



Moving from offline to online: addressing the cancer spectrum through the national strategic plan on cancer prevention and control, Sri Lanka – 2020-2024

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Abstract

Introduction: Sri Lanka is committed to achieving the global targets at the end of 2025 by a 25% reduction in premature mortality from cancer by intervening from prevention, early detection, treatment palliative care, and surveillance. Current Sri Lankan evidence shows a gradual increase of cancers where many are preventable by risk factor reduction. According to the data of the National Cancer Registry, Sri Lanka in 2019, there were 14,845 (47%) males and 16,989 (53%) females diagnosed with cancer with a total of 31844. One of the recommendations of the impACT review 2019 was to develop the NSP to achieve quality of life by preventing and control of cancer in Sri Lanka. National Cancer Control Programme, Ministry of Health, Sri Lanka gave the leadership to develop the National Strategic Plan (2020-2024) that provided a direction for the country for cancer prevention and control. **Methods:** Based on the local and international evidence initial draft was prepared by the NCCP. Feedback was obtained via emails and virtual meetings from all the stakeholders (medical professional colleges, UN organizations, non-government organizations, community-based organizations) due to COVID 19 physical meeting restrictions. This was followed by a series of virtual meetings with the same stakeholders and finalizing the document. **Results:** The NSP was developed for the year 2020-2024 as a guiding document for Sri Lanka's response to cancer control and prevention with a vision and a goal to be achieved in cancer prevention and control in the country. This docu-

ment has laid down seven strategic objectives and seven strategic directions to serve as pillars for the cancer spectrum with a detailed activity plan under each strategic direction. **Conclusion and recommendations:** The NSP was developed to reduce cancer incidence and mortality via evidence-based strategic objectives of prevention, early detection, diagnosis, treatment and palliation, surveillance, and research with an activity plan. It was recommended to have close monitoring, mid-term and end of five-year reviews to assess its progress.

Keywords: Cancer spectrum. Strategies. Action plan. Guidelines.

Introduction

The cancer incidence in Sri Lanka has continued to increase with time, resembling the global scenario. There is no country in the world where cancer does not occur. According to the data of the National Cancer Registry, Sri Lanka in 2019, there were 14,845 (47%) males and 16,989 (53%) females diagnosed with cancer with a total of 31844, resembling a two-fold rise from 2005. In the National Cancer Registry, Sri Lanka, the top cancers among males were Lip, tongue, and mouth (15%), which is the highest, followed by trachea, bronchus and lung cancer (8%), colorectal (9%), esophagus (9%), prostate (4%), pharynx (4%) and the top cancers in females were breast (27%), thyroid (13%), colorectal (7%), cervix (7%), uterus (6%), ovary (6%),

esophagus (5%) [1]. Cancer is ranked as the second leading cause of hospital deaths after ischemic heart disease in Sri Lanka during the last few years [2].

Sri Lanka is committed to achieving the globally set targets by 2025: A 25% reduction in premature mortality from cancer, 10% relative reduction in the use of alcohol, 10% relative reduction in the prevalence of insufficient physical activity, 30% relative reduction in mean population intake of salt /sodium, 30% relative reduction in the prevalence of current tobacco use in persons aged over 15 years, 80% availability of affordable basic technologies and essential medicines including generics and required to treat major non-communicable diseases in both public and private facilities [3].

In both developed and low-resourced countries carry out cancer control activities at different levels. An effective evidence-based cancer control plans are essential to improve the prevention of cancers, improve the quality of life as well as survival. The World Health Organization (WHO) defines a National Cancer Control Plan as a "public health program designed to reduce cancer incidence and mortality and improve the quality of life of cancer patients, through the systematic and equitable implementation of evidence-based strategies for prevention, early detection, diagnosis, treatment, and palliation, making the best use of available resources" [4].

The Sri Lankan government has prioritized cancer as a major health issue. Sri Lankan health system provides healthcare free of charge at the point of delivery and provides prevention, early detection, and treatment without any discrimination. This further complemented the system when adopting the Universal Health Care Policy in the country. The National Cancer Control Programme (NCCP), Ministry of Health, is the national focal point for the prevention and control of cancers in Sri Lanka. It is also responsible for policy and guideline development, advocacy, planning, monitoring and evaluation, surveillance, and facilitating research related to cancers while working with government counterparts, developmental partners, non-governmental partners, and community groups.

The comprehensive assessment of the NCCP, Sri Lanka was conducted through the integrated mission of Programme of Action for Cancer Therapy (imPACT review) with the partnership of the International Atomic Energy Agency (IAEA), the World Health Organization, and the International Agency for Research on Cancer in 2019. Following the review, a set of recommendations were given to improve the Cancer Control program in Sri Lanka to the cancer spectrum including the development

of a National Strategic Plan on Cancer prevention and Control (NSP) [5].

Therefore, this study aimed to formulate the National Strategic Plan (2020-2024) for the National Cancer Control Programme in Sri Lanka to cover the cancer spectrum.

Methods

The task of developing the NSP on Cancer Prevention and Control was led by the NCCP, Ministry of Health. Based on the inputs given by the imPACT review, NCCP drafted the NSP by considering the cancer burden, both local and international current evidence, and the existing gap analysis. The World Health Organization publication on "Cancer Control, Knowledge into Action: WHO Guide for Effective Programmes" was also considered in developing the Sri Lankan Cancer Control Plan [4]. This was followed by getting a technical partnership of a public Health consultant provided by the WHO, that helped to develop the initial draft with the NCCP team. The NSP was drafted to achieve the desired outcomes through the healthcare delivery system for the next five years. The NSP derives its mandate from the encircling National Health Policy (2016-2025), Strategic Framework for Prevention and Control of Chronic Non-Communicable Diseases (2010), National Policy & Strategic Framework on Cancer Prevention & Control - Sri Lanka (2015), and National Elderly Health Care Policy (2017) and harmonizes with several other health and non-health-related policies as several interventions are implemented through the integration of existing programs to increase the coverage and quality of activities while reducing the cost [6-10].

Several guiding principles were considered in developing the NSP. These guiding principles were: high-level political commitment, adopting a human right approach, gender sensitivity and protection of the right to health, protecting and promoting equity and social justice, universal health coverage, 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 approaches ensuring private public-private partnerships and community participation.

Unexpected country situation due to COVID 19 restricted physical meetings with a large crowd. Therefore, NCCP decided to have virtual meetings and electronic circulations of the documents for feedback from the stakeholders. Different area-specific experts were contacted separately to gather more local evidence under each strategic objective via virtual meetings. A list of prio-

riety activities under each strategic objective for the next five years, together with a framework of monitoring indicators was developed and the drafted NSP was circulated via emails among all the stakeholders for their inputs. These stakeholders comprised of government sector representatives, members of the National advisory committee on cancer prevention and control, relevant medical professional colleges, UN organizations, non-government organizations (NGOs), and community-based organizations (CBOs). A sufficient time was given for review and feedback. Further, several communications were done via emails/telephone calls for those who were not responding on time. Later, clarification was done based on their feedback where necessary, and updated drafts were circulated three times. In addition, NCCP conducted several virtual meetings with the above stakeholders depending on the requirements and clarifications where necessary. The final presentation was made with all the relevant stakeholders via a virtual meeting and the NSP was finalized. Finalized NSP has circulated again among all stakeholders to ensure no further editing was necessary before printing.

Results and Development

The involvement and participation of virtual meetings of experts representing different medical specialties and sectors including both public and private were significant during the development process of NSP. The participation of at least two meetings from each sector was observed and inputs from all sectors were almost 100% through the virtual model. The NSP is the guiding document for Sri Lanka's response to cancer control and prevention from 2020-2024 with concrete targets to reduce the number of new cancer cases, improve survival and improve the quality of life of cancer patients and their families.

The NSP has defined its vision, mission, and goal, seven strategic objectives, and seven strategic directions, and a detailed activity plan under each strategic direction. The vision is to see a country with a low incidence of preventable cancers, high survival rates with good quality of life and minimal disabilities, and suffering from the effects of cancers. The goal is set to reduce the incidence of preventable cancers, detect early detectable cancers at an early stage, and provide a continuum of cancer care to all cancer patients in the country in an equitable manner.

The seven strategic objectives identified for achieving this goal on cancer prevention and control:

Strategic objective one - National Cancer Control governance

The first strategic objective addresses the high-level political leadership, advocacy, and governance to accelerate the national response for prevention and control of cancer with a robust integrated, multi-sectoral, multi-disciplinary national program with community engagement. The leadership of political and policy levels have been identified to mandate integrating health in all national policies and plans across all relevant government ministries and departments for effective engagement of stakeholders in the national response and identified to ensure providing adequate financial sustainability and catalyze support from donor agencies as an investment case to maintain the integrity of policies and program objectives.

The NSP further identified NCCP as the central level 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. It also identified the necessity of coordinated national program at the central level to work with provincial health authorities that are the key players in implementation, other health ministry institutions, non-health sector ministries, non-government organizations, private sector institutions, community-based organizations, people living with cancer and their families, caregivers and the community. It identifies the restructuring of the National Advisory Committee on Cancer Prevention and Control with clear TORs and representation of the civil society after the imPACT review recommendations to guide the Ministry of Health in different areas of cancer control.

Further Technical Advisory Committee with a representation of relevant technical specialties including the private sector and civil society representatives for cancer prevention and control were identified to make recommendations for the National Advisory Committee. These technical committees are on prevention and screening, diagnosis and treatment, palliative care, and cancer registry with individual TORs.

Strategic objective two - prevention and reduction of risk factors for cancers

The second strategy aims to address primordial and primary prevention of cancers by addressing risk factors and determinants throughout the life cycle by cancer prevention interventions to eliminate or minimize exposure to the causes of cancer and reduce individual susceptibility to the effect of such causes. The life cycle

approach is addressed through the free health system which serves grass root level to tertiary level. The most important cancer-related modifiable behavioral risk factors are; use of tobacco and its by-products, use of areca-nut in the betel quid, harmful use of alcohol, unhealthy diet, physical inactivity, exposure to environmental factors causing outdoor and indoor air pollution, prevention of HPV infection and hepatitis B infection are addressed by this strategy.

Thereby the NSP aims to reduce these risk factors using interventions across the life cycle through a multi-sectoral approach by supporting the implementation of policies related to the reduction of risk factors, strengthening community action, and establishment of Health Promoting settings in schools, universities, vocational training centers, hospitals, workplaces, and communities by increasing health literacy and skills to adopt healthy lifestyles among people, especially those adopting unhealthy lifestyles and are at a higher risk of developing cancers. The NSP identifies the need in developing a Social Behaviour Communication Strategy to promote health messages in different health-promoting settings and strengthen already established activities.

The NSP has identified the monitoring of tobacco control legislation and strengthening of the National Authority on Tobacco and Alcohol Act of 2006 by the implementation of the MPOWER package. This includes the introduction of new regulations to prevent importation of varieties of tobacco and areca-nut preparations, new pricing policies such as excise tax increases on alcoholic beverages, regulating commercial and public availability of alcohol, restricting or banning on alcohol advertising and promotions, enforcement of laws on the sale of alcohol and tobacco to minors and drink driving offenses. Also, NSP is aligned with the promotion of breastfeeding which has a protective effect on the risk of developing breast cancers. The NSP is advocating for sustainability of the human papillomavirus (HPV) vaccination in the Expanded Program of Immunization and advocates to sustain immunization of at-risk healthcare workers for hepatitis B to prevent liver cancer.

Epidemiological evidence on the risk factors of other types of cancers, such as bladder cancer is more limited. Prevention of exposure to environmental risk factors is being addressed in this NSP by reducing outdoor air pollution under different activities including the surveillance of air pollution and prioritization is given for the health sector exposures especially to radiation and cytotoxic wastes and agriculture sector on pollution of soil. Municipal Councils, Ministry of Industry, Ministry

of Power and Energy, and Central Environmental Authority have been identified in the NSP on control of outdoor air pollution.

Strategic objective three - screening and early diagnosis

Ensuring screening and early diagnosis through improved health literacy of main top cancers among males and females, availability of services for rapid diagnosis of cancers, and linking to ensure early treatment and care is addressed under this objective.

The NSP strengthens the existing screening programs covering the country, such as Well Women Clinics and Healthy Lifestyle Clinics for breast cancer and cervical cancer screening. In addition, breast clinics that are attached to a base and above, gynecology and surgical clinics of hospitals providing opportunistic screening for breast, cervical and other cancers have been strengthened by the NSP. The present NSP highlighted and given priority for the existing clinical breast examination, done by a healthcare worker including the public health midwife as per the guidelines set by the Ministry of Health in the Well Women Clinics and Healthy Lifestyle clinics. It also identifies the need for providing skill-building programs to enhance knowledge and skills for self-breast examination for attendees and referring suspected cases to secondary or tertiary level for further assessment including mammography. Mammography screening is not in place for screening purposes except opportunistic screening in Sri Lanka.

Further, the current strategy identifies the establishment and strengthening of breast clinics in 26 hospitals covering the whole country to facilitate early diagnosis. In addition, the present NSP is addressing the need to initiate DNA-based genetic sequencing testing for BRCA -1 and 2 genes free of charge for women who are at a higher risk of breast cancer which is only carried out in the private sector at present.

The current strategy identifies the establishment of the Cancer Early Detection Center in each province. It is a one-stop clinic that doesn't require a referral note or have a waiting list to attend where screening is carried out without an age limit for breast, cervical, oral, and thyroid cancers. The current NSP addressed the strengthening of the national Cervical Cancer screening, which is delivered through the Well Women Clinic for 35 years and 45-year-old cohorts and screening of women in any age group, at island-wide STD/HIV clinics, in government gynecological clinics, private hospitals and by the Family Planning Association of Sri Lanka via opportunistic screening.

Furthermore, oral cancer screening is conducted through a targeted population at the district level and pri-

mary health level. The screening program is linked to a referral system from primary health care to centers providing specialized oral and maxillofacial facilities. The present NSP is taking steps to formalize a structured program for early detection of Oral Cancer with multisectoral participation. The mass media campaign included in the SBCC strategy has been identified to create public awareness on self-examination methods for early diagnosis of breast and oral cancer and access and availability of services for early detection of breast, cervical and oral cancer and stigma reduction. The rest of the top ten cancers are ensured early diagnosis and all necessary capacity building, quality assurance of screening programs and back referral systems have been ensured in the NSP for all cancers.

Strategic objective Four - Diagnosis and treatment

This strategy highlighted and ensured sustainable and equitable access to diagnosis and treatment and care facilities for cancers with all treatment modalities. It identified the need to increase accessibility and availability of diagnosis and comprehensive treatment and care by upgrading the National Cancer Care Institution and establishment of Center of Excellence (CoE) in each province which networks with treatment centers in other secondary and tertiary level hospitals. These CoE will serve as the hub for diagnostics and provision of a range of treatment and care for adults and children in each province while ensuring universal health access in each province. Under the increased accessibility and availability of diagnostics (laboratory and pathology, medical imaging) for cancer care, the strategy identified the care provider of medical devices for basic diagnostic radiology including nuclear medical imaging to all CoEs and other treatment centers.

Currently, radiotherapy is provided in seven CoEs only and the plan is to increase the number of linear accelerator (LINAC) machines to the other CoEs to accommodate the demand. Projections/estimations to further increase LINAC machines will be done by a panel of experts taking into consideration the estimated number of patients treated per year, the geographical distribution of disease burden, infrastructure facilities, and human resources availability. The scaled-up plan for Brachytherapy services and radioactive iodine therapy has been identified based on the disease burden, infrastructure facilities, and availability of resources.

The quality of medical oncology services has been ensured by continuous training, the application of evidence-based clinical guidelines, and medical audits.

An essential oncology medicine list is available to support chemotherapy services for adults and children. A continuous supply of medicines and other commodities for treatment and care was ensured by accurately forecasting and quantification by an expert committee and by linking treatment centers to the procurement supply chain of the central and Regional Medical Supply Divisions and e-MIS of NCCP. Human Resource (HR) plans prepared by each treatment center for all categories of staff have been identified in the Master HR Plan for cancer care.

The NSP identified that the establishment of a central nuclear pharmacy managed by a trained nuclear pharmacist. Trained physicists, diagnostic and therapeutic radiographers should be available at cost. It has identified the importance of continuous support of the IAEA for the training program for physicists to acquire skills in new technologies while the Sri Lanka School of Radiography trains radiographers. The NSP highlights the need to include medical engineers to be in charge of the maintenance of radiation equipment. NSP is also focusing on updating radiation safety regulations and monitoring its implementation at treatment centers. It also identifies the improved accessibility and availability of cost-effective evidence-based Pediatric oncology services and it will further explore the childhood cancer strategic plan.

It has been identified the ensure the safety of healthcare workers and patients who are exposed to radiation and cytotoxic materials with various activities including machine maintenance with source protection.

Strategic objective Five - survivorship, rehabilitation, and palliative care

Strategic objective five of the NSP ensured the access and availability of survivorship, rehabilitation, and palliative care facilities at all health service levels and at the community level for cancer patients and support to their families and caregivers. These activities are also identified under the palliative care strategic plan from 2019 to 2023.

The NSP identified effective integration of specialist palliative care for cancer across all levels of healthcare (tertiary, secondary and primary) and community level while developing knowledge and skills for palliative care among cancer treatment and care service providers. Further, a multisectoral partnership has been identified with other government organizations, NGOs, CBOs, and General Practitioners to provide basic palliative care. It also ensures the availability of essential drugs and technologies for the provision of palliative care at each level. Developing standard operating procedures has been identified for hospices and activities was identified to buildup private-public partnership to improve palliative

care. Training health care staff at all levels of care has been identified in the NSP.

Strategic objective six - cancer information systems and surveillance

Strengthening cancer information systems and surveillance to provide accurate and timely data to monitor the progress and evaluate the outcomes of cancer control actions have been identified under strategic objective six. Strengthening of central level focal point for Strategic information for monitoring and evaluation of national response to cancer prevention and control in Sri Lanka has been identified and the timely dissemination of reports is ensured. Strengthening National Cancer Registry (SLCR) with linkages to all Population-Based Cancer Registry (PBCR), Hospital Based Cancer Registry (HBCR), Pathology laboratory-based and other surveillance systems, and programmatic data from relevant sources were ensured in the NSP.

Strengthening PBCR to be on par with IARC /IACR standards was identified and the establishment of HBCR in all cancer treatment centers, and pathology-based cancer registries to all pathology laboratories (Histopathology /Hematology /Oral Pathology) to ensure timely reporting to SLCR. The integration of cancer registry information system into electronic patient management information systems in secondary and tertiary hospitals and link to NCCP e-MIS while Improving the quality and coverage of cancer incidence and mortality data with linking e-MIS with information and surveillance systems of other relevant health sector facilities for prevention and control of cancers have been identified. NSP also identifies the importance of capacity building for data extraction, entering, and analysis relevant to the cancer registry.

Strategic objective seven - research and utilization of its findings

The promotion of research and utilization of its findings for the prevention and control of cancers was identified under strategic objective seven. This strategy addresses the various research priorities on the prevention and control of cancer while ensuring a conducive environment for cancer research. Finally, it has given priority for translation research evidence into policy and practice to strengthen preventive, treatment, and care services in all identified cancer spectrum strategies.

Conclusion

The NSP focused on main strategic directions

and activities under high-level advocacy, prevention of exposing risk factors with monitoring and evaluation, early detection through cancer screening, timely diagnosis and quality treatment, palliative care, surveillance, cancer registry, and research to cover the cancer spectrum. It directs the establishment of a training system to enhance the skills of all categories including oncologists, relevant diagnostic clinicians, medical physicists, radiation therapists, and public health staff. It ensures radiation safety through the developed National Guideline on Radiation Safety for the Health Sector and using the TOR developed for the Radiation Protection Officers. A well-organized strategic direction maximizes the quality of services in all strategic directions and minimizes the long waiting list for diagnosis and treatment and palliative care. It is recommended to implement midterm and end of the term external review to assess the implementation of NSP.

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Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval

Not applicable. The current study analysed the development of National Strategic Plan on Prevention and Control of Cancers and other documents of the Ministry Health that is fully publicly available and the study did not involve a specific person or specimen.

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Author contributions

Janaki Vidanapathirana (JV), Malawige Amila Suranga (MA), Sashiprabha Nawaratne (SN) and Suraj Perera (SP) planned the study. JV and MA analysed documents. MA and SN helped with results writing. JV wrote the first version of the manuscript. MA and SN assisted in finalising the manuscript. All authors have read and approved the final version of the manuscript.

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Data sharing statement

No additional data are available.

