uptake of tobacco in any form.

In 2015, the direct and indirect costs of tobacco related diseases was estimated to be SLR 89.37 billion (USD 662 million) and the cost related to cancers was SLR 16.3 billion (USD 121.1). Oral cancer which is associated with tobacco chewing habits is the commonest cancer among Sri Lankan males and was the major contributor to cancer costs of tobacco.

Harmful use of alcohol is associated with a risk of developing health problems such as alcohol dependence, liver cirrhosis, cancers and injuries and an enormous amount of social and economic consequences. Alcohol consumption has been identified as carcinogenic for the following cancer categories cancer of the mouth, nasopharynx, larynx, oesophagus, colon and rectum, liver, pancreas and female breast cancer. STEPS survey recorded that 39.6% males in the 18-69 year old group and 2.4% females were current alcohol users. In 2015, the estimated cost related to treatment of alcohol related disease and lost earnings due to mortality and morbidity caused by hazardous use was SLR 119.7 billion

(costs related to cancer was 9.8 billion and NCDs were 109.9 billion). In 2016, the total alcohol consumption per capita (≥ 15 year olds) was 4.3 liters of pure alcohol.

Physical inactivity among adults and school students was highlight in several survey reports. According the STEPS survey (2015) nearly 23% men and 38% women do not satisfy the WHO recommendations for physical activity. A third of women and one fifth of men are overweight or obese. Only 17.5% of the adult population consume WHO recommended daily healthy food servings¹¹. Diets consisting of high carbohydrate, high sugar, salt and trans-fat and high quantities of processed food, physical inactivity and sedentary lifestyles are associated with overweight and obesity. Overweight and obesity are the causes of several cancers. It was estimated that in Sri Lanka every year 52,000 years of healthy life are lost due to consumption of sugar sweetened beverages (SSB). Adult consumption of salt is two to three times higher than the recommended. The leading cause of death in Sri Lanka is ischemic heart diseases and the immediate risk factor for cardiovascular disease is hypertension or increased blood pressure and salt intake is the number one risk factor for high blood pressure. High salt intake is associated with gastric cancers.

NCD risk factors among children is rising with one in four students (26.2%) reported drinking carbonated soft drinks one or more times a day and 21% school children having admitted to consuming food from fast food outlets more than twice a week. Only 28% students have engaged in physical activities at least 60minutes on five or more days of the week. Nearly 38% spend more than three hours daily attending to activities involving sitting down.

Environmental toxic elements (such as arsenic, copper, lead, cadmium, and mercury) have a detrimental effect on health outcomes. High level of arsenic from contaminated drinking water and food has been linked to a wide range of cardiovascular and neoplastic conditions. Some air pollution sources including fumes and solid fuel may cause lung cancer. Exposure to carcinogens such as asbestos, diesel exhaust gases and ionizing and ultraviolet radiation in the living and working environment can increase the risk of cancer². Similarly, indiscriminate use of agrochemicals in agriculture and discharge of toxic products from unregulated chemical industries may cause cancer and other non-communicable diseases such as kidney disease. Data on these risk factors is sparse in Sri Lanka.

Human papilloma virus HPV is now a well- established cause of almost all cervical cancers. HPV is a sexually transmitted infection. HPV is a group of viruses that are extremely common worldwide—there

are more than 100 types, of which at least 14 cause cancer. In Sri Lanka, according to estimates made in 2018, the number of annual incidence cases for cervical cancer is 1136. Cervical cancer is the 2nd leading cause of female cancers and the 4th leading cause of cancer among women in the 15-44 year age group. Age standardized incidence rate of cervical cancer is 7.8 per 100,000 women per year. It is estimated that annually 643 deaths occur due to cancer cervix and is the second leading cause of death among women of all ages and 3rd leading cause of death among women in the 15-44 year age group. Genital warts due to low risk HPV types are the 3rd leading sexually transmitted infection in Sri Lanka.

Health infrastructure and workforce capacity.

There were a total of 23, 530 new diagnoses of cancer in 2018 and the total number of histo-pathologists in the country are 87 and they offer services for all other diseases as well and not only for cancer. The majority of the diagnoses (80%) are made in the public sector. Of the total only 57 are employed in the Ministry of Health and the others are attached to Universities, private sector or semi-government institutions. There is a mal-distribution of them among the government hospitals where 42% of MOH specialists are employed in the Western Province.

There are 70 consultant Haematologists in the country and 71% (n=50) are employed by the MOH. The distribution of them in the provinces is unequal. Currently there are 80 post graduate trainees and they may not be adequate to cover the national needs. The outcome would be that people from poor socio-economic settings and rural areas may not be able to enjoy continuum of care for cancer. Autologous bone marrow transplant is only available at the Apeksha Hospital. Allogeneic transplant services are not available in the public sector at present, although 2 centres are planning to start and the 3rd transplant centre is planned in Kandy. Both autologous and allogeneic bone marrow transplant services are available in the private sector. Flow cytometry facilities are available only in 6 hospitals and most of them are in the Western Province. MRD (minimal residual disease) detection by flow-cytometry is not performed in Sri Lanka, but it is planned to start at the Apeksha Hospital. Iimmuno-histo-chemistry (IHC) testing is available in Apeksha Hospital and in 8 other centers. The number of IHC markers for solid and hematological malignancies should not be limited and a continuous supply should be guaranteed.

There are 25 consultant chemical pathologists and 18 are attached to the MOH. Currently, there are 40 trainees in chemical pathology.

Standardized report templates are not used by any of these domains. There is no electronic system for result reporting in histopathology, haematology, and chemical pathology. This results in delays in issue of reports which has several consequences.

Sri Lankan oncology services are provided by clinical oncologists. There are currently 49 board certified oncologists practicing, 44 work in the public sector and 5 in the private sector. In addition, there are 2 paediatric oncologists. Although clinical oncologists are certified to practice medical oncology and radiation oncology, nearly one third of oncologists in Sri Lanka do not have access to radiotherapy facilities in the public sector. There are only 19.1 Radiation oncologists per 10,000 cancer population. Paediatric oncology and haemato-oncology are relatively new sub specialities in Sri Lanka. Currently, there are 18 board certified onco-surgeons and 6 gynecological -oncologists in practice.

Nuclear Medicine is available in 5 provinces and there are only 1.3 per 10,000 cancer population and Medical Physicists are only 11 per 10,000 cancer population. There is a shortage of radiologist especially females and it's a main obstacle for planning and effective implementation of national diagnostic imaging services and major challenge to establish a breast cancer screening programme.

Diagnostics are not in optimum numbers. There are only 33 mammography units that are functional and most of them are analogue, very few digital. Digital and 3D mammography with biopsy under suction were available, but are not used due to lack of disposables which are too expensive. Therefore only tru-cut biopsy is performed under advanced mammography. CT scans & MRI scans are – 20.4 and 8.9 per 10,000 population. PET/CT is sparsely available – 1.3 per 10,000 population. There are no SPECT/CT scanners for hybrid imaging.

The revised NSP aims to strengthen and scale up prevention offers which is the most cost-effective long-term strategy for the control of cancer while addressing the other approaches such as early detection, treatment, survivorship, rehabilitation and palliation.