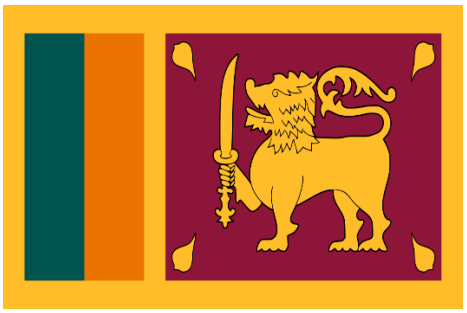
CANCER CONTROL CAPACITY AND NEEDS ASSESSMENT REPORT

SRI LANKA

imPACT Review Report



Submitted to the Ministry of Health

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IAEA International Atomic Energy Agency

International Agency for Research on Cancer

World Health Organization

World Health Organization

CONTENTS

ACRONYMS AND ABBREVIATIONS

ASR	Age Standardized Rate
BhCG	Beta Human Chorionic Gonadotropin
CME	Continuous Medical Education
CSO	Civil Society Organization
CT	Computed Tomography
DIRAC	Directory of Radiotherapy Centres
EPI	Expanded Programme of Immunization
EPHS	Essential Package of Health Services
FCTC	Framework Convention on Tobacco Control (WHO)
GAVI	Global Alliance for Vaccines
GICR	Global Initiative for Cancer Registry
GNI	Gross National Income
HBCR	Hospital-Based Cancer Registry
HBV	Hepatitis B Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IAEA	International Atomic Energy Agency
IARC	International Agency for Research on Cancer
LMI	Low and Middle Income (countries)
MoH	Ministry of Health
MRI	Magnetic Resonance Imaging
NCCP	National Cancer Control Plan/Programme
NCD	Non-Communicable Disease
NCISL	National Cancer Institute of Sri Lanka (aka Apeksha Hospital)
NGO	Non-Governmental Organization
OOP	Out of pocket payment
ORL	Otorhinolaryngology
PACT	IAEA Programme of Action for Cancer Therapy
PathBCR	Pathology-Based Cancer Registry
PBCR	Population-Based Cancer Registry
PSA	Prostate-Specific Antigen
RT	Radiotherapy
STEPS	STEPwise approach to Surveillance (WHO)
US	Ultrasound
VIA	Visual Inspection with diluted Acetic Acid
WHO	World Health Organization
WHO-PEN	World Health Organization Package of Essential Non-Communicable Diseases

EXECUTIVE SUMMARY

In July 2024, the Government of the Democratic Socialist Republic of Sri Lanka through the Ministry of Health and Mass Media (hereafter 'Ministry of Health') requested a national comprehensive cancer control capacity and needs assessment (imPACT Review), conducted jointly by the International Atomic Energy Agency (IAEA), World Health Organization (WHO) and International Agency for Research on Cancer (IARC).

The imPACT Review had several specific objectives: (i) informing the development of a new National Cancer Control Strategy and a National Radiotherapy Strategic Plan with evidence-based recommendations; (ii) assessing the health system financing for cancer control and exploring collaborative approaches with development partners, such as the World Bank, UN agencies, and bilateral donors; (iii) evaluating the supply chain management system for cancer medicines and essential commodities; (iv) reviewing ongoing prevention efforts, and assessing early detection initiatives, especially for cervical cancer; (v) examining the needs and capacities of childhood cancer programmes, major cancer hospitals, and the oncology workforce; and (vi) assessing the state of palliative care services at national and provincial levels, across all tiers of the health system.

Health System Overview

Sri Lanka's health system is predominantly public. The public sector offers free care at the point of delivery and constitutes 95% of inpatient and 50% of outpatient services. Governance is shared between the central Ministry of Health, responsible for policy, tertiary care, and oversight, and nine provincial ministries managing primary and secondary care. The country has a well-structured hospital network, with over 1 200 public facilities, ranging from national hospitals to primary care units. Still, health financing remains modest, with government spending averaging 5.5% of national expenditures and 1.4–1.8% of GDP, leading to high out-of-pocket costs (46.8% of current health expenditure), which is particularly burdensome for non-communicable diseases like cancer[1].

Sri Lanka has made strides in digital health, with the rollout of the Hospital Health Information Management System (HHIMS) and plans for a National Electronic Health Record. The health workforce has expanded significantly, with notable increases in medical personnel. Education and training system is robust, with nine medical faculties and a strong postgraduate system. Access to essential medicines is coordinated through the State Pharmaceutical Corporation and the Ministry of Health Medical Supplies Division, although challenges persist, particularly regarding cancer drug availability and logistics. Gaps remain in insurance coverage, especially for informal workers, and in ensuring equitable access to advanced treatments and technologies.

Burden of Disease

Sri Lanka is experiencing a rising cancer burden, with 33 243 new cases and 18 992 cancer-related deaths reported in 2022, according to GLOBOCAN. The most common cancers among men were lip and oral cavity (12.6%), lung (10.6%), colorectal (7.3%), oesophageal (7.1%),

[1] Ministry of Health of Sri Lanka, National Health Account 2017-2018, 2022, URL: https://www.health.gov.lk/wp-content/uploads/2022/08/National-Health-Accounts-Sri-Lanka-Final-version-23.06.2022.pdf

and prostate (6.5%), while women were most affected by breast (26.0%), cervical (9.0%), thyroid (8.0%), colorectal (8.0%), and ovarian cancers (7.4%)[2]. Paediatric cancers accounted for 691 cases, with leukaemia being the most prevalent. Projections indicate a 14.2% increase in cancer incidence and a 16.3% rise in mortality by 2030, with even steeper increases expected by 2045. These estimates highlight the need for strengthened cancer control strategies in Sri Lanka.

National Cancer Control Planning, Governance, and Financing

The National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (NCCP) 2020-2024 emphasized high-level political leadership, advocacy, and governance, along with multi-sectoral and community engagement. Key areas were primary prevention, improved screening and early diagnosis, access to treatment and care, and enhanced survivorship, rehabilitation, and palliative care. The NCCP was well integrated with other national health plans and highlights the importance of strengthening cancer information systems, promoting research, and utilizing outcomes and lessons learned for improved cancer control.

Despite the strengths of the NCCP, several gaps were identified, including financing and alignment of resource utilization and service delivery due to, for example, a lack of standardized national cancer care guidelines. The COVID-19 pandemic and economic crisis have adversely impacted health investments, however, there are signs of increasing resource allocation for health. Financing for cancer care is primarily provided through the national health budget, but specific budget lines for cancer expenditures are lacking, making it difficult to track actual spending. Challenges in budget management, procurement delays, and stockouts of essential medicines were noted. To address these challenges, Sri Lanka should strengthen expenditure tracking and institutionalize activity-based costing for cancer services.

Cancer Registration and Surveillance

Sri Lanka's cancer registration oversight and coordination is conducted through the MOH Directorate of the National Cancer Control Programme. Though cancer is not a notifiable disease in Sri Lanka, reporting is mandated by an administrative circular of the Ministry of Health. The reporting is through two population-based cancer registries (PBCRs): Sri Lanka Cancer Registry (SLCR), which reports data from all the public sector points of diagnosis and treatment, located across the country; and Colombo PBCR, which reports data of the newly diagnosed cancer cases among residents of the Colombo district, collected from both public and private points of diagnosis and treatment. Neither fulfils all the essential elements of PBCR and generates limited information on incidence rates, mortality data, and clinical parameters. Gaps in the outcomes data on follow-up of cases limits the analysis of survival rates. There are also gaps in the workforce requirements for the cancer registry.

Cancer is not a notifiable disease in the country, which would help with regular, accurate and timely reporting at national and regional levels. The opportunity to improve the system includes focusing on the broad number of institutions possessing relevant cancer data. In addition to hospitals, this includes health insurance agencies, cancer screening programmes and the vital

[2] *"Sri Lanka Fact Sheet,"* Global Cancer Observatory, February 8, 2024, https://gco.iarc.who.int/media/globocan/factsheets/populations/144-sri-lanka-fact-sheet.pdf.

statistics office. All these stakeholders should be considered while drafting the cancer registry legal framework to establish cancer as a notifiable disease.

Prevention

The country faces a high cancer burden driven by modifiable risk factors like tobacco, alcohol, areca nut use, poor diet, and inactivity, with recent surveys showing rising prevalence. Projections indicate Sri Lanka is unlikely to meet SDG targets on noncommunicable diseases (NCDs), despite having a national strategy aligned with WHO recommendations. Sri Lanka's national HPV vaccination programme targets 11-year-old girls with a two-dose Gardasil schedule delivered through schools, achieving over 90% first-dose coverage, yet only 40–50% for the second dose (due to incomplete reporting). Despite WHO and GAVI endorsements of a single-dose schedule, Sri Lanka has not transitioned due to regulatory concerns. To improve outcomes of cervical cancer, Sri Lanka should adopt the single-dose HPV schedule in 2025, supported by a policy roadmap, updated training and communication tools, and catch-up vaccination strategies, leveraging global evidence of its cost-effectiveness and long-term efficacy. Establishing an inter-ministerial government body reporting to the Prime Minister/ Parliament is recommended to address commercial determinants of health to control NCD/cancer modifiable risk factors, using the whole of government and whole of society approach.

Sri Lanka with the highest incidence of lip/oral cavity cancers among men requires redoubling of efforts in terms of smokeless tobacco control. In 2017, Sri Lanka implemented a ban to both imported and locally produced smokeless tobacco products and locally produced betel quid is officially banned since 2016. Smokeless tobacco products are widely available at a very low cost. Implementing national awareness campaigns against their use is challenging due to the generally accepted societal norms. Betel quid, in particular, is a deeply ingrained lifestyle habit, predominantly chewed by the elderly and rural communities, including both men and women.

Early Detection

Sri Lanka has made progress in early detection of cervical, breast, oral, and colorectal cancers, guided by national strategies in line with international targets, such as the WHO's '90-70-90' cervical cancer targets by 2030. However, systemic challenges persist, including delays in Pap smear results, staff shortages, and fragmented data systems. Breast cancer detection is hindered by late diagnoses and limited access to diagnostic tools, while oral cancer remains prevalent among men and low-income groups, with many cases detected at advanced stages. Colorectal cancer is on the rise, yet lacks a structured early detection pathway, leading to poor outcomes. To address these gaps, Sri Lanka should focus on strengthening early-diagnosis pathways for symptomatic individuals through clear referral protocols, streamlined diagnostics, and regional diagnostic hubs. The phased, capacity-sensitive approach will improve timely care and lay the groundwork for future population-based screening programmes.

Diagnostic Imaging and Nuclear Medicine

Diagnostic imaging and nuclear medicine are vital components of cancer care in Sri Lanka but face major challenges in infrastructure, workforce, and quality assurance. Services are heavily concentrated in the Western Province (in and around Colombo), leading to limited access and long wait times elsewhere. Key institutions like National Cancer Institute of Sri Lanka (NCISL) and the National Hospital of Sri Lanka struggle with outdated equipment, staff shortages, and

limited integration of imaging systems with electronic medical records. The country has only 200 radiologists (including 70 working abroad), 10 interventional radiologists, and 3 nuclear medicine physicians, with no in-country subspecialty training and radiopharmacy roles often performed by undertrained staff. While there has been progress since the 2019 imPACT Review, including infrastructure expansion and picture archiving and communication system (PACS) adoption, nuclear medicine remains underutilized due to workforce and equipment constraints. The limited quality assurance systems and unclear professional roles further hinder service delivery. To sustainably scale up cancer imaging, Sri Lanka must invest strategically in workforce development, training, equipment maintenance, and integrated quality control systems.

Pathology and Laboratory medicine

Pathology and laboratory medicine services in Sri Lanka are divided into four independent specialties (Histology, Haematology, Biochemistry, and Microbiology) without a unifying professional body. While the NCISL leads in advanced cancer biomarker testing, nationwide services face severe understaffing, outdated infrastructure, and long turnaround times for tests. Many junior pathologists trained abroad do not return due to low salaries and placements in rural postings. Equipment across hospitals is often obsolete, with delays in repairs and reagent supply, and essential services like immunohistochemistry and cytology are limited to major centres. Although Biochemistry and Microbiology services are generally functional, infection control and quality management practices need strengthening. The lack of standard operating procedures and functional laboratory information systems further increases the risk of diagnostic errors. Strategic investment in workforce development and retention, infrastructure upgrades, and quality assurance systems is essential to improve diagnostic capacity and reliability.

Medical Oncology

Public cancer centres are overburdened, facing workforce shortages, overcrowding, limited ICU capacity, and frequent infections, all negatively impacting treatment outcomes. Delays in outpatient care are common, driven by long waiting lists for chemotherapy and radiotherapy, medication shortages, and inconsistent drug quality. Although an essential cancer drug list exists, frequent stockouts and the absence of an independent quality control system undermine treatment reliability and public trust. The oncology workforce, while skilled and committed, is insufficient in number, leading to burnout, poor retention, and reduced capacity to staff regional centres or partake in multidisciplinary care. A lack of support staff and oncology-trained nurses further strains the system, limiting specialists' time for direct patient care and compromising the overall quality of cancer care.

Surgical Oncology

Surgical oncology is delivered within a broader cancer care system that is under significant strain, particularly in the public sector where services are free for patients but capacities are often limited. All cancer centres function beyond their intended capacity, with critical shortages of physicians, nurses, and support workforce. These constraints lead to long waiting times for surgery, delays in diagnosis due to limited imaging and pathology resources, especially immunohistochemistry, and treatment interruptions attributed to shortages of essential medications and inconsistencies in drug quality. Overcrowded inpatient wards, limited

intensive care unit (ICU) capacity, and suboptimal infection control practices further undermine the quality of surgical outcomes.

Although cancer physicians and staff demonstrate commitment and competence, the current oncology workforce is insufficient to effectively manage the high workload. In addition, extended working hours, limited resources and low remuneration have contributed to the attrition of oncology specialists and reduced retention of trainees. The shortage of support staff, social workers, and oncology-trained nurses also pose additional burden on physicians. The shortage of oncologists has had significant impact on oncology care including inability for adequate staffing at regional centres, reduced multi-disciplinary coordination and participation at tumour boards as well as delays in health care delivery.

The formal training of the surgical oncologist in Sri Lanka is of a high standard. To complement this provisions should be made to sustain and upscale the continuous medical education. The purpose should be to establish and maintain sub-speciality service at least within the tertiary-level cancer hospitals. Attention to training should be given to allied specialists like anaesthesiologists, as well as nursing staff. To provide a holistic approach, rehabilitation (e.g., speech and voice rehabilitation) and patient education services should also be in place.

Radiation Oncology

Sri Lanka is projected to have 34 482 new cancer cases in 2025[3], with approximately half requiring radiotherapy. For this burden the country would need an estimated 35 external beam radiotherapy machines (currently 21 are installed), 69 radiation oncologists, 44 medical physicists, and 70 radiotherapy technicians. Currently, there are nine radiotherapy centres, seven public and two private, with the NCISL serving as primary national cancer hospital. Despite infrastructure improvements, challenges persist, including outdated equipment, slow development of new centres, and limited brachytherapy services. Human resource shortages are significant, with 34 clinical oncologists (dedicated for radiation oncology)[4] and 36 medical physicists employed in radiotherapy centres. While the number of radiotherapy technicians is currently sufficient, more will be needed with the future equipment expansion. Equipment maintenance and quality control are ongoing issues, with many machines awaiting repair and outdated dosimetry systems. Additionally, there are no regular postgraduate or continuing education programmes for radiotherapy professionals. Addressing these gaps through strategic investment in infrastructure, workforce expansion, and training is essential to ensure timely and effective radiotherapy services.

Paediatric Oncology

Sri Lanka has made significant progress in childhood cancer care through strategic partnerships with WHO and St. Jude Children's Research Hospital, culminating in the development of a dedicated National Strategic Plan (2021–2025) and the establishment of a Technical Advisory Committee. Despite these advances, challenges remain, including limited specialist workforce, fragmented referral systems, and irregular access to essential medicines and diagnostics. The country is now positioned to scale up efforts through initiatives like the

[3] Global Cancer Observatory, IARC.: Estimated Cancer Incidence, Mortality and Prevalence 2022

[4] Radiation oncology in Sri Lanka is not a separate discipline. Clinical oncologists are certified to deliver both chemotherapy and radiotherapy. The precise number of clinical oncologists practicing radiation oncology on full time basis was not available.

Global Platform for Access to Childhood Cancer Medicines (GPACCM), while also strengthening multidisciplinary care networks, data systems, and survivorship support. Continued investment in infrastructure, workforce development, and policy integration is essential to ensure equitable, high-quality care for all children with cancer across Sri Lanka.

Palliative Care

There has been a significant development in the field of palliative care with strong support from the Ministry of Health and NCCP leadership. Health professionals, especially consultant oncologists and physicians with interest in palliative care, have played a key role in advancing the field. However, the absence of dedicated consultant palliative care physicians remains a major obstacle. The introduction of the Public Health Nursing Officer (PHNO) model for NCD care, including palliative care services at the community level, and increased access to essential medication will help patients and families, especially in remote areas.

Radiation Safety

Sri Lanka has a draft regulation, yet the regulatory framework for radiation protection and safety needs strengthening. While the Sri Lanka Atomic Energy Board provides key services like dosimetry and calibration, the regulatory authority (The Council) has yet to implement a formal system for authorizing technical service providers or enforcing compliance. Although the Council has the capacity to regulate medical radiation facilities, it lacks structured staff training and an integrated management system, leading to inconsistent regulatory decisions. The absence of a formal enforcement policy further weakens oversight. Within hospitals, radiation safety practices are hindered by unclear responsibilities, limited monitoring expertise, and inadequate equipment. The lack of national certification for medical physicists and their minimal role in diagnostic radiology raise concerns about patient safety. Quality assurance measures, such as QC testing and Diagnostic Reference Levels (DRLs), are largely missing. Although some training is available, it is irregular and lacks a structured competency framework. Addressing these systemic gaps is essential to ensure the safe, effective, and compliant use of radiation in healthcare.

PRIORITY RECOMMENDATIONS

National Cancer Control Planning, Governance and Financing *[WHO can be approached for assistance in this area]*
• Establish an intergovernmental body covering health, finance, agriculture, food processing, information and media communication, justice and related ministries, with a clear mandate and adequate resources to address the social and commercial determinants of health and reduce the prevalence of risk factors for cancer, and broadly NCDs.
• Develop the next NCCP covering 5 or 10 years and align with the National Health Strategic Master Plan 2026-2035 and other relevant national policies and strategies, and apply lessons learned from the previous NCCP implementation.
• Expand Cost-of-Illness (COI) studies by conducting research across a broader range of cancer types and care settings to better understand the burden on both patients and the health system, and to identify interventions to improve UHC. Research should extend beyond NCISL to reflect more representative service delivery contexts, and findings should be compiled in a centralized national repository to inform budgeting, advocate for targeted cancer funding, and support ongoing research.
• Improve costing and forecasting by enhancing hospital-level activity costing and aligning procurement forecasts with actual service demand. Apply tested methodologies to identify barriers and policy solutions to improve access to essential cancer medicines and ensure more accurate, needs-based procurement.
• Strengthen monitoring of budget execution by introducing a quarterly cancer budget tracking system to assess how cancer funds are used at the programme level to improve accountability, identify implementation bottlenecks, and enable timely reallocation of unused resources.
Cancer Registry and Surveillance *[IARC can be approached for assistance in this area]*
• Systematically apply the provisions of the General Circular No. 01-44/2020 to source information related to identified cancer cases from all private cancer centres and pathology laboratories, national cancer screening programmes, cancer early detection centres, hospitals for indigenous medicine and health insurance agencies.
• Establish NCISL Hospital-Based Cancer Registries (HBCRs) by assigning staff for data abstraction using the HIMS system, forming a collaborative HBCR implementation team with clinicians and the Hospital's Health Information Unit, maintaining regular communication to ensure data completeness and resolution of complex cases, publishing the HBCR annually, integrating registry data into NCISL's institutional profile, and promoting the use of registry data for research.
• Support the NCISL paediatric oncology team to strengthen the HBCR for childhood cancer and advance the establishment of a population based paediatric cancer registry.

• Establish HBCRs at National Hospital Galle (previously known as Teaching Hospital - Karapitiya) and at least 2 other public sector cancer treatment centres.
• Strengthen cancer registration and surveillance through the proposed Memorandum of Understanding between the Ministry of Health and Vital Strategies for population-based cancer registry, with technical support by the IARC Regional Hub.
• Align cancer registry implementation with the national digital health blueprint and integrate with the proposed National Electronic Health Record (EHR).
• Ensure continuous training of cancer registry staff on/through: i) annual review meetings of cancer registry data (HBCR/PBCR); ii) principles and methods of cancer registry; data management, data analysis and data dissemination trainings; iii) creation of opportunities through regional and international courses organized by the International Agency for Research on Cancer (IARC), International Association of Cancer Registries (IACR) and the IARC regional hub of Global Initiative for Cancer Registry Development (GICR).
Prevention *[IARC and WHO can be approached for assistance in this area]*
• Establish a National Advisory Committee on tobacco, alcohol and areca nut, as a sub-committee of the National Advisory Board for NCDs, to oversee and provide technical guidance/design.

• Transition to a single-dose HPV vaccination schedule by 2025, aligning with WHO guidance and global/regional best practices:
  ○ Convene the Advisory Committee on Communicable Diseases (ACCD) to formally review global evidence and country-specific modelling data;
  ○ Develop a national policy roadmap for transitioning to a single-dose, including communications, procurement forecasting, and operational planning; and,
  ○ Update training materials, consent forms, and IEC tools to reflect the change and explain the scientific evidence for the shift.

• Strengthen Information, Education, and Communication (IEC) activities to improve vaccination uptake through a comprehensive communication strategy:
  ○ Collaborate with UNICEF, WHO, civil society organizations, media outlets, and education authorities to design and deliver targeted education campaigns;
  ○ Develop a crisis communication strategy modelled after the WHO framework used for polio. Address vaccine safety concerns, misinformation, and shifts in public trust and confidence; and,
  ○ Institutionalize communication strategy through dissemination to policymakers, educators, public health personnel, and health workers at all levels, and include in training curricula and community outreach protocols.

• Implement policy options, cost-effective interventions for each of the four key risk factors for NCDs (tobacco, harmful use of alcohol, unhealthy diet and physical inactivity) as guided by the WHO publication *Tackling NCDs: best buys and other recommended interventions for the prevention and control of noncommunicable diseases.*
Early Detection *[For matters related to diagnostic imaging, IAEA can be approached; for others, IARC, WHO can be approached for assistance]*
• Promote and strengthen cancer early diagnosis strategy, i.e. focus on detecting symptomatic patients as early as possible so they have the best chance for successful treatment. [This strategy should not be confused with the cancer screening strategy. For more on the strategies and distinctions please consult the WHO publication *Guide to cancer early diagnosis (2017)*].
• Breast Cancer: Reduce Delays in Diagnostic and Treatment Pathways: Implement an early diagnosis pathway ensuring that all women with suspected breast lesions receive complete investigations (CBE, imaging, and biopsy) within 14 days of registration at a breast clinic, with hospitals pre-allocating diagnostic slots; initiate treatment promptly at the earliest available surgical or oncology clinic, with multidisciplinary coordination for complex cases.
• Cervical Cancer: Gradually shift to HPV DNA testing as the primary method for cervical cancer screening by revising national guidelines and phasing out cytology-based screening across regions; identify a sustainable financing strategy for implementation; and incorporate self-sampling options to enhance accessibility and acceptability, especially in hard-to-reach areas.
• Oral Cancer: Design education and awareness campaigns specifically for high-risk and low-literacy populations, especially for male estate workers and/or remote area residents. Partnerships with community groups and local influencers should be leveraged to promote early presentation and stigma reduction.
• Colorectal Cancer: Prioritized outreach and access support for high-risk and underserved populations, including transport assistance and awareness campaigns in rural areas.
Diagnosis (Pathology and Laboratory Services) *[WHO can be approached for assistance in this area]*
• Establish national standards, guidelines and implementation plan to strengthen Histopathology, Microbiology, Haematology, and Biochemistry.
• Increase utilization of existing PCR machines (from COVID-19 era) for HPV DNA testing and ensure regular availability of reagents and technician training.
• Replace outdated laboratory equipment (>10 years).
• Shift from FNAC to core biopsies for tissue diagnosis to improve diagnostic accuracy.

Diagnosis (Diagnostic Imaging and Nuclear Medicine) ***[IAEA can be approached for assistance in this area]***
• Establish a quality control system, led by the Ministry of Health, by engaging medical physicists to carry out duties in line with IAEA guidance documents.
• Establish radiology subspecialty units (e.g., musculoskeletal, breast, body, cardiothoracic, neuroradiology, paediatric, interventional) to improve care and enhance residency training.
• Establish a radiopharmacy training programme, with technical guidance by the IAEA.
Treatment (Medical Oncology) ***[WHO can be approached for assistance in this area]***
• Institutionalise MDT meetings at all cancer centres, guided by standardized national protocols. Ensure participations from all key specialties, including radiologists, oncologists, surgeons, pathologists, nurses, palliative care specialists, and other relevant cancer workforce. These meetings should be part of routine clinical audits with quality assurance.
• <u>Improve access to quality oncology medications:</u> o Purchase drugs that are independently certified, such as by the US Food and Drug Administration (FDA) or European Medicines Agency (EMA); o Ensure that all medicines on the 'Priority List for Pharmaceuticals' and 'Essential Cancer Drug List' are routinely available. Develop a contingency plan for procurement of drugs, e.g. from the private sector; and, o Strengthen medicines tracking system to include private sector purchases. Further refinements in the tracking of medicines is needed in both public and private sectors to improve forecasting and drug acquisition. Use objective medical data and input from consultant oncologists to improve treatment options by adding effective medications to the priority list.
• <u>Strengthen infection control measures</u>: o Develop appropriate isolation for patients at high risk for nosocomial infections, particularly neutropenic patients, to decrease nosocomial infections and infection-related morbidity and mortality; o Apply risk-based cohorting to determine inpatient ward assignment; and, o Develop a comprehensive infection control programme at each hospital through a working group of oncologists, ward nurses, microbiologists, and other key stakeholders. Develop short- and long-term action plans based on current infrastructure and resources.
Treatment (Radiation Oncology) ***[IAEA can be approached for assistance in this area]***

• Train clinical oncologists, medical physicists and RTTs to enhance their skills and knowledge on the transition from 2D to 3D radiotherapy, including IMRT.
• Share the current upgrade and procurement plan with the IAEA and Sri Lanka College of Oncologists, and collaborate in planning and establishing of new centres, and upgrading of current facilities.
• Ensure regular supply of radiotherapy positioning aids, dosimetry and QA equipment and supplies, such as films and TLD chips, brachytherapy applicators and catheters.
Treatment (Surgical Oncology) ***[WHO can be approached for assistance in this area]***
• Ensure continuous medical education opportunities are available and funded with government support through participation at international conferences, workshops and trainings for cancer professionals (surgeons and allied health personnel) to update their skills and knowledge. Utilise online platforms to establish cooperation and enable exchange of experience and practice with regional and global surgical **centres** of excellence.
• Establish patient support programmes such as post-operative rehabilitation, patient education in managing stomas and tracheostomies, speech and voice rehabilitation support as well as nutritional programmes for patients, particularly those with head and neck and gastrointestinal cancers.
• Conduct cancer-specific training courses for general and gastro-intestinal (GI) surgeons in particular (and in due time for other specialists who provide cancer surgery) to standardize surgical clinical management among non-oncologic surgeons. *(Interim measure to fill the existing gap until there are enough onco-surgeons in the country)*
• Address waiting times and implement quality improvement measures through systematic process. For example, establish cancer surgery improvements with quality indicators[5] and establish databases in all cancer facilities on surgical procedures where data on quality measures like waiting times for surgery, perioperative mortality and complication rates, surgical margin positivity, lymph node yield, etc. are systematically collected and periodically analysed.
• Ensure continuous medical education opportunities are available and funded with government support through participation at international conferences, workshops and trainings for cancer professionals (surgeons and allied health personnel) to update their skills and knowledge.

[5] Quality Indicators for Evaluating Cancer Care in Low-income and Middle-income Country Settings: A Multinational Modified Delphi Study. Lancet Oncol. 2024 Feb;25

Utilise online platforms to establish cooperation and enable exchange of experience and practice with regional and global surgical **centres** of excellence.
Paediatric Oncology *[WHO and St Jude can be approached for assistance in this area.]*
• Establish a National MDT for paediatric cancer with all disciplines/specialties and defined criteria to formalize and support regularly scheduled meetings.
• Formalize the Shared Care Network (for paediatric oncology) with designated roles to address follow-up and supportive care needs for children and families.
• Strengthen national policies/strategies integrating needs of children with cancer in line with the National Strategic Plan for Childhood Cancer for Sri Lanka for 2026 and beyond.
• Strengthen cancer health literacy and peer networking through education of nurses or patient navigators to improve outcomes.
Palliative Care *[For palliative RT and for image–guided palliative procedures (e.g., image–guided biopsies of suspected metastases; image–guided placement of central venous catheters for certain essential medicines) IAEA can be approached; for other areas, WHO can be approached]*
• Finalize and adopt the National Policy on Palliative Care and National Strategy, with specific needs related to cancer, in alignment with the National Strategic Plan for Cancer Prevention and Control.
• Strengthen paediatric palliative care in centres caring for children by increasing the training opportunities for oncologists, doctors and nurses working in the field of paediatric oncology.
• Optimize the use of beds in the nine hospices through collaboration of hospitals with PCCS, developing a referral, support and supervision system.
Radiation Safety Considerations
• The Government should complete the regulatory framework for safety by establishing regulations to complement the Act; the requirements related to occupational and medical exposure control are of particular importance. *[Basis: GSR Part 1 (Rev. 1), Requirement 2 and 33; GSR Part 3, Requirements 2 and 3]* *[Basis: GSR Part 1 (Rev. 1), Requirement 13; GSR Part 3, Requirements 20]*
• The Council should establish a regulatory framework for the authorization of technical service providers, including those offering calibration services, internal monitoring, and workplace monitoring. This framework should also cover the authorization of services provided by the Board, where applicable.

- The Council should develop a comprehensive, systematic training programme for its staff and make arrangements to build and maintain competencies in the disciplines needed for regulatory control, particularly for new and more complex radiation technologies used in radiation medicine.

[Basis: IAEA GSR Part 1 (Rev. 1), Requirements 11 and 18]

- The Council should develop, implement, and continuously improve its Integrated Management System that is compatible with international requirements and appropriate for its size and the scope of its regulatory functions and activities.

[Basis: IAEA GSR Part 1 (Rev. 1) Requirement 19, GSR Part 2, Requirements 7-10]

- The Council should develop and implement an enforcement policy within the legal framework for responding to authorized party's non-compliances with regulatory requirements or with authorization conditions.

[Basis: GSR Part 1, Requirements 30 and 31]

1. THE REVIEW

1.1. PURPOSE

The specific scope and objectives are agreed and tailored based on the national context, priorities and needs, under the following general framework:

- Assess national capacities and needs in cancer control across cancer continuum.
- Gain overview of national regulatory infrastructure for medicines, safety of radiation sources, and security of radioactive material in use.
- Identify opportunities for partnerships and resource mobilization in the area of cancer control.
- Identify opportunities for programmatic support and advisory services that can be provided by IAEA, IARC and WHO in follow up to the imPACT Review.

Additional specific objectives related to the Sri Lanka context are:

- Review progress made from the previous imPACT Review conducted in 2019.
- Inform the development of the new National Cancer Control Strategy, through up-to-date situation analysis and priority evidence-based recommendations.
- Inform the development of the new National Radiotherapy Strategic Plan through up-to-date situation analysis.
- Review current health system financing for cancer control and explore potential collaboration from development partners (e.g., World Bank; UN agencies) and bilateral donors.
- Review current system of supply chain management as it pertains to cancer medicines and essential cancer diagnostic and treatment commodities.
- Review ongoing prevention efforts as part of the community and primary health care, focusing on immunization, tobacco/betel nut control programmes and other NCD/cancer risk factors.
- Review early detection efforts focusing on cervical cancer.
- Review needs and capacities of the childhood cancer(s) programme in view of the ongoing activities under the WHO Global Initiative.
- Review the needs and capacities of major cancer hospitals in terms of diagnosis and treatment infrastructure, equipment and workforce.
- Review workforce development across all oncology disciplines and provide relevant recommendations to enhance current education and training system and support long-term workforce planning needs.
- Review needs and capacities of the palliative care programme, at national and provincial level as well as at different levels of health care.

1.2. REVIEW TEAM COMPOSITION

International Atomic Energy Agency

- Mr Arsen Jurić – Programme Officer, Mission Lead

- Dr Igor Veljkovik – Programme Officer (preparatory phase Lead)
- Dr Yavuz Anacak – Radiation Oncologist
- Dr Miriam Mikhail – Radiologist
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Phases and methods

The imPACT Review was conducted in phases, namely (a) desk review and self–assessment (*period*); (b) virtual in–country mission (*period*); and (c) report development (*period*). The desk review included literature review, including of key IAEA, WHO and IARC publications and Government of Sri Lanka policy and technical documents. Throughout the phases, the national focal point and team, designated by the MoH, was responsible for the self–assessment data collection, preparation of country presentations, coordination of semi–structured interviews with in–country stakeholders, and guidance on the agenda and scheduling of meetings. Full agenda is in Annex 1.

2. REVIEW FINDINGS AND RECOMMENDATIONS

2.1. HEALTH SYSTEM OVERVIEW

Leadership, organization and governance

The Ministry of Health (MoH) is the government body charged with governing the Sri Lankan health system.

In Sri Lanka, the allopathic care is the main system of health services provided through public and private sectors. The public sector is the main care service provider with services provided to the users free of charge at the point of delivery. The public sector provides nearly 95% of inpatient care and around 50% of outpatient care.[6]

The governance structures exist at two levels, central and provincial. At the central level, the Ministry of Health (also referred to as 'Line Ministry of Health') is responsible for stewardship functions such as policy formulation and health legislation, programme monitoring and technical oversight, management of health technologies, human resources, and service provision of tertiary and other selected hospitals. The primary and secondary levels of curative care and preventive services are under the nine provincial ministries. Preventive services are provided through the Medical Officer of Health system, and the entire country is divided geographically into 358 Medical Officer of Health areas.

Service Delivery (Public and Private)

Services under the Ministry of Health are organized under curative and preventive care services. The curative healthcare delivery is primarily carried out by the government hospitals. Three are classified as national hospitals and serve as centres of excellence offering a wide range of services. Several hospitals which are referral centres for specialised services are classified as national institutes. Other hospitals are graded as Teaching Hospitals, District General Hospitals, Base Hospitals A & B, Divisional Hospitals and Primary Medical Care Units. Table 1 shows the details of the government health facilities by type. Consultant led care is available down to the level of Base Hospitals and in some instances to Divisional Hospitals where Consultant Family Physicians are placed.

Table 1. Public health facilities, by type, Dec 2024[7]

Level of care	Hospital type	Number of Hospitals		
		Ministry of Health	Provincial Ministries	Total
Tertiary care (54)	National Hospital	3	-	3

[6] Sri Lanka National Health Accounts: 1990-2019, 2021.

[7] Planning Unit, Ministry of Health, Sri Lanka.

	Teaching Hospital	11	-	11
	Specialized teaching Hospital	6	-	6
	Other Specialized Hospital	9	5	14
	Provincial General Hospital	-	-	0
	District General Hospital	13	7	20
	Board Managed Hospital	1	0	1
Secondary care (81)	Base Hospital-Type A	7	28	35
	Base Hospital-Type B	1	44	45
	Board Managed Hospital-Vijaya KH	1	0	1
Primary Care Facilities (1072)	Divisional Hospital Type A	1	66	67
	Divisional Hospital Type B	1	147	148
	Divisional Hospital Type C	1	276	277
	Primary Medical Care Unit	11-	569-	580
Total		**66 (5%)**	**1142 (95%)**	**1208**

Health Financing and health care coverage

Sri Lanka's health financing system involves several stakeholders, including the central government, provincial and local governments, individual citizens (households), employers, insurance providers, donors, and nonprofit organizations. The central government is the main provider and finances and manages major hospitals (teaching, general, and specialized) and vertical disease control programmes, while provincial governments manage certain district general hospitals, base and divisional hospitals and community health units. Funds for centrally managed healthcare institutions and programmes are allocated directly through the

budgets of relevant ministries. Provincial and local government institutions typically receive funding through the Finance Commission, although the Ministry of Health also provides direct support to some provincial facilities. Figure 1 illustrates Sri Lanka's health financing system[8].

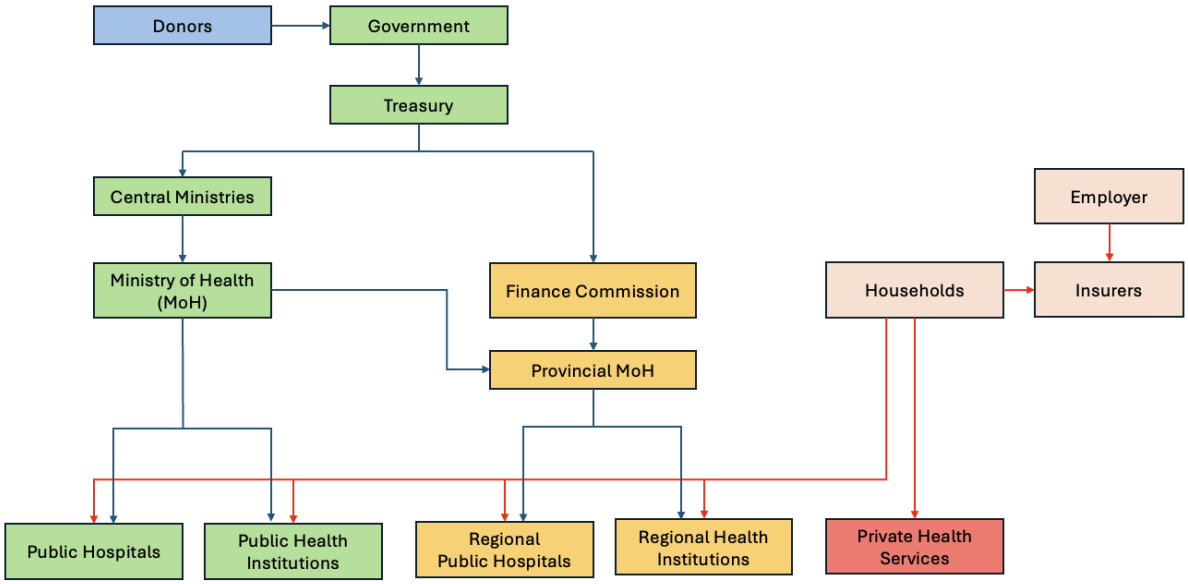
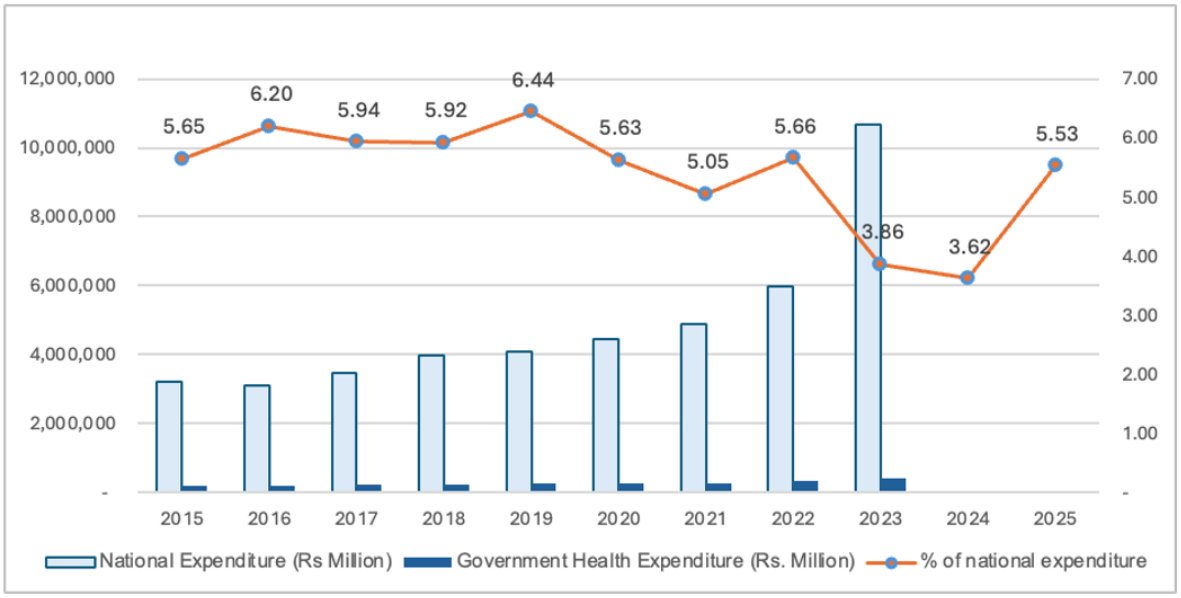


Figure 1. Flow of Funds Across Sri Lanka for Health Care

Sri Lanka's health system is predominantly financed through general taxation and provides free public healthcare at the point of use in government facilities. Figure 2 illustrates health expenditure trends from 2015 to 2025, revealing a persistent gap between national expenditure and government health spending, highlighting the relatively low prioritization of health in the national budget. From 2015 to 2022, government health spending averaged around 5.5% of total national expenditure. This share dropped sharply to 3.62% in 2024 before recovering to 5.53% in 2025. The recent increase is largely driven by efforts to maintain uninterrupted supplies of essential pharmaceuticals, surgical equipment, and laboratory materials. [9]

[8] Ministry of Health of Sri Lanka, National Health Account 2017-2018, 2022, URL: https://www.health.gov.lk/wp-content/uploads/2022/08/National-Health-Accounts-Sri-Lanka-Final-version-23.06.2022.pdf

[9] Ministry of Health of Sri Lanka, Presentation from Cancer Planning and Cancer Financing. 2025.



1 Sri Lankan Rupee equals 0.0033 United States Dollar

Figure 2. Sri Lanka Health Expenditure (2015-2025)[10,11]

Figure 3. shows the per capita Government health expenditure and health expenditure as a percentage of GDP for 2015-2025. Government allocations for health services have increased in monetary terms over the years; however, as a percentage of Gross Domestic Product (GDP), health expenditure remains relatively low, ranging between 1.4% and 1.8%. In Sri Lanka, households' out-of-pocket expenditures (OOP) fills the gap of health finances through government tax revenues. In 2017, government schemes financed 44% of current health expenditure (CHE), increasing to 47% in 2018, while OOP accounted for 49.3% of CHE, slightly decreasing to 46.8% in 2018[12]. The major portion of OOP is incurred on general medical practitioners, medical and laboratory services, and private hospitals and nursing homes.[13]

Allocating around 5–6% of GDP to health and keeping out-of-pocket (OOP) spending below 15–20% of current health expenditure (CHE) are patterns commonly seen in countries that achieve adequate financial protection[14]. By this benchmark, Sri Lanka's current health financing profile suggests that many households may be at risk of financial hardship when accessing essential services, especially for non-communicable diseases, such as cancer[15].

[10] Annual Health Bulletin 2022-2023, Ministry of Health Sri Lanka

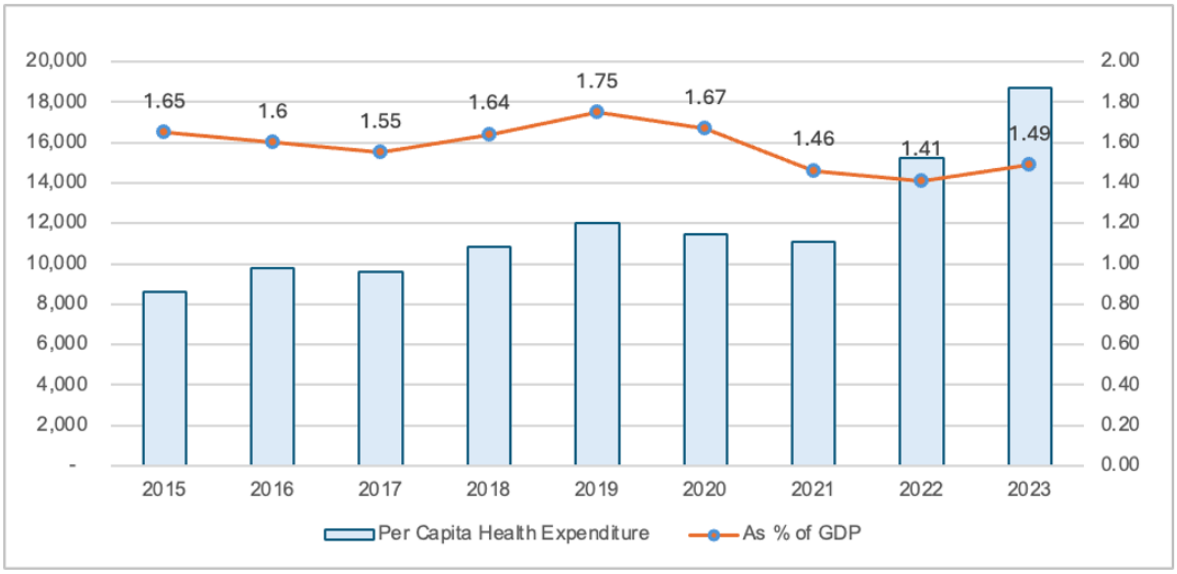
[11] Cancer planning and cancer financing. 2025. Presentation from the Directorate of NCCP, Ministry of Health of Sri Lanka.

[12] Ministry of Health of Sri Lanka, National Health Account 2017-2018, 2022, URL: https://www.health.gov.lk/wp-content/uploads/2022/08/National-Health-Accounts-Sri-Lanka-Final-version-23.06.2022.pdf

[13] Sri Lanka Health Systems Review, 2021. https://iris.who.int/bitstream/handle/10665/342323/9789290228530-eng.pdf?sequence=1&isAllowed=y

[14] World Health Organization, The World Health Report 2010, 2010, URL: https://www.who.int/publications/i/item/9789241564021

[15] Anuji Gamage et al., "Variations in Out-of-Pocket Spending and Factors Influencing Catastrophic Health Expenditure of Households with Patients Suffering from Chronic Conditions in Four Districts in Sri Lanka,"



1 Sri Lankan Rupee equals 0.0033 United States Dollar

Figure 3. Per capita government health expenditure and health expenditure as a percentage of GDP (2015-2023)[16]

In terms of health insurance, the government employees benefit from 'Agrahara', a social health insurance (SHI) scheme for government employees.[17,18].

Voluntary health insurance uptake remains limited with overall penetration at just 0.6% as confirmed by the National Insurance Association. Cancer coverage is not included in standard voluntary health insurance plans; instead, it is offered through life insurance or critical illness policies, which are primarily held by formal sector employees. These schemes provide lump-sum payouts (approx. US$33 000) but do not cover all cancer care services. Approximately two thirds of the population work in the informal sector where insurance coverage is minimal or non-existent[19]. Critical illness plans are often sold as voluntary products. However, the affordability of "premium" cover remains a key barrier, as costs typically represent 10–15% of household income (US$40 per month), limiting access for lower-income groups. The imPACT Review team was informed that in Sri Lanka voluntary healthcare insurance is not considered a necessity or desirable, although many middle-class citizens opt for private care, often at considerable cost.

BMC Health Services Research 24 (2024): Article 1055, https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-024-115

[16]Ministry of Health, Presentation from Cancer Planning and Cancer Financing. 2025.

[17]Ministry of Health, National Health Account 2017-2018, 2022, URL: https://www.health.gov.lk/wp-content/uploads/2022/08/National-Health-Accounts-Sri-Lanka-Final-version-23.06.2022.pdf

[18]Sundararajan Gopalan, *Health Financing Options for Sri Lanka*, Ceylon Medical Journal 68, Sl1 (2023):58-61, DOI: DOI: 10.4038/cmj.v68iSI1.9737

[19] World Bank, *Informality, Job Quality, and Welfare in Sri Lanka* (Washington, DC: World Bank, 2020), https://documents1.worldbank.org/curated/en/341681597688560604/pdf/Informality-Job-Quality-and-Welfare-in-Sri-Lanka.pdf.

Health Information System

In 2023 the Ministry of Health has initiated design of a Digital Health Blueprint representing the architectural vision for an interconnected and interoperable digital health ecosystem within Sri Lanka.[20] The Blueprint proposes a National Electronic Health Record (NeHR) as one of its central components to serve as a lifelong record of individual patients and interoperable systems of hospital information and public health information systems.

The blueprint also incorporates into the Hospital Health Information Management System (HHIMS).[21] This initiative, which remains ongoing, covers various aspects of health care management including outpatient and inpatient management, clinic management, and reporting and analytics functionalities. By February 2025, number of state hospital operating under HHIMS has reached 100.[22] The system operates in the National Cancer Institute as well. Until December 2023 the system had over 9.5 million patients registered and around 23 million Electronic Medical Records maintained.[23]

Human Resources for Health

As of 2023, Sri Lanka's health workforce is composed of nurses (59%), medical officers (27%), midwives (10%), public health inspectors (2%), and dental surgeons (2%). The country has also made substantial progress in increasing the density of key health professionals. Between 2000 and 2023, the number of medical officers rose from 41.1 to 108.9 per 100,000 population, while nursing officers increased from 76 to 241.8 per 100 000 population. This growth reflects Sri Lanka's ongoing investment in expanding access to both curative and preventive health services[24].

Access to Essential Medicines and Technology

Access to essential medicines and medical technologies in Sri Lanka is supported by a coordinated institutional framework involving the State Pharmaceutical Corporation (SPC), the Medical Supplies Division (MSD), and the National Medicines Regulatory Authority (NMRA).

The State Pharmaceutical Corporation (SPC) is central agency responsible for the procurement of medicines, supporting the Ministry of Health and much of the private sector.

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[20] Sri Lanka Digital health blueprint. https://www.health.gov.lk/wp-content/uploads/2023/11/Digital-Health-Blue-Print-Full-Book-01.11.2023-Final.pdf

[21] Hospital Health Information Management System. https://www.icta.lk/projects/digital-government/hospital-health-information-management-system-hhims

[22] Ministry of Health Sri Lanka, *Opening of the 100th State Hospital Operating under the Health Information Management System (HHIMS)* (Colombo: Ministry of Health, 2025), https://www.health.gov.lk/news/opening-of-the-100th-state-hospital-operating-under-the-health-information-management-system-hhims/.

[23] HHIMS: https://www.icta.lk/projects/digital-government/hospital-health-information-management-system-hhims

[24] Ministry of Health Sri Lanka, *Annual Health Bulletin 2022–2023* (Colombo: Medical Statistics Unit, Ministry of Health, 2024), https://www.health.gov.lk.

Medicines are procured through an open competitive tender procedure. For supplies intended for public sector use, the SPC advances all expenses from its funds and later collects reimbursement from the Ministry of Health with a 10% service charge [25]. Most cancer medications are imported which results in higher costs and often raises logistical challenges with delays from suppliers and sometimes issues with quality.

Once medicines are procured, the Medical Supplies Division (MSD) of the Ministry of Health is responsible for their storage and distribution to all government healthcare institutions nationwide. In addition, the MSD is also responsible for supplying dangerous drugs and essential medical items that are not available in the open market to the private sector.
The MSD operates a network of facilities, including a central medical store in Colombo which distributes medicines to 26 Regional Medical Supplies Divisions (RMSDs) at the district level. In urgent situations or shortages, the MSD has the authority to conduct local purchases to avoid disruption of services[26].

Medication stock data is now available on a computer network, which includes medication information, as well as its location and quantity. Public sector pharmacies now have the ability to determine if a stock out medication is available at another cancer centre. If available, the medication can be requested and transferred for patient use. The system has also aided with forecasting. However, the system only tracks medication that is used and underestimates the true requirement since medication not given during stock out or procured by the private sector is not accounted for

The National Medicines Regulatory Authority (NMRA) regulates all imported and locally manufactured medicines, medical devices, borderline products, clinical trials, and cosmetics. It also oversees the National Medicines Quality Assurance Laboratory (NMQAL), which is responsible for testing and ensuring the quality of medicinal products[27].

Education and Training

Sri Lanka has a strong health workforce education and training, through publicly funded institutions and postgraduate training. Medical education is provided by 12 state university medical faculties and a defence university, producing approximately 1 200 physicians annually. Following a five-year undergraduate degree and one-year internship, physicians can pursue postgraduate specialization through the Postgraduate Institute of Medicine (PGIM) at the University of Colombo.

[25] State Pharmaceuticals Corporation of Sri Lanka, *SPC Services* (Colombo: SPC, 2025), https://www.spc.lk/spc-services.php.
[26] Ministry of Health Sri Lanka, *About Us – Medical Supplies Division (MSD)* (Colombo: Ministry of Health, 2025), https://www.msd.gov.lk/index.php/donations/surgicalitems/8-about-us.
[27] National Medicines Regulatory Authority, *About Us* (Colombo: NMRA, 2025), https://nmra-08e641.webflow.io/about-us.

2.2. BURDEN OF DISEASE

Incidence, mortality and trends

Sri Lanka faces a growing burden of cancer. IARC's Global Cancer Observatory (GLOBOCAN) estimates that in 2022 33 243 patients were newly diagnosed with cancer. Overall age standardized rates (ASR) was 106.9/100 000 population (males 110.6/100 000; females 106.0/100 000).

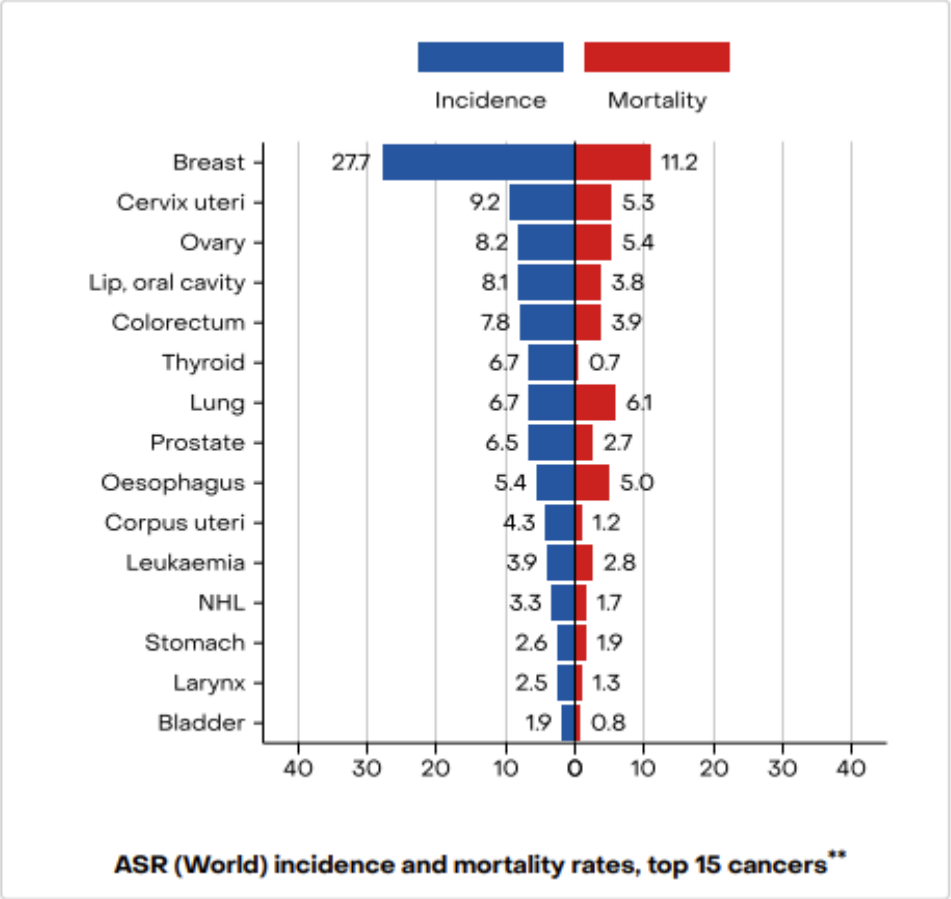

Figure 4. Age-Standardized Rate (World) per 100 000, Incidence and Mortality, Both sexes, in 2022[28]

[28] Ferlay J, Ervik M, Lam F, Laversanne M, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2024). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.who.int/today

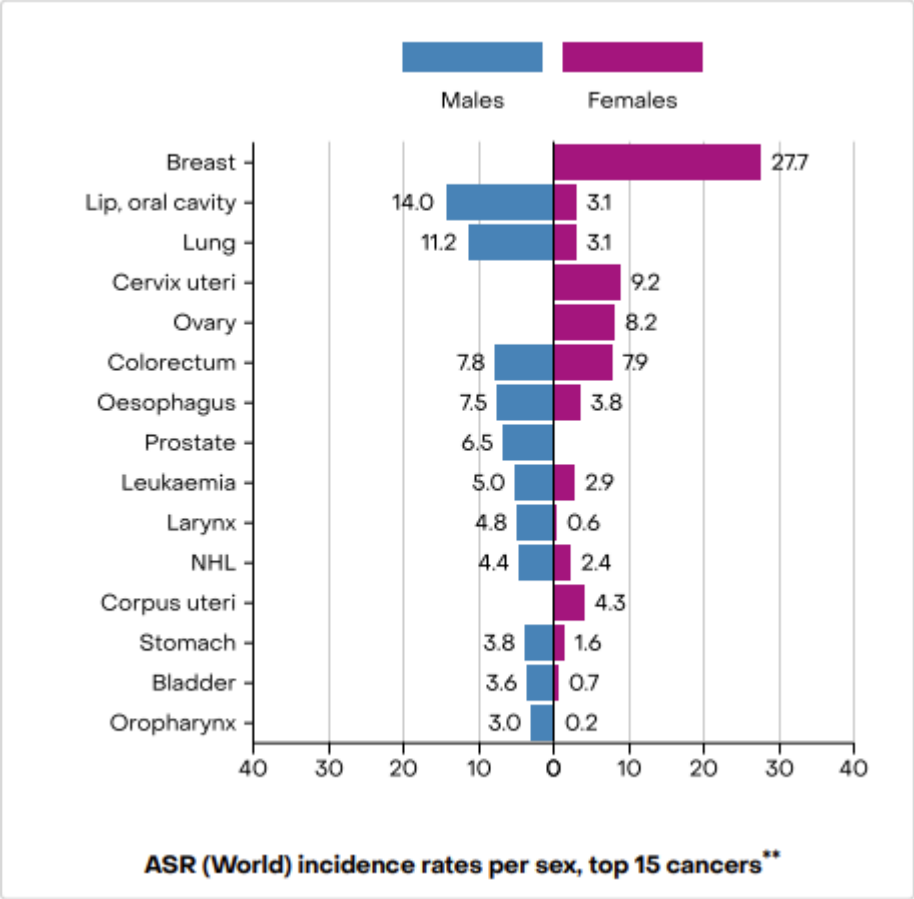

Figure 5. Age-Standardized Rate (World) per 100 000, Incidence, Males and Females, in 2022[29]

In 2022, the most prevalent cancers among males included lip and oral cavity (n=1990, CR= 19.3/100 000), trachea, bronchus and lung cancers (n=1666, CR 16.1/100 000), colon and rectum (n= 1145, CR= 11.1/100 000), oesophagus (n=1119, CR = 10.8/100 000) and prostate (n= 1019, CR= 9.9/100 000) . Notably lip and oral cavity cancers accounted for 12.6% of cancers among men. This distribution of leading cancers among males aligns with the pattern observed in the South-East Asia (SEA) region in the same year.

For females, the leading cancers were breast (n= 4555, CR= 40.5/100 000), cervix uteri (n = 1579, CR = 14.0/100 000) thyroid (n=1400, CR= 12.5/100 000), colon and rectum cancers (n= 1395, CR= 12.4/100 000), and ovary (n= 1299, CR= 11.6/100 000). Breast cancer constituted 26% of all female cancer cases. The cancer pattern among women in Sri Lanka mirror those to SE Asia region where breast, cervix and ovary cancers were the leading cancers.

In the paediatric population (age between 0 -19 years) an estimated 691 cases of cancer were reported in 2022, with leukaemia accounting for 26% of the cases. The types of cancers observed in this demographic group are similar to those in the WHO SEA region.

[29] Ferlay J, Ervik M, Lam F, Laversanne M, Colombet M, Mery L, Piñeros M, Znaor A, Soerjomataram I, Bray F (2024). Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. Available from: https://gco.iarc.who.int/today

According to the GLOBOCAN estimates, a total of 18 992 deaths were due to cancer in 2022 (CR 88/100 000). The most significant mortality was attributed toto breast, lip/oral cavity, colorectum, lung, and oesophageal cancers.

Table 2. Estimated number of new cancer cases in Sri Lanka, 2022 to 2030

Top 5 cancers	2022	2030
Breast	4555	5212
Lip, oral cavity	2556	2876
Colorectum	2540	2951
Trachea Bronchus and Lungs	2229	2572
Oesophagus	1884	2258

Source: Global Cancer Observatory, IARC.: Estimated Cancer Incidence, Mortality and Prevalence for 2022 and projections for 2030.

Table 3. Estimated number of cancer deaths in Sri Lanka, 2022 to 2030

Top 5 cancers	2022	2030
Trachea Bronchus and Lungs	2035	2342
Breast	1991	2388
Oesophagus	1715	2040
Colorectum	1284	1513
Lip, oral cavity	1198	1339

Source: Global Cancer Observatory, IARC. Estimated Cancer Incidence, Mortality and Prevalence for 2022 and projections for 2030.

Compared to the year 2022 GLOBOCAN predicts a notable increase in annual incidence of new cancer cases by 14.2% and cancer mortality by 16.3% by 2030 (final year of the new national strategic plan). By 2045 it is anticipated that new cancer cases and deaths will escalate by 39% and 46%, respectively. This alarming trend underscores the urgent need for enhanced cancer prevention and treatment strategies.

2.3. NATIONAL CANCER CONTROL PLANNING, GOVERNANCE AND FINANCING

National Cancer Control Planning and Governance

The Directorate of National Cancer Control Programme (NCCP) of the Ministry of Health is the main government entity coordinating the national response to cancer in Sri Lanka. NCCP is the national focal point for prevention and control of cancers in the country. It is also responsible for policy, advocacy, monitoring and evaluation of prevention and control, surveillance and facilitation of research. NCCP coordinates with all cancer treatment centres, national level institutes, e.g., Family Health Bureau, and provincial health ministries to implement cancer control activities[30].

The NCCP has a director, deputy director, unit heads for strategic information and management, planning, oral cancer prevention and control, palliative care, and prevention and early detection[31]. The NCCP is overseen by the Deputy Director General of Noncommunicable Diseases[32], while The National Advisory Committee guide the NCCP on activities for cancer control. The Provincial Directors of Health Services (PDHS) and Regional Directors of Health Services (RDHS) are the focal points at provincial and district levels, respectively, for prevention and control of cancer activities. They coordinate activities through establishment of provincial/ district cancer control committees headed by the Regional Director of Health Services and with the participation of Medical Officer for Noncommunicable Diseases (MO/NCD), Medical Officer - Maternal and Child Health (MO/MCH), Medical Officer - Epidemiology, Regional Dental Surgeon (RDS), and Medical Officers of Health (MOOH), consultants in curative and preventive sector.

Development, Review and Implementation of a National Cancer Control Programme

The National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (NSP) 2020-2024 was adopted and based on the 2019 imPACT Review recommendations. The overall goal of the Plan was to reduce the incidence of preventable cancers, detect early detectable cancers and provide continuum of care to all cancer patients in an equitable manner. It is in line with prevention and control of cancers and universal access to services.

The strategic objectives of the NCCP 2020-2024 are:

1. Ensure high level political 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 programme with community engagement.
2. Primordial and primary prevention of cancers by addressing risk factors and determinants throughout the life cycle.

[30] National Cancer Control Programme, *History of the National Cancer Control Programme (NCCP)* (Colombo: Ministry of Health, 2024), https://www.nccp.health.gov.lk/en/history.

[31] National Strategic Plan on Prevention and Control of Cancer in Sri Lanka 2020-2024). National Cancer Control Programme. Ministry of Health. Sri Lanka. 2020.

[32] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Official Website of the National Cancer Control Programme*. (Colombo: Ministry of Health, 2025), URL: https://www.nccp.health.gov.lk

3. Ensure 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 and 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.

Review of the NCCP by UICC/ICCP partners[33] concluded the following:

- The National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (2020-2024) is a strategy that fulfils most requirements and can help guide further efforts to address cancer control challenges. The plan spans the cancer continuum addressing essential components. The implementation plan at the end of the strategy contains activities distributed over 5 years and assigns responsibilities to relevant stakeholders. It sets out clearly the objectives of the programme and details the cancer burden in the country. The involvement of different stakeholders and the leadership with endorsement by the government is well noted. It is noticeable that cancer control elements such as treatment and palliative care are presented well. Gaps in some domains such as prevention, early detection as well as financing of the Plan were identified.
- NCCP is well linked to national NCD, tobacco, maternal and child health, immunization and other plans.
- There are many parameters to monitor implementation, and this can be reduced. In addition to reduction in risk factors, such as tobacco, primary implementation responsibility can be in other dedicated programmes and agencies.
- COVID-19 pandemic and the economic crisis impacted Sri Lanka on multiple domains. Health investments were also affected. Country is slowly emerging out of these challenges and there are indications of increasing resources for the health sector.

Financing the National Cancer Control Programme

This country assessment examines the current landscape of cancer care financing in Sri Lanka, with the aim of identifying strengths, gaps, and opportunities to improve the sustainability of financing, equitable access to high-quality care, and financial protection across the cancer continuum. The analysis draws on a combination of methods, including interviews with key stakeholders (representatives from the Ministry of Health, World Health Organization (WHO), National Cancer Control Program, hospital administrators, and health focal points at the National Insurance Council) and documentary analysis of peer-reviewed literature, national policy documents, and WHO publications. Site visits to major cancer

[33] Union for International Cancer Control and International Cancer Control Partnership, *Review of National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (2020-2024). June 2021.*

facilities were undertaken by the imPACT team, including the National Cancer Center Sri Lanka (NCILS) and Teaching Hospital Rathnapura. This provided further insights into operational realities, budgeting practices, and challenges related to patient access to care and financial protection.

Cancer care in Sri Lanka is primarily funded through the national health budget, covering various services from prevention to treatment. While this reflects a strong public commitment, funding for cancer control is not earmarked or tracked separately as a specific budget line, making it difficult to assess actual spending or alignment of investments with the growing cancer burden. According to the most recent National Health Accounts, only 1.5% of CHE in 2017–2018 was attributed to cancer. However, this figure likely underestimates the true burden of cancer-related spending, as noncommunicable diseases (NCDs) collectively accounted for nearly 30% of CHE[34]. The Ministry of Health and WHO confirmed that a specific budget line for cancer expenditures is not available, and therefore, it is challenging to establish cancer-specific allocation and spending.

Ministry of Health officials confirmed that funding is allocated through global hospital and provincial health budgets, which cover all types of secondary and tertiary care services, including cancer. This global budget allocation is intended to finance the workforce and cover recurrent costs and is based on hospitals submitting information about health care activity, albeit not with specific granularity by disease type for general hospitals.

Separate financing streams exist for key components of cancer service delivery. The MOH National Cancer Control Programme had an annual budget of US$ 51 000 to cover training, monitoring committees' technical advice. Capital equipment, such as imaging and radiotherapy machines is centrally managed through the biomedical engineering and medical equipment budget; medicines are procured nationally based on hospital-submitted demand forecasts through the Medical Supplies Division. Low-interest loans from the Asian Development Bank (ADB) and Asian Infrastructure Investment Bank (AIIB) are currently supporting radiotherapy expansion, including the procurement of five new LINACs across four centres (see Radiotherapy Section). Community donations have also played a significant role in addressing funding gaps, particularly for cancer drugs. The government has committed to taking on funding for the HPV vaccine, after recent support from GAVI in 2023 and 2024. While this diversity of funding sources is encouraging, stronger costing mechanisms, coordination, and expenditure tracking are needed to ensure resources are used efficiently and equitably.

Recent capital expenditure data reinforces the need to improve budget execution. Specifically for the National Cancer Control Programme, only 25.4% of the 2023 budget allocation and 45% of the 2024 allocation were utilized, despite a higher allocation planned for 2025[35]. To fully benefit from this work, it will be critical to monitor actual spending against planned budgets regularly. Early identification of underutilized funds will enable timely reallocation to high-priority activities, ensuring a more effective use of available resources. Additionally, projecting

[34]Ministry of Health of Sri Lanka, National Health Account 2017-2018, 2022, URL: https://www.health.gov.lk/wp-content/uploads/2022/08/National-Health-Accounts-Sri-Lanka-Final-version-23.06.2022.pdf

[35]Ministry of Health, Presentation on Cancer Planning and Financing, March 2025.

expenditures over a 3–4-year horizon, aligned with clearly defined activities and programmatic goals, can help ensure greater consistency between planning and execution.

Site visits to the NCISL and Teaching Hospital Rathnapura revealed challenges in budget management. While hospitals routinely submit annual budget estimates, final allocations are often lower than requested. Procurement delays, tender failures, and frequent stockouts of essential medicines were commonly reported. At NCISL, 70 of 800 essential drugs (cancer and non-cancer) are out of stock, including 13 completely unavailable. Despite these obstacles, community donations in 2024 helped bridge critical funding gaps for cancer drugs and support continuity of care.

At the facility level there is the absence of formal activity-based costing for cancer services, such as radiotherapy and systemic therapy[36]. Without accurate cost data tied to service delivery, hospitals face challenges in justifying budget needs and securing cancer-specific allocations. In practice, annual budget requests are often prepared by adding a fixed percentage to the previous year's expenditure, rather than being based on projected service volume or unit costs. This approach limits the ability to justify funding needs and align budgets with actual demand. Similarly, accurate estimation of workforce requirements for cancer care can also facilitate budget allocation in line with estimated demands[37].

Encouragingly, progress has been made toward improved planning and financial transparency. A costing exercise for activities to support the implementation of the National Cancer Control Plan (2020–2024) was done and offers a foundation for more strategic resource allocation of the new plan[38]. However, full formal costing of the proposed new Plan is required to support implementation. One approach would be for the government to define a health benefits package for cancer or determine what cancer services to include in an essential health services package[39]. However, cancer care pathways are not formally standardized through the use of national guidelines, which means that recommended care is largely determined at the discretion of individual physicians. While this allows flexibility, it can also lead to variations in practice and subsequently costs of care delivery. This also limits the ability to monitor quality or ensure consistency across facilities. As a first step, national clinical guidelines would form the basis for further specification and costing of essential cancer pathways.

Procurement of cancer medicines is centralized at the Ministry of Health level, which supports consistency and cost control in purchasing essential cancer medicines, supplies, and

[36]Noemie Defourny et al, *National costs and resource requirements of external beam radiotherapy: A time-driven activity-based costing model from the ESTRO-HERO project*, 138, (2019): 187-194, URL: https://www.thegreenjournal.com/article/S0167-8140(19)32951-2/fulltext

[37]Sathira Perera, *Global demand for cancer surgery and an estimate of the optimal surgical and anaesthesia workforce between 2018 and 2040: a population-based modelling study*, The Lancet Oncology, Volume 22, Issue 2 (2019): 182-189. URL: https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30675-6/abstract

[38] Enrich Services (Private) Limited. *The Costing the National Strategic Plan on Prevention and Control of Cancers (2020-2025) in Sri Lanka*, 2021.

[39] Ala Alwan et al., *Essential packages of health services in low-income and lower-middle-income countries: what have we learnt?* BMJ Global Health, 8(Suppl 1):e010724 (2023), URL: https://pmc.ncbi.nlm.nih.gov/articles/PMC9853117/

equipment. However, procurement bottlenecks and drug stockouts are still common, often due to low-quality suppliers, failed tenders, or delays in procurement cycles. These shortages can lead to treatment interruptions and force patients to pay out of pocket for medicines at significantly higher prices in the private sector.

Efforts to align procurement with clinical priorities are ongoing. The Sri Lanka College of Oncologists (SLCO) has proposed including several high-priority cancer medicines, such as trastuzumab, leucovorin, temozolomide, and others, into the national essential medicines list based on clinical need. Some of these medicines were unavailable due to registration status and procurement cycles. This highlights the need for closer alignment between clinical guidelines, procurement planning, and regulatory processes to ensure timely and equitable access to essential cancer treatments.

At present, Health Technology Assessment (HTA), a key tool for evaluating the cost-effectiveness of health interventions, has not yet been institutionalized in Sri Lanka. This limits the country's ability to make evidence-informed decisions, especially in high-cost areas like cancer care, where technologies such as targeted drugs, radiotherapy, and advanced imaging can have substantial financial implications.

As highlighted earlier, OOPs remain a major burden, particularly when patients seek care outside the public system[40,41,42,43]. Similarly, a study on oral cancer found that patients and families contribute nearly half[44]. These findings emphasize the importance of strengthening financial protection schemes and enhancing service availability within the public sector.

Summary Findings and Conclusions

The National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (NCCP) 2020-2024 emphasized high-level political leadership, advocacy, and governance, along with multi-sectoral and community engagement. Key objectives included primary prevention, improved screening and early diagnosis, access to treatment and care, and enhanced survivorship, rehabilitation, and palliative care. The NCCP was well integrated with other national health plans and highlights the importance of strengthening cancer information systems, promoting research, and utilizing findings for cancer control.

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[40] Sarith Ranawaka et al., *Breast Cancer-Related Financial Toxicity in Sri Lanka: Insights From a Lower Middle-Income Country With Free Universal Public Healthcare*, The Oncologist, Volume 29, Issue 2 (2024): e259–e265, DOI: https://doi.org/10.1093/oncolo/oyad259

[41]Hemantha Amarasinghe et al., *Economic burden of managing oral cancer patients in Sri Lanka: a cross-sectional hospital-based costing study*, BMJ Open, Volume 9, Issue 7 (2019), URL: https://bmjopen.bmj.com/content/9/7/e027661

Sri Lanka Health Systems Review, 2021. https://iris.who.int/bitstream/handle/10665/342323/9789290228530-eng.pdf?sequence=1&isAllowed=y[42]

[43]Sarith Ranawaka, *Breast Cancer-Related Financial Toxicity in Sri Lanka: Insights from a Lower Middle-Income Country with Free Universal Public Healthcare*, The Oncologist, Volume 29, Issue 2 (2024): e259–e265, DOI: https://doi.org/10.1093/oncolo/oyad259

Hemantha Amarasinghe, *Economic burden of managing oral cancer patients in Sri Lanka: a cross-sectional hospital-based costing study*, BMJ Open, Volume 9, Issue 7 (2019), URL: https://bmjopen.bmj.com/content/9/7/e0276

Despite the strengths of the NCCP, several gaps were identified, including in financing and alignment of resource utilization and service delivery due to a lack of standardized national cancer care guidelines. The COVID-19 pandemic and economic crisis have impacted health investments, but there are signs of increasing resources for the health sector. Financing for cancer care is primarily through the national health budget, but specific budget lines for cancer expenditures are lacking, making it difficult to track actual spending. Challenges in budget management, procurement delays, and stockouts of essential medicines were noted. To address these challenges, Sri Lanka should strengthen expenditure tracking and institutionalize activity-based costing for cancer services. Recommended actions include conducting cost-of-illness studies, improving forecasting for medicines and equipment, developing resource-stratified national guidelines, and exploring strategic purchasing with the private sector to enhance access and affordability of cancer care. In the medium term the development of a health benefits package for cancer that prioritises cost-effective interventions for cancer based on current burden would also support long term national cancer control planning and progress towards UHC.

Recommendations

National Cancer Control Planning and Governance
Short term (up to 2 years)
• Establish an intergovernmental body covering health, finance, agriculture, food processing, information and media communication, justice and related ministries to address the social and commercial determinants of health and to reduce the prevalence of risk factors for NCDs, including cancer, with adequate mandate and resources.
• Based on the current NCCP lessons learned, develop the next NCCP from 2025 for 5 or 10 years aligned to the National Health Strategic Master Plan 2026-2035 and other relevant national policies and strategies.
Medium term (2 to 5 years)
• Develop a national health workforce development strategy for all aspects of cancer control and introduce measures to get back into service trainees sent abroad, including developing an incentivization plan.
• Engage clinical leadership to develop clinical guidelines for cancer care management with identification of potentially low value care processes which should not be reimbursed.
• Cost the main items-RT equipment, chemotherapy, diagnostics for cancer and major infrastructure for the country and ensure sustained financing.
Financing the National Cancer Control Programme
Short term (up to 2 years)
• Expand Cost-of-Illness (COI) studies by conducting research across a broader range of cancer types and care settings to better understand the burden on both patients and the health system, and to identify where interventions can be targeted to improve UHC**.** Focus beyond NCISL to reflect more representative service delivery contexts, and findings should be compiled in a centralized

national repository to support budgeting, advocate for targeted cancer funding, and facilitate ongoing research.
• Improve costing and forecasting by enhancing hospital-level activity costing and aligning procurement forecasts with actual service demand. Applying tested methodologies can help identify barriers and policy solutions to improve access to essential cancer medicines and ensure more accurate, needs-based procurement[45].
• Strengthen monitoring of budget execution by introducing a quarterly cancer budget tracking system to assess how cancer funds are used at the program level to improve accountability, identify implementation bottlenecks, and enable timely reallocation of unused resources.
Medium term (2 to 5 years)
• Define a Cancer Health Benefits Package (HBP) by establishing a prioritized set of essential cancer services aligned with sustainable financing and service delivery strategies. Literature and global initiatives offer guidance on high-value interventions across the cancer care continuum[46,47]; however, these recommendations should be adapted to reflect the country's specific health system capacity, budget constraints, and equity goals, ensuring financial protection and improved access for vulnerable populations. Adaptive health technology assessment (HTA), including rapid reviews, can support this process by guiding cost-effective and context-specific investment decisions[48,49] .
• Explore strategic purchasing from the private sector by defining the role of private providers in cancer care and developing purchasing models that contract essential services (e.g. diagnostics and imaging) at negotiated rates. This approach can help reduce OOP costs, reduce delay in access, and leverage private sector capacity without undermining public system investment. While

[45]Rhonda Boateng et al., *Determinants of access to childhood cancer medicines: a comparative, mixed-methods analysis of four Caribbean countries*, The Lancet Global Health, Volume 9, Issue 9(2021): E1314-E1324, URL: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(21)00287-4/fulltext

[46] Wajeeha Raza et al., "Costing Interventions for Developing an Essential Package of Health Services: Application of a Rapid Method and Results From Pakistan," *International Journal of Health Policy and Management* 13, Special Issue on Pakistan Progress on UHC (2024): 1–17, https://www.ijhpm.com/article_4542.html.

[47] Hellen Gelband et al., "Recommendations for Cancer Control from Disease Control Priorities, Third Edition," *Cancer Control*, vol. 3 (2016), https://www.cancercontrol.info/cc2016/recommendations-for-cancer-control-from-disease-control-priorities-third-edition/.

[48] Cassandra Nemzoff et al., *Adaptive Health Technology Assessment: A Scoping Review of Method, Value in Health*, Volume 26, Issue 10(2023): 1549-1557, URL: https://www.valueinhealthjournal.com/article/S1098-3015(23)02983-2/fulltext?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS1098301523029832%3Fshowall%3Dtrue

[49] Cassandra Nemzoff et al., *Adaptive Health Technology Assessment: A Scoping Review of Method, Value in Health*, Volume 26, Issue 10(2023): 1549-1557, URL: https://www.valueinhealthjournal.com/article/S1098-3015(23)02983-2/fulltext

concerns about delaying public sector investment exist, WHO guidance offers strategies to manage these risks and design effective purchasing models[50].
Long term (5 or more years)
• Invest in cancer research infrastructure by building national capacity to generate robust evidence on cancer-related costs, access barriers, and health benefits planning. This effort can be delivered through collaboration with the University of Colombo, given its existing expertise, and can be supported by international partners to develop a structured framework for integrating adaptive HTA, quality management, and strategic purchasing of private sector services.
• Detailed cost accounting for cancer activity in hospitals allied to financial management information systems linked across public sector hospitals can form the basis for establishing formal payment mechanisms for cancer care activity in public sector hospitals. Such reimbursement mechanisms can be structured to incentivise guideline adherent care as well as promoting efficiency without compromising quality[51].

Relevant tools, guidelines and reference materials on cancer control planning

1. WHO guide for effective cancer control programmes https://www.ncbi.nlm.nih.gov/books/NBK195465/
2. WHO comprehensive cervical cancer control http://apps.who.int/iris/bitstream/10665/144785/1/9789241548953_eng.pdf
3. WHO Global Action Plan on NCDs (2013-2020) https://www.who.int/nmh/events/ncd_action_plan/en/
4. Cancer. Disease Control Priorities, third edition, volume 3. (World Bank) http://dcp-3.org/cancer
5. From Burden to "Best Buys" (2011): Reducing the Economic Impact of NCDs in LMICs: https://ncdalliance.org/sites/default/files/resource_files/WHO%20From%20Burden%20to%20Best%20Buys.pdf
6. Quality NCCP programmes (CANCON) http://www.cancercontrol.eu/cancercontrol.eu/guide-landing-page/?gclid=Cj0KEQiA0L_FBRDMmaCTw5nxm-ABEiQABn-VqaiCD5UHA6zTjgmpGFqj1BwOL7qLeJ1s2jblGYmfiJMaAh9g8P8HAQ
7. Cost-effectiveness and strategic planning (WHO) http://www.who.int/choice/en/
8. WHO NCD costing tools https://www.who.int/tools/onehealth
9. Supporting national cancer control planning: a toolkit for Civil Society Organisations (CSOs), UICC https://www.uicc.org/sites/main/files/atoms/files/eNCCPTOOLK_FA.pdf
10. WHO-IAEA National Cancer Control Programmes Core Capacity Self-Assessment Tool https://iris.who.int/bitstream/handle/10665/44729/9789241502382_eng.pdf?sequence=1

[50] World Health Organization, *Purchasing Health Care from the Private Sector: A Primer for Middle-Income Countries in the WHO European Region*. (Geneva: World Health Organization, 2025), URL: https://www.who.int/europe/publications/i/item/WHO-EURO-2025-11654-51426-78470.

[51] Joseph Borras et al., *Innovation, value and reimbursement in radiation and complex surgical oncology: Time to rethink*, European Journal of Surgical Oncology, Volume 48, Issue 5 (2022): 967-977

2.4. REGISTRATION AND SURVEILLANCE

National cancer surveillance system in Sri Lanka relies on two major registries: the Sri Lanka Cancer Registry (SLCR) and the Colombo District Population Based Cancer Registry (Colombo PBCR). Both have some elements of population-based cancer registries (PBCR) but do not fulfil all the essential requirements. Both generate limited information on incidence rates, mortality data, and clinical parameters. Existing gaps in the data on follow-up of cases for outcomes limits the analysis of survival rates.

Establishment of a new population-based cancer registry covering the Northern Province has been initiated. It will be implemented in phases with the registry for district of Jaffna to be established initially, following by the other four districts.[52]

SLCR was established in 1985 with data collection initiated from 1988. SLCR covers the entire Sri Lankan geographical area (65 610 km^2) and population (21 832 143). SLCR includes data on newly diagnosed cancer cases collected from all the public sector points of diagnosis and treatment, located across the country. A selected number of private sector hospitals and pathology laboratories also provide data on newly diagnosed cancer cases. The childhood cancers were classified in the SLCR according to the International Childhood Cancer Classification (ICCC) from 2011 onwards. Data on cancer mortality are sourced through the vital registration system. Department of Census and Statistics provides population statistics of 5-year age group and sex population for every district.

The Colombo PBCR initiated in 2012, covers the Colombo District geographical area (699 sq km) and population (2 478 000). The Colombo PBCR includes data of the newly diagnosed cancer cases among residents of the Colombo district collected from both public and private sector points of diagnosis and treatment. The data on cancer deaths are gathered from divisional death registrars of the Colombo district.

In 2022 a hospital-based childhood cancer registry was established at the NCISL using St. Jude Global Alliance 'SJCARES' database. The collected data is submitted to the SLCR and Colombo PBCR.

Legal Framework

Cancer is not a notifiable disease in Sri Lanka. The Quarantine and Prevention of Diseases Ordinance of 1897 mandates a set of communicable diseases as notifiable posing a challenge for cancers to be made a notifiable disease. Using the statutory powers vested on the Secretary of Health & Director General of Health Services, the Ministry of Health have issued official circulars mandating the public and private health hospitals to report newly diagnosed cancer cases to the SLCR. The latest circular was issued in year 2020 (General Circular No. 01-44/2020)[53]. The requirement specifies all cancers confirmed by a Consultant

[52] Sri Lanka is being supported by Vital Strategies, a global public health organization for strengthening of population-based cancer registry programme in Sri Lanka under the Data for Health Initiative.

[53] Ministry of Health, Sri Lanka, *Circular on Mandatory Reporting of Cancer*. (Colombo: Ministry of Health, 2020)

Histopathologist/ Consultant Haematologist/ Consultant Oral Pathologist, and cancers confirmed radiologically or clinically to be reported.

Newly implemented Personal Data Protection Act No.9 of 2022 Sri Lanka[54] poses some challenges to obtain identifiable data on cancer cases from the private hospitals.

Oversight and Coordination

The registries' oversight is conducted by staff at the MOH Directorate of the National Cancer Control Programme. The Technical Advisory Committee on Cancer Registration & Research established in 2020 provides technical guidance on the national cancer registry system. An Economic Evaluation of Cancer Registration in Sri Lanka performed in April 2023 revealed that the Government of Sri Lanka provided 95% of financing for registry operations in 2022. Data validation (11%) and data entry (9%) utilized the largest percentages of resources among all registry activities[55].

[54]Parliament of the Democratic Socialist Republic of Sri Lanka, *Personal Data Protection Act, No. 9 of 2022*. (Colombo: Department of Government Printing, 2022), URL: https://www.parliament.lk/uploads/acts/gbills/english/6242.pdf.

[55] Ministry of Health, Sri Lanka, *Economic Evaluation of Cancer Registration in Sri Lanka*. (Colombo: Ministry of Health, 2023)

Cancer Registry Reporting

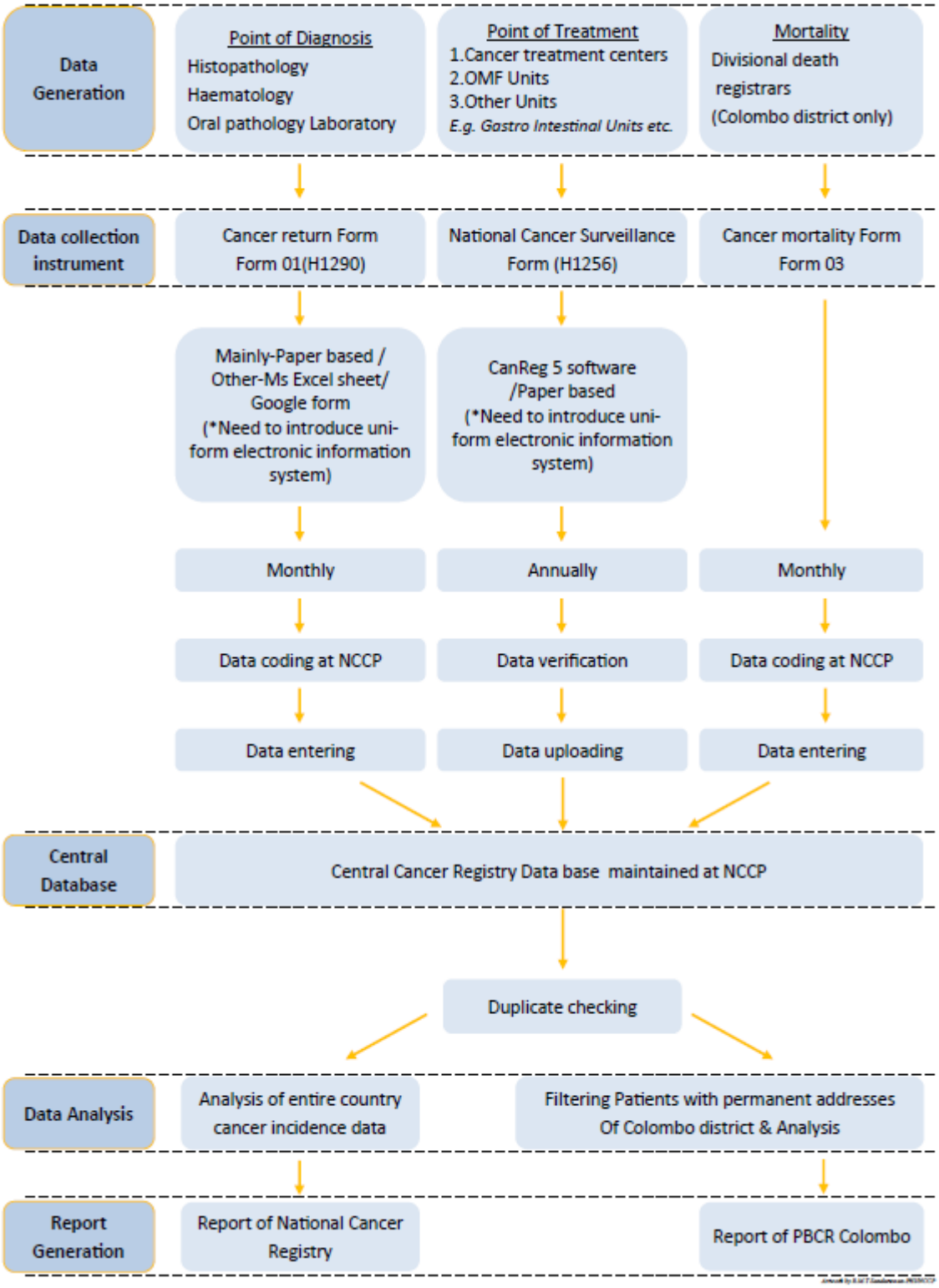

Figure 6. Process of cancer registration in Sri Lanka

As indicted in Figure 6, SLCR includes data on newly diagnosed cancer cases collected from 25 public cancer treatment centres located across the country, through a passive system using the National Cancer Surveillance Form H1256. In addition, about 30 Oro Maxillo Facial (OMF) units also submit data on newly diagnosed oral cancer patients to the SLCR through H1256. Furthermore, 63 histopathology laboratories, 37 haematology laboratories and 3 oral pathology laboratories provide data on newly diagnosed cancer patients through a passive system. Data from the points of treatment are gathered through the CanReg5 software or paper-based system while the data from points of diagnosis are gathered using paper-based system or in an excel based sheet. Data collections are based on the specified forms as indicated in Figure 6.

Mortality data due to cancers are sourced through the (i) Department of Census & Statistics website based on data derived from the vital registration system of Sri Lanka, (ii) Annual Health Bulletin of Ministry of Health based on Indoor morbidity mortality return (IMMR) received from public hospital network.

Colombo PBCR includes the newly diagnosed cases who are permanent residents (living for one year or more) of the Colombo district, filtered from the data gathered for the SLCR with additional data gathered on any cancer cases treated at the secondary and tertiary hospitals in the district of Colombo. The data on cancer deaths are gathered from divisional death registrars of the Colombo district through the specified format, as indicated in the Figure 5.

The coding of the cancer is based on the International Classification of Disease for Oncology 3rd edition (ICD-O 3), according to the site (Topography) and the histology (Morphology).

Though the current cancer registry is designed to capture most of the sources of cancer data in the country, the national cancer screening programmes for breast, cervix, and oral cancers, cancer early detection centres, hospitals for indigenous medicine and health insurance agencies which also possess cancer related data, do not readily submit to the registries.

At present, registries do not use electronic databases to source data. The country has designed a Digital Health Blueprint for the Ministry of Health in 2023[56] and is working on design. The blueprint proposes a National Electronic Health Record (NeHR) as one of its central components to serve as a lifelong record of individual patients and interoperable systems of hospital information and public health information systems. The MOH Directorate of NCCP has initiated discussions with the Directorate of Health Information to integrate cancer registry module to the electronic hospital health information system being designed.

Methodology

The cancer registry methodology follows a Standard Operating Procedures for cancer registration in Sri Lanka of Ministry of Health, compiled in 2019[57]. A team at the Directorate

[56]Ministry of Health, Sri Lanka, *Digital Health Blueprint: Enabling a Healthier Nation through Digital Transformation of Healthcare*. (Colombo: Department of Government Printing, 2023), URL: https://www.health.gov.lk/wp-content/uploads/2023/11/Digital-Health-Blue-Print-Full-Book-01.11.2023-Final.pdf.

[57] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Standard Operating Procedures for Cancer Registration in Sri Lanka*. (Colombo: National Cancer Control Programme, 2019)

of NCCP are assigned on both SLCR and Colombo PBCR. Their main responsibilities are to coordinate the collection of data, conduct quality checking, upload data to the central CanReg 5 database, elimination of duplications, analysis, publishing and dissemination of reports.

All 25 public treatment centres have CanReg 5 and trained staff on data abstraction using CanReg 5, and a majority of treatment centres directly enter data of newly diagnosed cases to the CanReg5 software. Other diagnosis and treatment centres provided data in paper formats or as excel sheets. Registry staff perform quality assessments and submit data to the central cancer registry database through the 'Rupantharan' Software.

As Sri Lanka extracts data on cancer incidence from multiple sources, occurrence of duplicates is inevitable and registry team perform tedious task of checking and eliminating duplicates through CanReg 5, Linkpro software, excel sheets and by visual examination. The Ministry of Health has reached out to the Regional Hub of IARC for a solution to identify and eliminate duplicates from the pooled data of cancer patients.

Cancer mortality data sourced through the Department of Census & Statistics and IMMR of the public hospital network do not contain identification information and are analysed and reported with no matching to the cancer cases. Cancer mortality data for Colombo PBCR are collected from the Divisional Death Registrars as paper-based reports using the specified forms and are also entered into the central CanReg database by the Directorate of NCCP staff. Staff follow the standard practice of checking whether the case is already present in the cancer registry database of current and previous years and match the death to the incident cancer case, yet this procedure is not followed for all the reported deaths. This gap has led to high number of Death Certification Only (DCO) cases in the Colombo PBCR.

Measures to ensure data security and confidentiality include use of password protection for databases and backups and the practice of anonymizing data when sharing for reach purposes.

Paper-based recording and manual data entry pose challenge of non-maintenance of back up of the data in the registries.

The CISL located in the district of Colombo is the leading cancer treatment facility in the country and the latest statistics indicate that approximately 30%-40% of the cancer cases identified in the SLCR are sourced from the NCISL. However, NCISL does not have an operational system to maintain and publish a Hospital Based Cancer Registry (HBCR) other than the hospital-based childhood cancer registry initiated in 2022, using the St. Jude Global Alliance ‘SJCARES’ database. NCISL has not assigned adequate staff for data entry to the CanReg5 database, and it is being performed by two persons assigned on temporary basis, under the supervision of the NCCP registry team. It was also observed that an electronic Hospital Information Management System (HIMS) is operational at NCISL with provision to enter data pertaining to the National Cancer Surveillance Form (H1256), but this provision is not being used in the HIMS of NCISL due to operational issues.

The SLCR has published regularly with the latest, 23rd publication on cancer incidence and mortality data for 2021[58]. A preliminary review of the publication indicates few gaps in data reported. Discrepancies exist in the cancer rates presented for Sri Lanka by GLOBOCAN 2022 estimates and the rates presented through the report. Availability of staging information in the latest publication is limited with only 35% breast cancers, 14% cervical cancers and 28% lip tongue and mouth cancers with data. 96.7% of the cases were diagnosed through microscope diagnosis, which is too high and suggests missing data for more-advanced stages and 35.4% of cases lacking data on residential district.

The latest publication of the Colombo PBCR is for 2013-2019[59]. In 2023, Sri Lanka submitted the data of Colombo PBCR 2013- 2019 to be considered for IARC's Volume XII of Cancer Incidence in Five Continents. The submission was declined due to quality of data issues and the specific observation related to the registration period and concern on the mortality data with high 'death certificate only cases' numbers. In April 2023, a Data Quality Control Exercise was conducted by IARC Regional Hub, in collaboration with Vital Strategies for the Colombo PRCR based on four data quality indicators: comparability, validity, completeness, and timeliness. The evaluation has detailed recommendations on improving the quality of data[60].

The publications of SLCR and Colombo PRCR have been widely disseminated by the Strategic Information & Management Unit of the NCCP[61].

Workforce

The team assigned for registry at NCCP are well trained on oversight functions, data quality control and data analysis. Many trained officers are leaving due to annual transfer schemes or for continuing post graduate studies. The team would benefit from additional technical support with data conversion, software development, implementation and monitoring and data management.

Some treatment centres including NCISL do not have dedicated staff assigned for data abstraction and registry and mostly rely on temporary staff.

The Directorate of NCCP regularly conducts refresher trainings and review of Hospital Based Cancer registry activities at the cancer treatment centres. Capacity building of cancer registry workforce is being supported by the WHO Country office, WHO Regional Office for South east Asia, IARC Regional Hub, Vital Strategies and St. Jude Global Initiative.

[58] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Cancer Incidence & Mortality Data Sri Lanka 2021*. (Colombo: National Cancer Control Programme, 2021), URL: https://nccp.health.gov.lk/storage/post/pdfs/CANCER%20INCIDENCE%20&%20MORTALITY%20DATE%20SRI%20LANKA%202021.pdf.

[59] National Cancer Control Programme, Ministry of Health, Sri Lanka, *PCBR Books*. (Colombo: National Cancer Control Programme, 2021), URL: https://nccp.health.gov.lk/storage/post/pdfs/PCBR%20Books.pdf.

[60] IARC Regional Hub, Tata Memorial Centre, *Report on Data Quality Control Exercise for the Population-Based Cancer Registry Colombo, Sri Lanka*. (Mumbai: Tata Memorial Centre, 2023)

[61] Journal of the College of Community Physicians of Sri Lanka published a special issue on cancer in 2022 with articles based on the registry data.

Summary Findings and Conclusions

Sri Lanka cancer registration oversight and coordination is through the MOH Directorate of the National Cancer Control Programme. Though cancer is not a notifiable disease in Sri Lanka, reporting is mandated by an administrative circular of the Ministry of Health. The reporting is through two PBCRs: SLCR, which reports data from all the public sector points of diagnosis and treatment, located across the country; and Colombo PBCR, which reports data of the newly diagnosed cancer cases among residents of the Colombo district collected from both public and private sector points of diagnosis and treatment. Neither fulfil all the essential elements of PBCR and generate limited information on incidence rates, mortality data, and clinical parameters. Gaps in the outcomes data on follow-up of cases limits the analysis of survival rates. There are also gaps in the cancer registry workforce requirements.

Strengthening of population-based cancer registry and capacity building of cancer registry workforce is supported by the Vital Strategies, IARC Regional Hub, and St. Jude Global Initiative.

Recommendations

Legal Framework
Short term (up to 2 years)
• The provisions of the General Circular No. 01-44/2020 should be optimally used to source information related to identified cases of cancers from all the private cancer centres and pathology laboratories, national cancer screening programmes, cancer early detection centres, hospitals for indigenous medicine and health insurance agencies.
Medium term (2 to 5 years)
• Develop a legal framework to ensure cancer is a notifiable disease.
Cancer Registry Network
Short term (up to 2 years)
• NCISL establish Hospital-Based Cancer Registries (HBCRs) by assigning staff for data abstraction using the HIMS system, forming a collaborative HBCR implementation team with clinicians and the hospital's Health Information Unit, maintaining regular communication to ensure data completeness and resolve complex cases, publishing the HBCR annually, integrating registry data into NCISL's institutional profile, and promoting the use of registry data for research.
• Support the paediatric oncology team of NCISL to strengthen the HBCR for childhood cancer and to establish a population based paediatric cancer registry.
• Establish HBCRs at National Hospital, Galle (previously known as Teaching Hospital - Karapitiya) and at least two other public cancer treatment centres.
• Advance with the proposed Memorandum of Understanding between the Ministry of Health and Vital Strategies for strengthening population-based cancer registry, with technical support from the IARC regional Hub.
Medium term (2 to 5 years)
• Establish HBCRs at least for ten public cancer treatment centres.
Long term (5 or more years)
• Establish HBCRs at all public cancer treatment centres.

Methodology
Short term (up to 2 years)
• Design the cancer registry module and integrate the cancer registry data to the electronic hospital health information system.
• Include the data fields in the laboratory information management system for cancer registry.
• Align cancer registry implementation with the national digital health blueprint and integrate with the proposed National Electronic Health Record (EHR).
• Ensure interoperability and data exchange with national dashboards, components of the digital health platform and public health information systems.
• Develop a web-based solution for identifying and eliminating duplicates in cooperation with IARC Regional Hub. Organize trainings for relevant staff to use the web-based solution and also with the MOH IT Department on implementation and timely software maintenance.
• Simplify the national Cancer Surveillance Form (H1256) to capture the clinical TNM staging to improve completeness of the reporting of the staging in the SLCR.
• Update the Standard operating procedures for cancer registration in Sri Lanka.
• Implement monthly quality control exercises with discrepancy reviews, reduce DCO cases by matching death records with historical data, develop software to manage and link mortality and incidence data for real-time follow-up, establish a system to integrate cancer screening and PBCR databases to track screening-detected cases, and generate indicators to monitor Global Initiatives for cervical and breast cancer, at the Colombo PBCR.
Long term (5 or more years)
• Sustain funding to update the server and IT system of the cancer registry.
Reporting and Use of Data
Short term (up to 2 years)
• Establish HBCRs to include use of the registry data to regularly monitor cancer control activities.
• Encourage publication using registry data and analysis for improved cancer control.
Medium term (2 to 5 years)
• Ensure timely cancer registry reports for 2022 and 2023 SLCR and the 2020-2023 Colombo PBCR.
• Ensure quality of Colombo PBCR reports through cooperation with IARC Regional Hub.
Workforce Development
Short term (up to 2 years)
• Ensure trained permanent staff on full-time basis at the National Cancer Registry Unit, MOH Directorate of NCCP.
• Deploy a dedicated cancer registry workforce in all cancer treatment centres based on cancer-related workload. One Development Officer per 2000 cancer cases would be feasible and justified.

• Ensure continuous training of cancer registry staff on/through: i) annual review meetings of cancer registry data (HBCR/PBCR); ii) principles and methods of cancer registry; data management, data analysis and data dissemination trainings; iii) creation of opportunities through regional and international courses organized by the International Agency for Research on Cancer (IARC), International Association of Cancer Registries (IACR) and the IARC regional hub of Global Initiative for Cancer Registry Development (GICR).
• Deploy dedicated staff to the MOH Directorate of NCCP for technical support on data conversion, software development and data management.
Medium term (2 to 5 years)
• Leverage health information technology platforms to facilitate linkages and data exchange among cancer registries.

Relevant tools, guidelines and reference materials on cancer registration and surveillance

1. Global Cancer Observatory (GCO) – access to various estimates on cancer incidence, mortality and survival worldwide, including GLOBOCAN: https://gco.iarc.fr/en
2. Cancer Incidence in Five Continents (CI5) – access to observed cancer registry data and analysis options throughout the XI CI% volumes: https://ci5.iarc.fr/Default.aspx
3. Global Initiative for Cancer Registry Development (GICR): http://gicr.iarc.fr/

2.5. PREVENTION

The leading cancers among men in Sri Lanka were lip and oral cavity, lung, colorectal, oesophageal, and prostate; while among women they were breast, cervical, thyroid, colorectal, and ovarian cancers. All cancers among men and top two cancers among women are preventable through lifestyle choices and vaccines. Against this background, the review focused on risk factors of tobacco, alcohol, unhealthy diet, physical inactivity and HPV vaccination.

National Multisectoral Action Plan for the Prevention and Control of NCDs (NMSAP NCD) 2023-2027[62] guides the country response on tobacco, alcohol, unhealthy diet and physical inactivity. The Directorate of NCD of the Ministry of Health is the unit responsible to implement the MSAP NCD and monitor progress. The National Authority on Tobacco and Alcohol (NATA) in Sri Lanka was established by the National Authority on Tobacco and Alcohol Act, No. 27 of 2006, with the goal of enacting legal measures for alcohol and tobacco prevention. The Health Promotion Bureau is the focal unit for health education, health promotion and dissemination of health information and for empowering and mobilizing communities related to NCD prevention and control. Several other directorates/ technical units of the Ministry of Health, other Ministries, professional organizations and civil society organizations and other stakeholders are also assigned the responsibility to implement the NMSAP NCD in accordance with their primary roles.

Overall guidance on NCD prevention and control is provided by the NCD Council, and National NCD steering committee and National Advisory Board for NCDs.

HPV Vaccination (prevention of cervical cancer)

Sri Lanka introduced its national HPV vaccination programme in 2017. The programme currently targets 11-year-old girls through a school-based delivery system with a two-dose schedule using the quadrivalent Gardasil vaccine. A multi-age catch-up campaign has been implemented up to age 18, including high-risk groups, such as immunocompromised and HIV-positive adolescents.

Coverage for the first dose has exceeded 90% for the 2021–2023 cohorts, though second-dose coverage remains at 40–50%, with incomplete data reporting. The COVID-19 pandemic temporarily disrupted the programme in 2020 due to supply constraints; yet services resumed in April 2024. The programme continues to be delivered through schools, with provisions for clinic-based delivery catch-up. HPV vaccines are currently supported by GAVI at USD 4.50 per dose through 2025. From 2026 onwards, the country will need to procure. Governance of the programme is coordinated through the National Immunisation Summit and the Advisory Committee on Communicable Diseases (ACCD). Despite the WHO SAGE recommendations and several high-income countries transitioning to single-dose nanovalent HPV vaccines[63] Sri Lanka has yet to make this shift due to concerns about off-label use and regulatory hesitancy.

[62] Ministry of Health, Sri Lanka, *National Multisectoral Action Plan for the Prevention and Control of Chronic Non-Communicable Diseases 2023-2027*. (Colombo: Ministry of Health, 2023), URL: https://www.ncd.health.gov.lk/images/pdf/National_Multisectoral_Action_Book.pdf.

[63] World Health Organization, *WHO Updates Recommendations on HPV Vaccination Schedule*. (Geneva: World Health Organization, 2022), URL: https://www.who.int/news/item/20-12-2022-WHO-updates-recommendations-on-HPV-vaccination-schedule.

Cecolin, a quadrivalent vaccine, has been prequalified by WHO with a single-dose schedule[64]. Summary evidence studies of efficacy of single-dose HPV vaccine are provided by IARC[65].

Tobacco

Sri Lanka ratified the WHO Framework Convention on Tobacco Control (FCTC) in November 2003 and acceded to the Protocol to Eliminate Illicit Trade in Tobacco Products in February 2016. Sri Lanka as tobacco growing country harvested 1 338 hectares in 2018. From 2000 to 2018, the area harvested under tobacco crop decreased by 70.13%.

Though WHO projections on tobacco use among adults shows that Sri Lanka will experience a decline of use of tobacco among adults, from 2010 (24.3%) to 2030 (18.5%)[66], the relative reduction is only 23.8% which is less than the required 30% indicating that Sri Lanka is not likely to achieve the 30% relative reduction of the voluntary target.

The recent national surveys among adults (WHO STEPs survey for NCD and NCD risk factors 2014[67] and 2021[68]) and school children (Global School Based Health Surveys 2016[69] and 2024[70]) show that both smoked and smokeless tobacco use have increased between the two surveys (Table 4).

Table 4: Prevalence of smoked and smokeless tobacco use among adults and school children in Sri Lanka (based on national surveys)

Adults (18–69-year-old) based on STEPs survey			
Current smokers	Both sexes (%)	Males (%)	Females (%)
2014	15.0	29.4	0.1
2021	**14.1**	**30.2**	**0.2**

[64] World Health Organization, *WHO Adds an HPV Vaccine for Single-Dose Use*. (Geneva: World Health Organization, 2024), URL: https://www.who.int/news/item/04-10-2024-who-adds-an-hpv-vaccine-for-single-dose-use.

[65] International Agency for Research on Cancer, *Protection from a Single Dose of HPV Vaccine: A Major Public Health Impact from IARC Studies of Vaccine Efficacy (IARC Evidence Summary Briefs, No. 4)*. (Lyon: International Agency for Research on Cancer, April 2023)

[66] World Health Organization, *WHO Global Report on Trends in Prevalence of Tobacco Use 2000-2030*. (Geneva: World Health Organization, 2024), URL: https://iris.who.int/bitstream/handle/10665/375711/9789240088283-eng.pdf?sequence=1.

[67] World Health Organization, *NCD Microdata Repository*. (Geneva: World Health Organization, 2025), URL: https://extranet.who.int/ncdsmicrodata/index.php/catalog/614/related-materials.

[68] Ministry of Health, Sri Lanka, *Non-Communicable Diseases Risk Factor Survey (STEPS Survey) Sri Lanka 2021*. (Colombo: Ministry of Health, 2021), URL: https://ncd.health.gov.lk/images/pdf/20230817_STEPS_Survey_new_1_compressed.pdf.

[69] World Health Organization, *Global School-Based Student Health Survey 2016*. (Geneva: World Health Organization, 2016), URL: https://extranet.who.int/ncdsmicrodata/index.php/catalog/648/related-materials.

[70] Ministry of Health, Sri Lanka, *Batch140*. (Colombo: Ministry of Health, 2022), URL: https://www.health.gov.lk/wp-content/uploads/2022/08/Batch140.pdf.

Current smokeless tobacco use	Both sexes (%)	Males (%)	Females (%)
2014	15.8	26.0	5.3
2021	**17.5**	**30.3**	**6.4**
School children (13-17 years; based on GSHS			
Current cigarette smoking	Both sexes (%)	Males (%)	Females (%)
2016	3.5	6.2	0.7
2024	**5.7**	**10.6**	**1.0**
currently use of any tobacco products (used any tobacco products during the 30 days before the survey)	Both sexes (%)	Males (%)	Females (%)
2016	9.2	15.6	3.0
2024	**9.7**	**16.9**	**2.9**

Status of implementation of MPOWER technical package in 2024 confirmed that Sri Lanka recorded highest level of achievement for 3 out of 6 MPOWER measures (Table 5).

Table 5: Status of implementation of MPOWER technical package[71]

Monitoring tobacco use and prevention policies (M)	Last survey to monitor tobacco use among adults: STEPS 2021
	Last survey to monitor tobacco use among youth: GSSHS 2024
	Likely to achieve a decrease in prevalence between 2010 and 2025 but, if current trends continue,
	Not likely to achieve the 30% relative reduction voluntary target
Protection from exposure to tobacco smoke (P)	Only six to seven public places completely smoke-free
	Cafés, pubs and bars, airports, hotel rooms, and outdoor waiting areas of public transport (platforms, bus stops, etc.) are not covered under existing smoke-free laws
	Nonsmoking signs are not required in smoke-free places
	Fines are not levied on the establishment for not removing ashtrays
	Has some cessation services (at least one of which is cost-covered)

[71] World Health Organization, *WHO Report on the Global Tobacco Epidemic, 2023: Protect People from Tobacco Smoke*. (Geneva: World Health Organization, 2023), URL: https://www.who.int/publications/i/item/9789240077164.

Measures concerning tobacco dependence and cessation (O)	There is a toll-free telephone quit line/help line with a live person available to discuss cessation with callers in the country
	Nicotine Replacement Therapy is not legally sold in the country
	Cytosine is not legally sold in the country
Packaging and labelling of tobacco products (W1)	Has large warnings (80%) with all appropriate characteristics
	However, large graphic health warnings should be properly implemented in case of indigenous tobacco smoking products (Thora Lalana, Seyadu, Akash, Girawa, etc).
	Although smokeless tobacco products are banned, these products are freely available without any appropriate health warnings.
Education, communication, training, and public awareness (W2)	Implemented a national campaign with at least seven appropriate characteristics including airing on television and/or radio
Tobacco advertising, promotion, and sponsorship (E)	Has a ban on national TV, radio and print media as well as on some but not all other forms of direct and/or indirect advertising
	Laws explicitly banning tobacco products display at point of sale and Corporate Social Responsibility activities (CSR) are absent
	Laws banning the internet sales of tobacco products and the sale of single sticks of cigarettes are absent (under consideration)
Price and tax measures to reduce the demand for tobacco (R)	Share of total taxes in the retail price of the most widely sold brand of cigarettes in 2022: 66.9% (less than the WHO recommendation of at least 75% share of total taxes in the retail price of these cigarettes)
	In case of indigenous smoking tobacco products such as Thora Lalana, Seyadu, Akash, Girawa, etc, the share of total taxes in the retail price is only 10.7% (more affordable and accessible)
	Have cigarettes become less affordable since 2012: Yes
	Earmarked tobacco taxes are used for health: No

Source: WHO report on the global tobacco epidemic, 2023

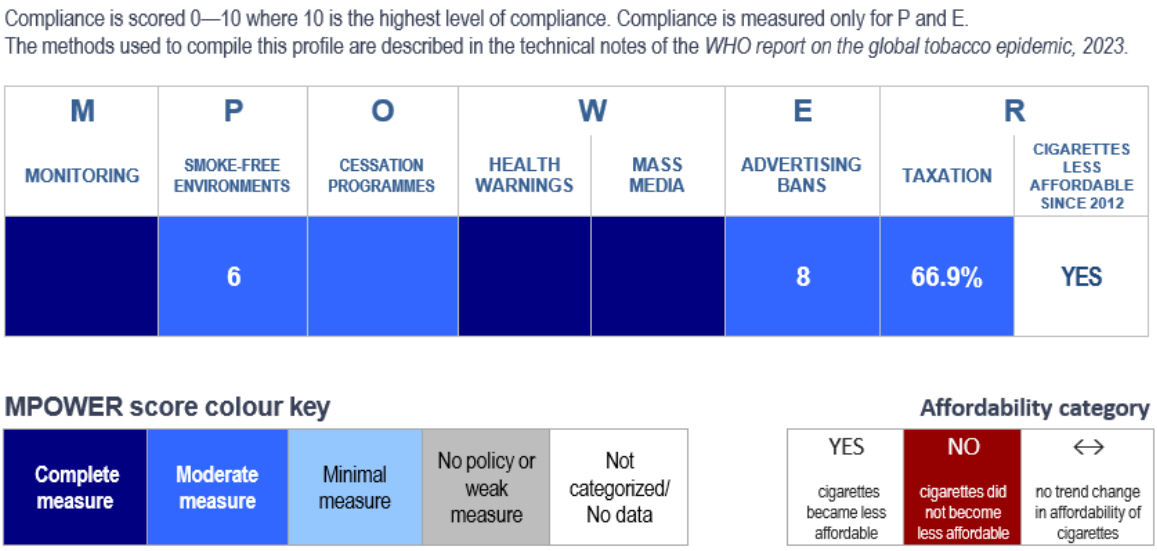

Figure 7. MPOWER Status in Sri Lanka

Global Tobacco Industry Interference Index (TII)[72] assesses how governments are responding to tobacco industry interference and protecting public health policies from commercial and vested interests, as required under the FCTC; 2023 score is 42 out of 100 to Sri Lanka. (higher value indicates more TII). WHO South East Asia Regional Office provides a technical brief on tobacco control status and the way forward[73].

Alcohol

WHO Global health estimates (2021)[74] indicate that total per capita consumption of alcohol among 15 years and older in Sri Lanka is rising with projections indicating that the country is not likely to meet the 2030 global target of a relative reduction of 20% in the harmful use of alcohol by 2030, compared with 2010.

The recent national surveys among adults and school children also show an increase in the alcohol consumption (Table 6).

[72] Global Center for Good Governance in Tobacco Control, *Global Tobacco Index*. (Bangkok: GGTC, 2023), URL: https://globaltobaccoindex.org/.

[73] TFI Unit, WHO South-East Asia Regional Office, *Sri Lanka Tobacco Control Policy Brief*. (Colombo: WHO South-East Asia Regional Office, March 2025)

[74] World Health Organization, *NCD Country Profile: Sri Lanka*. (Geneva: World Health Organization, 2025), URL: https://ncd-uat.adapptlabs.com/CountryProfile/GHE110/LKA#risk-factor1.

Table 6: Prevalence of alcohol use among adults and school children in Sri Lanka

Adults (18–69-year-old) based on STEPs survey			
Current drinkers (past 30-day drinkers)	Both sexes (%)	Males (%)	Females (%)
2014	17.9	34.8	0.5
2021	**20.7**	**43.3**	**1.2**
School children (13-17 years; based on GSHS			
Current drinkers (past 30-day drinkers)	Both sexes (%)	Males (%)	Females (%)
2016	3.2	5.5	1.0
2024	**5.3**	**8.3**	**2.4**

Source: based on national surveys

WHO advocates for a set of cost- effective interventions[75] to control alcohol. Status of implementation as captured in the WHO Progress Monitor 2025[76] is shown below (Table 7).

Table 7: Status of cost-effective alcohol control interventions in Sri Lanka (source: WHO Progress Monitor indicators 2025)

Intervention	Level of achievement
• Has restrictions on the physical availability of retailed alcohol (via reduced hours of sale) o a licensing system or monopoly exists on retail sales of beer, wine and spirits. o restrictions exist for on- and off-premises sales of beer, wine, and spirits regarding hours and locations of sales and restrictions exist for off-premise sales of beer, wine, and spirits regarding days of sales; and o legal age limits for being sold and served alcoholic beverages are 18 years or above for beer, wine, and spirits. • Has enacted and enforced bans or comprehensive restrictions exposure to alcohol advertising (across multiple types of media) o restrictions exist on alcohol advertising for beer, wine, and spirits through all channels; and	*fully achieved*

[75] World Health Organization, *Tackling NCDs: Best Buys and Other Recommended Interventions for the Prevention and Control of Noncommunicable Diseases, 2nd ed*. (Geneva: World Health Organization, 2024), URL: https://iris.who.int/handle/10665/376624.

[76] World Health Organization, *NCD Surveillance Profiles 2024*. (Geneva: World Health Organization, 2024), URL: https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/pm2024-profiles.pdf.

o detection system exists for infringements on marketing restrictions.	
• Increased excise taxes on alcoholic beverages o excise tax on all alcoholic beverages (beer, wine, and spirits) is implemented; o there are no tax incentives or rebates for production of oth alcoholic beverages; and o adjustment of level of taxation for inflation for beer, wine, and spirits is implemented.	*partially achieved*

Diet

Among several aspects of unhealthy diet, the review focused on fruit, vegetables and salt intake considering their attribution to cancer risk. Evidence from the STEPS survey 2021 showed that salt intake per person is 8.5 g per day which is almost double the recommended level. Indicators of fruit and vegetable intake among adults and school children also showed a worsening between the recent national surveys (Table 8).

Table 8: Fruit and vegetable intake among adults and school children in Sri Lanka

Adults (18-69 years old) based on STEPs survey			
Consumption is less than 5 servings of fruit and/or vegetables on average per day	Both sexes (%)	Males (%)	Females (%)
2014	72.5	73.1	72
2021	67.8	68.1	67.6
School children (13-17 years; based on GSHS			
No fruits consumption during the 7 days before the survey	Both sexes (%)	Males (%)	Females (%)
2024	**24.9**	**24.1**	**25.7**

Source: based on national surveys

WHO advocates for the full implementation of the SHAKE package on salt intake at population level to promote healthy diet[77].The following have been implemented in Sri Lanka as of 2025:

- taxation on sugar sweetened beverages

[77] WHO (2017) technical package document is available at https://www.who.int/publications/i/item/WHO-NMH-PND-16.4

- policies to reduce the impact on children of marketing of foods and non-alcoholic beverages high in saturated fatty acids, trans-fatty acids, free sugars and salt
- front of pack labelling to identify foods high in saturated fatty acids, trans-fatty acids, free sugars or salt
- public food procurement and service policies for various settings to reduce the content of saturated fatty acids, trans-fatty acids, sugars or salt/sodium in food (served or sold)
- public education and awareness campaigns on diet (2024-2025).

Physical activity

Projections of physical inactivity among adults (aged 18+ years) shows an increasing trend and that the country is not likely to meet the 2030 global target of a 10% relative reduction by 2025 and 15% by 2030, from the 2010 baseline[78]. The recent national surveys among adults and school children also show an increase in physical inactivity (Table 9).

Table 9: Prevalence of insufficient physical activity among adults and school children in Sri Lanka

Adults (18-69 years old) based on STEPs survey			
Insufficient physical activity (<150 minutes of moderate-intensity activity per week, or equivalent)	Both sexes (%)	Males (%)	Females (%)
2014	30.4	22.5	38.4
2021	**34.8**	**24.2**	**43.9**
School children (13-17 years; based on GSHS			
Insufficient physical activity (defined as < 60 minutes of moderate-intensity activity every day of the week)	Both sexes (%)	Males (%)	Females (%)
2016	84.5	80.7	88.3
2024	88.1	85.7	90.5

Source: based on national surveys

The following WHO-recommended cost-effective interventions have been implemented in Sri Lanka as of 2025:

- national guidelines providing recommended levels of physical activity
- national public education and awareness campaigns on physical activity (2024-2025)

Summary Findings and Conclusions

The national HPV vaccination programme currently targets 11-year-old girls through a school-based delivery system with a two-dose schedule using the quadrivalent Gardasil vaccine.

[78] World Health Organization, *NCD Country Profile: Sri Lanka*. (Geneva: World Health Organization, 2025), URL: https://ncd-uat.adapptlabs.com/CountryProfile/GHE110/LKA#risk-factor1.

Coverage for the first dose has exceeded 90% for the 2021–2023 cohorts, though second-dose coverage remains at 40–50%, with incomplete data reporting. Sri Lanka has not yet made the transition to single-dose due to concerns about off-label use and regulatory hesitancy.

Sri Lanka is experiencing a high burden of cancer many attributable to modifiable risk factors, such as tobacco, areca nut, alcohol consumption, as well as unhealthy diet, and physical inactivity. The recent national surveys among adults and school children indicate an increase in the prevalence of modifiable risk factors. Historical trends and projections of WHO estimates show that the country is not likely to achieve the SDG targets related to NCDs and related modifiable risk factors. The NMSAP NCD 2023-2027 guides the prevention and control and is aligned to the WHO technical packages, but there are gaps in implementation.

The WHO Strategic Advisory Group of Experts (SAGE) and WHO headquarters endorsed a single-dose schedule in April 2022[79,80]. To align with WHO guidance and global best practices, the country should transition to a single-dose HPV vaccination schedule by 2025. This involves convening the ACCD to review global evidence and national modelling data, and developing a comprehensive policy roadmap covering communications, procurement, and operations. Supporting measures include updating training materials, consent forms, and IEC tools to reflect the scientific rationale behind the shift. The transition is justified by WHO and GAVI endorsements, strong long-term efficacy data from IARC studies, and the operational and cost advantages of a single-dose approach. With over 50 countries already adopting this schedule, evidence shows it remains cost-effective and impactful, particularly when paired with catch-up vaccination strategies.

Recommendations

HPV vaccination (prevention of cervical cancer)
Short term (up to 2 years)
• Transition to a single-dose HPV vaccination schedule by 2025, aligning with WHO guidance and global/regional best practices: o convene the ACCD to formally review global evidence and country-specific modelling data. o develop a national policy roadmap for transitioning to a single-dose, including communications, procurement forecasting, and operational planning. o update training materials, consent forms, and IEC tools to reflect the change and explain the scientific basis for the shift.
• Strengthen Information, Education, and Communication (IEC) activities to improve vaccination uptake through a comprehensive communication strategy:

[79] World Health Organization, *WHO Updates Recommendations on HPV Vaccination Schedule*. (Geneva: World Health Organization, 2022), URL: https://www.who.int/news/item/20-12-2022-WHO-updates-recommendations-on-HPV-vaccination-schedule.

[80] World Health Organization, *WHO Adds an HPV Vaccine for Single-Dose Use*. (Geneva: World Health Organization, 2024), URL: https://www.who.int/news/item/04-10-2024-who-adds-an-hpv-vaccine-for-single-dose-use.

- Collaborate with UNICEF, WHO, civil society organizations, media networks, and local education authorities to design and deliver targeted education campaigns.
- Develop a crisis communication strategy modelled after the WHO framework used for polio. Address vaccine safety concerns, misinformation, and shifts in public trust and confidence.
- Institutionalize communication strategy through dissemination to policymakers, educators, public health personnel, and health workers at all levels, and include in training curricula and community outreach protocols.

Medium-term (2 to 5 years):

- Vaccinate both male and female after achieving target in the primary target group.

Risk factors (tobacco, alcohol, unhealthy diet, physical inactivity)

Short term (up to 2 years)

- Implement menu of policy options, cost-effective and recommended interventions for each of the four key risk factors for NCDs (tobacco, harmful use of alcohol, unhealthy diet and physical inactivity) as guided by the WHO publication on Tackling NCDs: best buys and other recommended interventions for the prevention and control of noncommunicable diseases[75].
- Establish a National Advisory Committee on tobacco, alcohol and areca nut as a sub-committee of the National Advisory Board for NCDs, to oversee and provide technical guidance/design.
- Establish an inter-ministerial government body reporting to the Prime Minister/ Parliament to address commercial determinants of health to control NCD/cancer modifiable risk factors, using the whole of government and whole of society approach[76].

Relevant tools, guidelines and reference materials on cancer prevention

1. WHO comprehensive cervical cancer control http://apps.who.int/iris/bitstream/10665/144785/1/9789241548953_eng.pdf
2. WHO Global Action Plan on NCDs (2013-2020) https://www.who.int/nmh/events/ncd_action_plan/en/
3. Cancer. Disease Control Priorities, third edition, volume 3. (World Bank) http://dcp-3.org/cancer
4. WHO Cervical Cancer Prevention and Control Costing Tool (C4P) https://www.who.int/tools/who-cervical-cancer-prevention-and-control-costing-(c4p)-tool
5. UNICEF/WHO – immunization costing tool https://www.who.int/teams/immunization-vaccines-and-biologicals/vaccine-access/planning-and-financing/cmyp-tools
6. WHO list of priority medical devices for cancer management https://www.who.int/publications/i/item/9789241565462
7. Package of essential NCD interventions for PHC in low-resource settings https://www.who.int/publications/i/item/9789240009226

2.6. EARLY DETECTION

Early diagnosis is defined as the early identification of cancer in patients who have symptoms of the disease. This contrasts with cancer screening that seeks to identify unrecognized (pre-clinical) cancer or pre-cancerous lesions in an apparently healthy target population. Cancer early diagnosis and screening are both important components of comprehensive cancer control, but are fundamentally different in resource and infrastructure requirements, impact and cost.[81]

In the Sri Lankan context, the following leading cancers are amenable to early detection approaches: breast, cervical, oral and colorectal. Each will be addressed separately in this section.

Sri Lanka's Ministry of Health, through the National Cancer Control Programme (NCCP), has implemented a multi-pronged early detection strategy. This includes screening services delivered through Well Woman Clinics (WWCs), Healthy Lifestyle Centres (HLCs). The Cancer Early Detection Centres (CEDC) also serves as a key service delivery point, with one CEDC established under a public-private partnership with the Rotary Club of Colombo.

2.6.1. Breast cancer

Breast cancer is the most frequently diagnosed cancer among women in Sri Lanka. In 2022, GLOBOCAN estimated that there were 4 560 new cases of breast cancer, and 3080 deaths. It is predicted that this number will increase to 6 210 women in 2050 of whom 3 080 are estimated to pass from the disease annually by 2030. Many women in Sri Lanka still present at advanced stages.

Sri Lanka's current efforts to improve breast cancer early detection are anchored in education, self-examination, and clinical breast examination (CBE). In addition to population-based screening services delivered through Well Woman Clinics (WWCs) as well as opportunistic screenings and early diagnosis activities conducted through Healthy Lifestyle Centres (HLCs) and specialized Breast Clinics were established in secondary and tertiary hospitals. The Cancer Early Detection Centre (CEDC) in Colombo also serves as a key service delivery point for opportunistic screening.

The NCCP has developed National Guidelines for Self-breast Examination and Clinical Breast Examination[82] and promotes awareness through campaigns during October Breast Cancer Awareness Month, emphasizing the value of early diagnosis and self-breast examination. Demonstrations on proper technique are offered at CEDC and WWCs, with Clinical Breast Examination (CBE) being the primary screening method for women aged 35–45.

Breast Clinics, established at select hospitals; including the National Hospital Colombo, Teaching Hospital Anuradhapura, and Provincial Hospitals in Kurunegala and Badulla, offer

[81] Guide to cancer early diagnosis. Geneva: World Health Organization; 2017, p.8

[82] National Cancer Control Programme, Ministry of Health, Sri Lanka, *National Guidelines for Self-breast Examination and Clinical Breast Examination*. (Colombo: National Cancer Control Programme, 2025), URL: https://www.nccp.health.gov.lk/storage/post/pdfs/SBE%20&%20CBE%20guideline%20(english)final.pdffinal.pdf).

specialized services such as triple assessment (CBE, imaging, and pathology) guided by the operational guidelines for breast clinics[83]. Challenges include delays in diagnosis, limited access to mammography and biopsy, and uneven geographic distribution of services. Most patients require imaging or biopsy referrals outside their districts, further delaying care.

While there are six functioning cancer centres, and three more under development, across the country, the Cancer Early Detection Centre in Colombo serves as a model for integrated, free-of-charge services, including doctor consultation, CBE, mammography, ultrasound, and referral to breast surgical units. The operational guidelines aim to standardize breast clinic workflows, ensure patient privacy, streamline triage, and guide onward referral. Nonetheless, national coverage remains suboptimal, and coordination between screening, diagnosis, and treatment remains fragmented across the country.

Breast cancer early detection in Sri Lanka faces the following challenges:

- Late-stage diagnosis remains prevalent, especially among rural and low-income women, due to limited awareness, stigma, and logistical barriers to access.
- Variability in the intervals of care pathway across multiple levels: waiting times for ultrasound, mammography, and biopsy may lead to delayed initiation of definitive treatment.
- Limited breast clinics in regional health institutions means that timely, specialized assessment is often not available outside of major cities.
- Inadequate human resources, including a shortage of clinical specialists, continues to affect service quality and efficiency.
- Fragmented data systems impede monitoring and accountability with no end-to-end tracking. Breast clinic registers are paper based, with limited digitization and data integration across service points.
- Stigma and misinformation around breast cancer discourage access, particularly in lower socioeconomic groups and among single or older women.

2.6.2. Cervical Cancer

In 2022, GLOBOCAN estimated that there were 1 579 new cases of cervical cancer, and 946 deaths due to cervical cancer was observed in Sri Lanka. It is estimated that without any intervention, a total of 26 904 women in Sri Lanka will die from the disease between 2020-2070, rising to 32 347 by 2120. Sri Lanka is dedicated to reducing cervical cancer incidence and mortality through the implementation of the National Strategic Plan to Reach the Interim Targets of Cervical Cancer Elimination in Sri Lanka, 2021 – 2030 as well as the wider NCCP.

[83] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Operational Guidelines for Breast Clinic*. (Colombo: National Cancer Control Programme, 2025), URL: https://www.nccp.health.gov.lk/storage/post/pdfs/Circular%20new.pdf.

The country's vision for cervical cancer early detection and care is aligned to the WHO cervical cancer elimination initiative which stipulates a target of 70% screening coverage at least once was 51.7%. If Sri Lanka achieves the WHO proposed '90-70-90' targets by 2030, cervical cancer could be eliminated as a public health problem in Sri Lanka by 2050[84] (see Box 1).

BOX 1: Elimination Planning Tool Advancing Cervical Cancer Control in Sri Lanka

If Sri Lanka achieves the WHO's proposed '90-70-90' targets by 2030, cervical cancer could be eliminated as a public health problem in Sri Lanka by 2050, and 84 117 lives would be saved by 2120. Assuming single-dose vaccination and twice lifetime screening, implementation of this strategy in Sri Lanka will require a total budget of USD 41 306 912 during the first 10 years of implementation. In terms of resourcing required, the elimination strategy will require 2 104 591 HPV-vaccine doses and 940 975 HPV-tests during the first 10 years.

Additionally, for every USD $1 invested in the elimination strategy, an estimated USD 57.35 will be returned to the economy over a period of 30 years due to increased workforce participation, increasing to USD 170.06 over a 50-year timeframe. In this analysis, it was assumed routine HPV vaccination for 9-year-olds was rapidly scaled-up to 90% coverage in 2020, including a catch-up in the initial year for 10–14-year-olds, screening was scaled-up from 45% in 2023 to 70% in 2030, and access to cancer treatment was scaled-up to 50% in 2023, reaching 90% by 2030.

The findings of this exercise presented expenses, resources, and expenditures incurred, as well as alternative processes and services that the Sri Lanka might implement to meet the feasibility of the Sri Lankan environment while retaining cost efficiency. Several different strategies can be employed to achieve elimination.

A situational analysis of gaps and proposed solutions are summarised in Table 10.

Table 10. Identified Gaps in Cervical Cancer Screening Programme

Category	Gaps Identified
Screening Protocol and Identification of Women for Screening and Participation	• Cytology is still used as primary screen and triage for HPV DNA despite long result delays, however there is an HPV detection-based screening guideline that proposes HPV as a primary test. • Lack of coordination for follow-up post-screening. • Use of eligible couple register but with incomplete reach in certain population. • No individual call/recall system.

[84] This figure is derived through a modelling exercise for cervical cancer elimination in Sri Lanka.
United Nations Population Fund (UNFPA), *Cervical Cancer Elimination Review and Roadmap for Action: Sri Lanka* (Colombo: UNFPA, 2021), https://philippines.unfpa.org/sites/default/files/pub-pdf/sri_lanka_final_16_12_21.pdf.

	• Lack of unique health ID impairs continuity of care in different registers. • Cultural sensitivities and low health literacy affect screening uptake.
Operation of Screening Programme	• Staff shortages, especially at early detection centres and well women clinics as well as a shortage of cytotechnicians, cytoscreeners, cytopathologists. • No end-to-end tracking from screening to treatment, paper-based records with absence of routine audits or quality monitoring.
Diagnostic Follow-Up	• Long turnaround time for Pap smear results (up to 6 months). • Colposcopy capacity mismatched with screening volume. • Limited number of trained personnel to perform colposcopy. • Lack of thermal ablation procedures to treat cervical precancers; excision only. • Risk of inappropriate hysterectomies without adequate colposcopy.
Treatment and Referral	• Long waiting times for diagnostics and management. • Poor linkage between detection centres and tertiary hospitals. • Overburdened clinicians with multiple roles.
Information system	• Fragmented systems between PHC, hospitals, and programs with no linkages across primary care and secondary, tertiary HLC data. • No IT system to collect individual data, but aggregated data collected in paper-based system. • Aggregated data on screening activities, only regarding number of screenings performed. No data on further assessment and final diagnosis is recorded on PHC. • Despite this, there are attempts to actively contact individuals who are screen-positive and have pre-cancer/cancer to ensure compliance.
Human Resources and Training	• Shortage of trained staff to perform cytology screening. • Few personnel certified for procedures (colposcopy). • Training needs in HPV testing, data entry, and digital tools.
Quality Assurance	• There is no documented guideline/policy for QA or a team responsible.

2.6.3. Oral Cancer

In 2022, GLOBOCAN estimated that there were 2 556 new cases of oral cancer, and 1 198 deaths due to lip, oral cavity was observed in Sri Lanka. GLOBOCAN data and national estimates place lip, tongue, and mouth cancers as most common male cancers in the country. Oral cancer represents a critical public health challenge in Sri Lanka, with the highest incidence among men and a disproportionate burden among lower-income populations. The disease is linked to the widespread use of tobacco, betel quid, and alcohol, often used in combination, and is further compounded by poor awareness, cultural acceptability, late presentation, and lack of organized screening and follow-up systems.

Despite several strong regulations and existing preventive services, the current oral cancer control landscape remains fragmented. Although tobacco and areca nut regulations are strong on paper; including bans on smokeless tobacco and e-cigarettes, the enforcement remains limited, and taxation policies are not applied to areca nut products. Moreover, there are very few tobacco cessation clinics established, despite training efforts for dental professionals. Behaviour change efforts, while ongoing, have limited reach and impact without a coordinated national programme or large-scale community-level campaigns.

The Govt Circular 01-54/2018[85] guides the national screening programme in the form of a multi strategy model to identify high risk individuals for early detection of oral cancer or identification of OPMD. The circular specifies three-point criteria to identify the high-risk individuals. The strategy calls for targeted screening for population sub-groups who are at risk throughout reach efforts, and those referred by medical officers of Healthy Lifestyle Clinics and Well Women clinics and screening of self-referred patients after detection of a suspicious lesion by self-mouth examination and opportunistic screening of all high-risk individuals at dental clinics.

The Circular also defines the referral pathways for and national guidelines for managing oral potentially malignant disorders (OPMDs) are in place[86]. However, there are many gaps in the referral path with screening not being integrated into a cohesive early detection programme. The effect is evidence with majority of cases continue to present at advanced stages (Stage III/IV), when treatment is complex, and survival outcomes are poorer.

A total of 8 147 OPMDs were detected at outpatient dental departments in 2022, with submucous fibrosis, erosive lichen planus, and leucoplakia being the most common conditions. Oral and maxillofacial surgery (OMFS) units diagnosed over 1 800 new cases of oral cancer in 2022. Screening and cessation efforts are hampered by insufficient human resource and inadequate infrastructure, particularly in rural estate areas. The referral and rehabilitation pathways remain limited and surgical options are constrained with only 60

[85] Ministry of Health, Nutrition and Indigenous Medicine, *General Circular No. 01-54/2018: Screening Programme for Oral Potentially Malignant Disorders and Early Detection of Oral Cancer* (Colombo: Ministry of Health, 2018), https://www.health.gov.lk.

[86] Ministry of Health, Nutrition and Indigenous Medicine, *General Circular No. 01-54/2018: Screening Programme for Oral Potentially Malignant Disorders and Early Detection of Oral Cancer* (Colombo: Ministry of Health, 2018), https://www.health.gov.lk.

certified OMFS surgeons and three oral pathologists in the entire country, with long training requirements for clinicians involved.

Monitoring and reporting on screening activities and related data systems are in development. Some local units (e.g., RDS Colombo, Kalmunai) have introduced digital tools, such as Google Forms for follow-up, yet there is no centralized, standardized platform for data collection, referral tracking, or outcome monitoring. CanReg5 is used in some OMFS clinics, but integration with national cancer data and health records is lacking.

In Sri Lanka, oral cancer is tied to social inequalities. The disease is more prevalent among poor and marginalized populations due to a combination of low health literacy, lack of access to care, cultural acceptability of areca nut and tobacco use, and stigma associated with oral disease. Although tobacco and areca nut regulations are strong, including bans on smokeless tobacco and e-cigarettes, the enforcement remains weak, and taxation policies are not applied to areca nut products. Moreover, there are few tobacco cessation clinics, despite training efforts for dental professionals. Behavioural change efforts, while ongoing, have limited reach and impact without a coordinated national programme or large-scale community-level campaigns.

2.6.4. Colorectal Cancer

Colorectal cancer is an emerging public health concern in Sri Lanka, with increasing incidence among urban and rural populations. In 2022, GLOBOCAN estimated that there were 2 540 new cases of colorectal cancer, and 1 284 deaths due to colorectal cancer. Currently, there is no structured early detection pathway for colorectal cancer within the public health system, and most cases are identified only at late stages when treatment options are more limited and outcomes poorer. During consultations, stakeholders consistently emphasized that the current system capacity is insufficient to implement population-based colorectal cancer screening. There are critical shortfalls in endoscopy infrastructure, trained personnel, and diagnostic turnaround times. As such, before considering formal screening, Sri Lanka must first strengthen early diagnosis pathways for symptomatic individuals, aimed at reducing delays in detection and ensuring timely access to diagnostic and treatment services for symptomatic individuals.

Summary Findings and Conclusions

Sri Lanka has implemented efforts to address cervical, breast, oral, and colorectal cancers and has made notable strides in addressing for early detection. Regarding cervical cancer, the National Strategic Plan aims to achieve WHO's '90-70-90' targets by 2030, potentially eliminating cervical cancer as a public health problem by 2050. However, gaps such as long turnaround times for Pap smear results, staff shortages, and fragmented information systems persist. Likewise, breast cancer early detection faces systemic challenges, including late-stage diagnosis, limited access to mammography and biopsy, and uneven geographic distribution of services. The NCCP promotes awareness through campaigns and guidelines for self-breast examination and clinical breast examination.

Oral cancer represents a critical public health challenge, with high incidence among men and lower-income populations. Despite strong regulations and preventive services, the current oral cancer control landscape remains fragmented. Many cases continue to present at advanced

stages, complicating treatment and reducing survival outcomes. Colorectal cancer is an emerging concern, with increasing incidence observed in both urban and rural populations. Currently, there is no structured early detection pathway for colorectal cancer within the public health system, leading to late-stage diagnoses and poorer outcomes.

Given existing capacity constraints, Sri Lanka should prioritize strengthening early-diagnosis pathways for symptomatic individuals rather than introducing new population-based screening before the system is ready. Clear referral protocols for alarm symptoms, rapid access to diagnostics, and dedicated diagnostic slots can reduce delays and downstage presentations. Parallel investments in regional diagnostic hubs, multidisciplinary care teams, and interoperable patient-tracking systems will ensure that symptomatic patients are identified, investigated, and treated in a timely, coordinated manner. This targeted, step-wise approach will lay a solid foundation, both technically and operationally, for any future expansion into formal screening programmes.

Recommendations

Breast Cancer
Short term (up to 2 years)
• Strengthen CEDC as the national model: finalize workflows, QA indicators and patient-navigation protocols.
• Train PHNSS, midwives and medical officers in high-quality CBE and referral counselling.
• Map current breast-clinic distribution and diagnostic waiting-times by district.
• Set up a basic electronic call/recall and individual-level tracking; basic digital register to capture care pathway.
• Embed year-round, community-driven awareness campaigns (beyond October) tailored to rural/low-literacy groups.
• Reduce Delays in Diagnostic and Treatment Pathways: Implement an early diagnosis pathway ensuring that all women with suspected breast lesions receive complete investigations (CBE, imaging, and biopsy) within 14 days of registration at a breast clinic, with hospitals pre-allocating diagnostic slots; initiate treatment promptly at the earliest available surgical or oncology clinic, with multidisciplinary coordination for complex cases.
Medium term (2 to 5 years)
• Scale CEDC model via 2–3 regional satellite centres offering on-site imaging (mammography/US).
• Operationalize dedicated breast clinics in all secondary/tertiary hospitals for fast tracking of referrals.
• Deploy a fully interoperable digital platform (linked by PHN/digital ID) for end-to-end tracking, QA audits and automated reminders.
• Expand and Strengthen the National Network of Breast Clinics: Ensure all appropriate secondary and tertiary hospitals establish dedicated breast clinics in line with the 2022 NCCP operational guidelines, offering structured triple assessment (CBE, ultrasound/mammography, and FNAC/biopsy) with trained staff, proper equipment, and clear referral pathways; prioritize underserved districts and utilize mobile clinics to improve rural access.

• Improve Data Systems and Monitoring & Evaluation (M&E): Track time intervals from presentation to diagnosis and treatment in line with Global Breast Cancer Initiative guidelines; ensure all breast clinics use standardized registers and reporting templates aligned with NCCP standards, with monthly and quarterly data reviewed nationally; leverage the planned Personal Health Number (PHN) or Digital ID to link data across services for better client navigation and data integration; and evaluate the effectiveness of CBE-based screening through quality assurance indicators.
Long term (5 or more years)
• Evaluate CBE's performance via periodic cohort studies and refine screening age/interval recommendations.
• Achieve full integration of breast-clinic, surgical and oncology data under the PHN system.
Cervical Cancer
Short term (up to 2 years)
• Revise HPV-primary screening guidelines with triage refinement; direct colposcopy for HPV 16/18 positives; cytology-only triage for other high-risk types.
• Complete pilot evaluation of HPV testing (including self-sampling) and map rollout regions.
• Rapidly train midwives, PHNSS and medical officers in HPV-sample collection, colposcopy basics and thermal ablation.
• Set up a simple electronic call/recall and individual-level tracking.
• Gradually shift to HPV testing as the primary method for cervical cancer screening by revising national guidelines and phasing out cytology-based screening across regions; identify a sustainable financing strategy for implementation; and incorporate self-sampling options to enhance accessibility and acceptability, especially in hard-to-reach areas.
Medium term (2 to 5 years)
• Phased, district-by-district replacement of cytology with HPV DNA testing (with self-sampling in hard-to-reach areas).
• Build colposcopy & thermal-ablation capacity to match screening volumes
• Deploy a fully interoperable digital platform (linked by PHN/digital ID) for end-to-end tracking, QA audits and automated reminders.
• Establish a dedicated budget line covering HPV vaccination, screening, and treatment of precancerous lesions; integrate cervical screening indicators into the next national NCD Risk Factor Survey to track participation and progress; and utilize the planned Personal Health Number (PHN) or Digital ID to link data across services for improved client navigation and data consolidation.
Long term (5 or more years)
• Maintain WHO "90-70-90" coverage (90 % vaccination, 70 % screening, 90 % treatment) through 2030 and beyond.
• Leverage elimination modelling to secure sustainable financing (aiming for elimination by 2050).
Oral cancer
Short term (up to 2 years)

• Focus on ensuring a streamlined care pathway for early diagnosis and developing a screening strategy for the identified high-risk groups.
• Strengthen training for non-specialists in visual inspection and set up tele-consultation pilots for remote image review by OMFS consultants. Evaluate the effectiveness of this approach.
• Launch embedded implementation research at 3–5 sentinel sites that includes a risk-factor algorithm.
• Convene regular MDT reviews for OPMD cases and refine lesion-management algorithms.
• Design Education and awareness campaigns specifically for high-risk and low-literacy populations, especially men in estate and rural areas. Partnerships with community groups and local influencers should be leveraged to promote early presentation, and stigma reduction.
Medium term (2 to 5 years)
• Scale targeted screening among identified high-risk groups: estate workers, fishing and agricultural workers, with built-in referral tracking.
• Expand tele-consultation network to cover all district dental units; integrate with digital data platform.
• Establish district-level habit-cessation clinics paired with screening sites.
• Deploy a fully interoperable digital platform (linked by PHN/digital ID) for end-to-end tracking and QA audits.
• Scale Up Tobacco Cessation and Habit Intervention Services. District-level cessation clinics should be scaled up, supported by trained dental and PHC staff, with integrated habit intervention modules and digital tools for ongoing counselling. These services can be embedded into clinic workflows (e.g., during patient wait times).
• Clear, standardized referral protocols should be developed and disseminated across all levels of care. Treatment services must be expanded to include speech therapy, restorative dentistry and post-treatment psychosocial support. Multidisciplinary teams (MDTs) and regular morbidity and mortality meetings should be established at tertiary centres.
• Develop a national digital data platform to collect individual-level data on OPMD and oral cancer screening, diagnosis, treatment, and follow-up. This platform should be interoperable with existing systems (e.g., CanReg5, EMRs, NDHP) and support automated reminders, treatment tracking, and analytics. The ongoing Google Form pilot can serve as a foundation for scale-up.
Long term (5 or more years)
• Consider a structured oral-cancer early detection programme based on findings of implementation research.
• Commission cost-effectiveness and long-term outcomes studies to optimize screening frequency and target groups.
Colorectal Cancer
Short term (up to 2 years)
• Define and disseminate clear symptomatic-referral algorithms (PR bleeding, bowel change, weight loss) across PHC/HLCs/OPDs.

• Build MDT care teams in tertiary centres for colorectal cancer management.
• Establish training programmes on triage protocols.
• Integration of digital patient tracking systems to monitor referrals, investigations, and follow-up outcomes, ensuring no patient is lost in the process.
• Set up dedicated early diagnosis clinic slots for FOBT, colonoscopy and imaging with turnaround-time targets.
• Prioritized outreach and access support for high-risk and underserved populations, including transport assistance and awareness campaigns in rural areas.
Medium term (2 to 5 years)
• Develop regional diagnostic hubs with colonoscopy capacity and trained endoscopists.
• Integrate colorectal symptomatic pathways into the national digital platform (PHN system) for seamless follow-up.
• Develop regional diagnostic hubs equipped with triage capabilities and colonoscopy, supported by trained gastroenterologists or surgical specialists.
Long term (5 or more years)
• Scale hub-and-spoke colonoscopy services to meet demand for early diagnosis and evaluate effectiveness.

Relevant tools, guidelines and reference materials on cancer early detection

- Cancer. Disease Control Priorities, third edition, volume 3. (World Bank) http://dcp-3.org/cancer
- WHO Guide to Cancer Early Diagnosis https://www.who.int/publications/i/item/9789241511940
- WHO position paper on mammography screening https://www.who.int/publications/i/item/who-position-paper-on-mammography-screening
- WHO comprehensive cervical cancer control http://apps.who.int/iris/bitstream/10665/144785/1/9789241548953_eng.pdf
- Guidelines for screening and treatment of precancerous lesions for cervical cancer https://www.who.int/publications/i/item/9789240030824
- WHO list of priority medical devices for cancer management https://www.who.int/publications/i/item/9789241565462
- PAHO Early detection: Breast physiology and the clinical breast exam (CBE) https://www.paho.org/en/documents/early-detection-breast-physiology-and-clinical-breast-exam-cbe
- PAHO Early detection: Breast health awareness and early detection strategies https://www.paho.org/en/documents/early-detection-breast-health-awareness-and-early-detection-strategies-cancer

- Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings https://www.who.int/publications/i/item/9789241598996

2.7. DIAGNOSIS AND TREATMENT

Infrastructure and Service Delivery

Cancer diagnosis and treatment in Sri Lanka is delivered by public and private sectors, with the public system offering services free of charge. Cancer care is offered at 9 main cancer centres and 18 regional cancer centres (see Figure 8), with the NCISL serving as the country's leading tertiary cancer hospital.

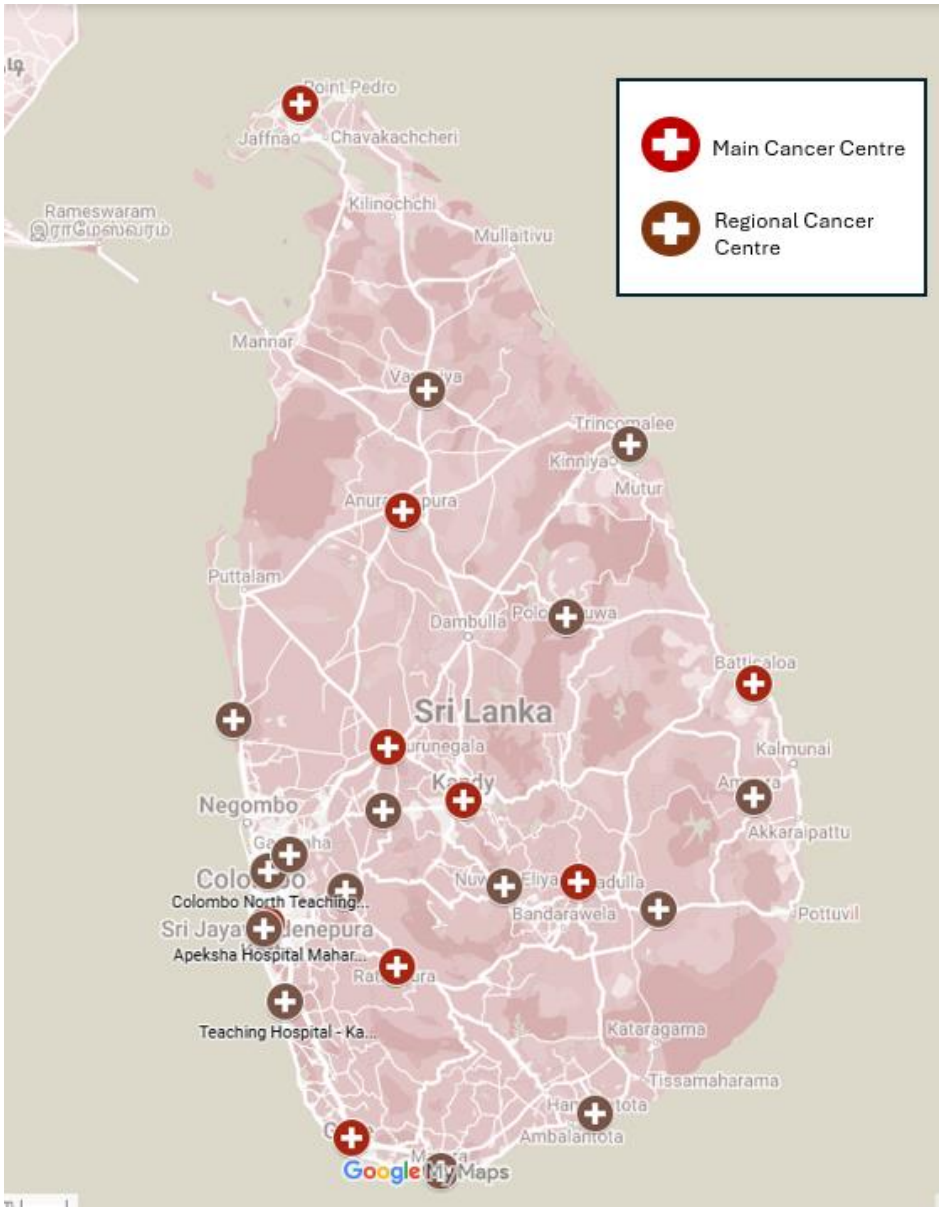

Figure 8. Map of Public Cancer Centres in Sri Lanka[87]

[87] Directorate of National Cancer Control Programme (NCCP), Ministry of Health, 2025.

Private clinics operate on a fee-for-service model with some remuneration through private insurance supplements. Private health facilities offer quality of cancer care comparable to the public sector but often during more convenient hours, shorter waiting times, and greater availability of diagnostics and medications. Many public-sector physicians, employed full-time by the Ministry of Health, also work in private practice after hours. This practice is legally permitted and widespread, largely on account of relatively low public-sector compensation. There are indications that it does adversely affect availability of services at public facilities.

In 2024, there were 40 421 new patient registrations at 28 public cancer hospitals, which has increased from 35 107 in 2019[88]. Since 2019, access to care in rural areas has improved with the establishment of additional Regional Cancer Centres. While many of these centres still face gaps in staffing and infrastructure, their expansion represents a critical step toward achieving more equitable access to cancer services.

Despite the availability of public services free of charge, many cancer patients continue to seek care in the private sector. Public facilities frequently face shortages or delays in the availability of recommended medications and diagnostic tests, leading to treatment delays that can adversely affect patient outcomes. The imPACT review team was informed about a general lack of public trust in the quality of medicines provided in public facilities, prompting patients to purchase medication privately. This often leads to OOP, however, estimating the average patient cost is difficult due to the lack of routine data collection and reporting.

Training and Education

Sri Lanka has structured education and training pathways for a range of cancer specializations. There are postgraduate programmes in clinical oncology, cancer surgery, gynaecologic oncology, paediatric oncology, and haematology. These programmes include five years of in-country training followed by one to two years in a Centre of Excellence abroad, often in the UK or Australia, funded by the Ministry of Health. Trainees are required to serve 12 years in the public sector upon completion [89]. However, some trainees do not return.

Training pathways also exist for nurses, radiation therapy technologists (RTTs), medical physicists, and allied health workforce. However, the number of specialized cancer care professionals remains limited. Continuous Medical Education (CME) is available primarily for physicians through Postgraduate Institute of Medicine (PGIM) and professional colleges, but is limited for nurses, midwives, and allied health workforce.

In addition to education and specialization, the career pathway for physicians plays a critical role in shaping the sustainability of the cancer care workforce. Public-sector physicians are employed full-time by the Ministry of Health and receive a fixed monthly salary. However, due to relatively low compensation, many engage in private practice after hours, which is legally permitted but may adversely affect public-sector service availability.

[88] Directorate of National Cancer Control Programme (NCCP) of the Ministry of Health, New Patient Registration at Cancer Treatment Centers, Sri Lanka.

[89] Sanjeeva Gunasekera, et al., *Delivery of Cancer Care in Sri Lanka,* Journal of Cancer Policy 18, 2018: 20-24, DOI: https://doi.org/10.1016/j.jcpo.2018.10.001

Oncology Guidelines

Since the 2019 imPACT review, multi-disciplinary national cancer treatment guidelines for some common cancers have been developed, including oral cancer, breast cancer, and cervical cancer. palliative care guidelines have also been established. The breast cancer guidelines outline management of early-stage breast cancer. However, guideline development for advanced/metastatic cancers have been on hold due to lack of clarity on which medications would be available for treatment. Guidelines for cervical cancer and oral cancer have also been developed. However, the available guidelines have not been consistently adopted among the cancer centres across the country. Individual locations tend to follow various pathways often based on NCCN or EMA guidelines yet need to be tailored to the available resources.

Multi-Disciplinary Cancer Management

Multi-disciplinary care is required to optimally treat cancer patients, particularly solid tumours. While some Sri Lanka cancer centres hold regular tumour boards, most do not, primarily due to time constraints, according to discussion with Sri Lankan physicians. Additionally, some centres who report occurrence of tumour boards do not have dedicated meeting times but instead provide multi-disciplinary care through ad hoc direct communication among treating physicians. The sites with regularly scheduled meetings hold general tumour boards without dedicated meetings for specific common or complex cancer diagnoses. Because of the high volume of patients, only the most complex patients are discussed, and the vast majority of patients are treated without formal multi-disciplinary discussion. As multi-disciplinary conferences have been shown to improve outcomes, allocated time for tumour boards would be a low-cost intervention to improve cancer care in Sri Lanka[90,91,92].

Summary Findings and Conclusions

Since 2019 imPACT Review, there has been notable progress in expanding diagnostic capacity, particularly in imaging and pathology, as well as improving access to care in rural areas through the establishment of new regional cancer centres. Despite this progress, significant challenges remain. Diagnostic and treatment capacity continues to be constrained by geographic disparities, outdated infrastructure, and workforce shortages. Advanced diagnostics are limited to select tertiary centres, resulting in delays in diagnosis and treatment planning. Frequent stockouts of essential oncology medicines, particularly in regional facilities, disrupt treatment continuity and often force patients to wait, accept alternative regimens, or purchase medications privately. Human resources, including cancer specialists, physicians

[90] Stenberg, Karin, et al. "Advancing Social and Economic Development by Investing in Women's and Children's Health: A New Global Investment Framework." *Health Policy* 119, no. 12 (2014): 1910–1920. https://doi.org/10.1016/j.healthpol.2014.09.006.

[91] Elmore, Lindsey C., et al. "Patient Navigation for Breast and Colorectal Cancer in Three Community Hospital Settings: An Economic Evaluation." *Annals of Surgical Oncology* 24, no. 2 (2017): 447–453. https://doi.org/10.1245/s10434-017-5833-3.

[92] Hashim, Najib, et al. "Knowledge, Attitudes and Practices Regarding Oral Cancer Among Dentists in Malaysia." *American Journal of Otolaryngology* 34, no. 6 (2013): 658–663. https://doi.org/10.1016/j.amjoto.2012.08.010.

and support staff continue to be inadequate. The absence of comprehensive national clinical guidelines, limited implementation of multidisciplinary teams (MDTs), and the lack of routine clinical audits further hinder standardization and quality assurance in cancer care, ultimately contributing to suboptimal treatment outcomes.

Recommendations (across Diagnosis and Treatment areas)

Short term (up to 2 years)
• Institutionalise MDT meetings at all cancer centres, guided by standardized national protocols. Ensure participations from all key specialties, including radiologists, oncologists, surgeons, pathologists, nurses, palliative care specialists, and other relevant workforce. These meetings should be guided by standardized clinical protocols and documented for quality assurance through routine clinical audits.
• Identify key factors contributing to frequent stockouts and inequitable access to WHO essential cancer medicines, focusing on governance, procurement, distribution, and quality assurance systems.
• Improve patient navigation system to reduce delay across the continuum of care.
Medium term (2 to 5 years)
• Develop national resource-stratified guidelines to reduce variability in clinical practice and align service delivery with available resources at each level of care. These guidelines will promote consistency, improve efficiency, and ensure equitable access to quality cancer care across the health system, while also helping to identify low-value or unnecessary interventions. Published examples of consensus-based approaches offer models that can inform implementation in the Sri Lankan context [93].
• Develop a care pathway with adequate diagnostic capacity to investigate people with cancer symptoms in every district.
• Conduct routine clinical audits and identify low-value care by establishing regular review mechanisms to assess whether cancer services meet national quality standards. These audits should be linked with national guidelines and performance indicators to reduce practice variation, enhance outcomes, and eliminate low-impact interventions. Published literature provides examples of "core set performance indicators" suitable for low-resource settings, which public hospitals in Sri Lanka can adopt to assess the impact of current investments and guide quality improvement efforts [94,95] .

[93]C S Pramesh et al., *Choosing Wisely India: ten low-value or harmful practices that should be avoided in cancer care*, The Lancet Oncology, Volume 20, Issue 4 (2019): E218-E223, URL: https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(19)30092-0/abstract

[94] Megan McLeod, *Quality indicators for evaluating cancer care in low-income and middle-income country settings: a multinational modified Delphi study*, Volume 25, Issue 2 (2024): E63-E72, URL: https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(23)00568-5/abstract

[95] The Donabedian quality indicators for surgical oncology: McLeod, Megan, Kari Leung, C. S. Pramesh, Peter Kingham, Miriam Mutebi, Julie Torode, Andre Ilbawi, Jade Chakowa, Richard Sullivan, and Ajay Aggarwal. "Quality Indicators in Surgical Oncology: Systematic Review of Measures Used to Compare Quality Across Hospitals." *BJS Open* 8, no. 2 (2024): zrae009. https://doi.org/10.1093/bjsopen/zrae009.

- Increase the opt-out bond to fully cover the costs of medical and postgraduate training. Provide long-term incentives, including improved remuneration and work-life balance, to enhance retention and development of the required oncology workforce.
- Empower nurses and support staff to become oncology experts by implementing competency-based training linked to credentialing, promotion, and increased remuneration.

2.7.1. Diagnostic imaging and nuclear medicine services

Diagnostic radiology is one of the most rapidly evolving and technologically advanced specialties. With the continuous development diagnostic imaging plays a critical role in cancer care — contributing to early detection, diagnosis, accurate staging, treatment planning, monitoring response, and follow-up.

Most imaging facilities, public and private, in Sri Lanka are located in the Western Province (one of nine countrywide). Outside of the capital, imaging services are available in major provincial cities, with regional hospitals.

Infrastructure

Most hospitals have dedicated facilities for radiology and nuclear medicine, often separate from the main hospital building. Some centres offer imaging services adjacent to emergency and outpatient departments to facilitate access. Radiation zones are clearly marked with signage for safety and awareness. Reception areas generally include adequate waiting space and patient preparation rooms.

Key infrastructural challenges include:

- Limited physical space
- Aging buildings not designed for modern workflows
- Imaging facilities distant from the core hospital departments

Imaging Modalities and Equipment

Hospitals are generally equipped with a wide range of imaging equipment, from basic x-ray to high-end MRI. However, availability and accessibility vary across the country.

Table 11. Imaging Equipment

Modality	Availability	Notes
X-ray	Widely available	Digital X-rays are replacing conventional systems; no waiting time

Ultrasound	Widely available	Average waiting time: 5 months (abdomino-pelvic); 2 months (breast)
Mammography	20 units	Average 20 patients/day; 2-month waiting time
CT scan	Generally available in hospitals	Waiting time up to 6 months
MRI	Limited availability	Not consistently available
Fluoroscopy	Available in some centres	Services not satisfactory
SPECT	Limited to select centres	N/A
PET-CT	Limited to few leading centres	N/A

Other equipment challenges include:

- Inadequate or outdated radiation protection gear (e.g., lead aprons, thyroid shields, goggles, especially in nuclear medicine units).
- Lack of digital dosimeters, contamination monitors, and survey meters.
- While some facilities provide staff with thermoluminescent dosimeters (TLDs), others do not. Protective equipment is used consistently to ensure the safety of both patients and workers.

Data Storage

Several hospitals have adopted Picture Archiving and Communication Systems (PACS), while others are in the process of doing so. Some centres have requested system upgrades and integration with electronic medical records (EMRs) to enhance care delivery.

Human Resources

Table 12 below captures the status related to the diagnostic imaging human resources.

Table 12. Human Resources

Human Resources	Count	Notes
Radiologists	200	70 working abroad; 9 currently in training; 2 paediatric radiologists
Interventional Radiologists	10	Limited availability

Radiographers	600	Some perform dual roles supporting nuclear medicine
Medical Physicists	~40	Often substituted by radiographers
Nuclear Medicine Physicians	3	Very limited; Radiologists often assume this role with short- term training
Radiopharmacists	0	Radiographers act as radiopharmacists with limited training

Training and Development

A well-established postgraduate programme in radiology exists, but no in-country subspecialty training is available. Most trainees pursue further specialization in the UK or Australia. Continued education opportunities are essential for staff development, job satisfaction, and retention.

Quality Control

Quality control in radiology aims to ensure the optimal performance of imaging equipment and procedures, reduce radiation exposure, and ensure diagnostic accuracy. A robust quality assurance system enhances safety and confidence in imaging services.

Most diagnostic radiology and nuclear medicine departments in Sri Lanka lack dedicated quality assurance units. There is also ambiguity in the job roles of medical physicists and radiographers; physicists are not permitted to conduct regular quality control tests on all diagnostic equipment.

2.7.2 Nuclear Medicine

Nuclear medicine offers significant diagnostic and therapeutic benefits, but its development in Sri Lanka remains limited due to shortage of trained professionals and limited infrastructure. Demand is growing rapidly, especially in oncology.

Since the 2019 imPACT Review Sri Lanka has been gradually expanding nuclear medicine, particularly with imaging. More centres are now equipped with diagnostic modalities, improving physical access to essential cancer imaging services. A key strength observed in both 2019 and 2025 remains the dedication of nuclear medicine workforce, who continue to operate under challenging conditions.

Despite infrastructure improvements, many of the critical gaps identified in 2019 persist. Equipment continues to be underutilized due to ongoing shortages in trained workforce, limited supplies, and frequent equipment malfunctions. Importantly, there has been no significant progress in developing training pathways or expanding the workforce, particularly nuclear medicine physicians and radiopharmacy training.

While the availability of basic infrastructure, such as MRI machines, presents an opportunity to scale up services, the absence of corresponding investments in human resources and quality assurance mechanisms limits system performance. Quality control issues remain unaddressed, emphasizing the need for a coordinated approach that aligns infrastructure investment with training, staffing, and maintenance to fully leverage Sri Lanka's nuclear medicine capacity in cancer control.

Infrastructure and Equipment

Most nuclear medicine facilities are adjacent to radiology departments and share facilities. These centres have dedicated rooms, including hot labs. Lead shielding is available at most sites, and some use TLDs and ring dosimeters. Radiopharmaceuticals are imported from India.

Table 13. Nuclear Medicine Facilities

Facility	Modality	Notes
NCISL	1 PET-CT, 1 SPECT	PET-CT used once weekly; 13 patients/ day; SPECT: 12/day
Lady Ridgeway Children's Hospital	Paediatric Imaging	Dedicated paediatric nuclear medicine services
National Hospital Sri Lanka	2 SPECT (dual & single), 1 PET-CT	10–12 patients scanned daily
Kandy RAI Therapy Unit	Post-therapy Imaging	Offers post-radioactive iodine whole-body scans
NHSL Karapitiya	1 SPECT	N/A
Private Centres (2)	2 SPECT, 1 PET-CT	N/A

Human Resources

Sri Lanka has three nuclear medicine physicians but lacks formally trained radiopharmacists, a role currently filled by radiographers with limited training. Radiologists and radiographers frequently take on nuclear medicine responsibilities after short-term training.

Summary Findings and Conclusions

Diagnostic imaging and nuclear medicine services in Sri Lanka play a critical role in cancer care, yet face significant challenges in infrastructure, human resources, and quality assurance. Imaging services are concentrated in the Western Province with limited access in other regions, and long waiting times for ultrasound, CT, and MRI. NCISL and the National Hospital of Sri Lanka are key service providers yet constrained by equipment shortages, outdated infrastructure, and insufficient staffing. Although Picture Archiving and

Communication Systems (PACS) are being adopted, integration with electronic medical records is in development.

There are only 200 radiologists (70 of whom are abroad), 10 interventional radiologists, and 3 nuclear medicine physicians nationwide. Radiopharmacy roles are often filled by radiographers after limited training, and there is no in-country subspecialty training.

There has been some progress since the 2019 imPACT Review, particularly in expanding imaging infrastructure. Nuclear medicine services remain underutilized due to shortages in trained workforce, limited radiopharmaceutical supply, and frequent equipment malfunctions. Quality assurance mechanisms are largely absent, and ambiguity in professional roles further hampers service delivery. The dedication of workforce is a notable strength, but without strategic investment in workforce development, training pathways, and maintenance systems, Sri Lanka's capacity to scale up cancer imaging and nuclear medicine services remains constrained. A coordinated approach aligning infrastructure with human resources and quality control is essential for sustainable improvement.

Recommendations

Short term (up to 2 years)
• Establish a quality control system, led by the Ministry of Health, by engaging medical physicists to carry out duties in line with IAEA protocols.
• Delineate job descriptions between medical physicists and radiographers.
• Equip NCISL with MRI.
• Establish radiology subspecialty units (e.g., musculoskeletal, breast, body, cardiothoracic, neuroradiology, paediatric, interventional) to improve care and enhance residency training.
Medium term (2 to 5 years)
• Establish a radiopharmacy training programme, in collaboration with the IAEA.
Long term (more than 5 years)
• Establish a postgraduate programme in nuclear medicine.

2.7.3. Pathology and Laboratory medicine

Sri Lanka's pathology is divided into four distinct specialties: Histology, (surgical pathology, cytopathology, and autopsy), Haematology (haematology and hematopathology), Biochemistry (includes marker tests), and Microbiology. These sections are staffed and organized independently, and each have own respective national College. There is no overarching society or College that unifies these four groups. In the public sector, each specialty practices broad pathology, including Histology, although some pathologists have organ-specific subspecialty interests and focus areas.

The largest practice is based at the NCISL, staffed by twelve pathologists and where advanced testing for cancer biomarkers is under development. Regional hospitals are commonly staffed by a few pathologists. Pathology tissues collected at remote sites where no pathology lab is present are referred to the nearest large hospital. National efforts are underway by the Colleges to develop guidelines and test implementation plans for Sri Lanka. In general

pathology is generally understaffed with limited resources, such as reagents, continuing medical education and space. There has been improvement since the 2019 imPACT Review, such as the development of molecular diagnostic laboratory at NCISL, but modest improvement in the use or development of laboratory information system.

Human Resources and Education and Training

Sri Lanka has board certified pathologists: 53 in Histopathology and 50-60 in Haematology. Pathologists obtain their initial training at the Sri Lanka medical school, followed by 2 years of pathology training, and finally a year abroad (often UK or Australia). The training is general in scope in one of the four pathology areas. One challenge commonly encountered is that following training, many junior pathologists do not return to Sri Lanka due to low salary and placement in rural locations with limited access to schools for children and/or childcare. There is also a general shortage of medical laboratory technicians, histotechnologists, and cytoscreeners despite existing training programmes. These staff should improve turnaround time and quality with the appropriate investments. This overall staffing shortage has led to longer turnaround times of pathology specimens and laboratory tests. Continuing medical education or opportunities for additional subspecialty training is generally not financially supported.

Staffing in Biochemistry and Microbiology appears adequate, with 55 microbiologists in public hospitals and additional trained workforce in virology and mycology. This staffing is adequate to cover Biochemistry and Microbiology needs in the country.

Infrastructure and Equipment

Improvements in infrastructure are needed in most hospitals in Sri Lanka, with an emphasis on larger, temperature-controlled space with adequate ventilation. Adequate space is important to accommodate new modular equipment requiring a larger footprint for automation. Temperature control is also important in maintaining specimen integrity, as well as ensuring proper functioning of equipment. While some labs did have temperature control and adequate ventilation for safety standards, most did not. Additionally, most hospitals had the four key laboratory areas separated. This is suboptimal, given the opportunity to leverage expertise, promote staff cross-training to cover other laboratory areas, and to optimize laboratory infrastructure modifications. The secondary effect of this separation is that it also leads to lack of interaction between pathologists and technicians, many of whom share overlapping expertise. The Sri Lanka Pathology Colleges have emphasized improvements in safety since the 2019 imPACT Review, including the need for proper ventilation for formalin use and use of personal protective equipment (face shields, goggles, gloves, closed toe footwear in laboratories, etc). While these guidelines are being established, there is still a need for implementation in all laboratories. Finally, there is a need for nearby designated break areas, as many laboratory workers consume meals within the laboratory itself posing a safety risk.

Most equipment and analysers are relatively aged (>10 years). Hospitals generally did not have back up equipment, which leads to significant result delays when equipment breaks. Although service contracts were in use, there still appear to be significant delays in equipment repair. There are also reported delays in obtaining reagents for some equipment due to financial constraints. There is no Laboratory Information System (LIS) to interface with equipment and help facilitate electronic data results generation.

Coverage of services

Histology services are relatively similar across the country. Tissue processing and slide generation is often performed using automated microtomes to facilitate slide cutting. However, turnaround time for case reporting is occasionally long (up to 2 months) due to limitations in immunohistochemistry and inadequate numbers of histotechnologists. Immunohistochemistry is available at 4-5 larger centres, with the NCISL serving as a referral centre accepting blocks from patients. On average, large centres have 40-50 antibodies that include basic diagnostic markers, and markers specific for breast and lymphoma characterization. Smaller centres in the province often do not have immunohistochemistry, which has prompted a national effort to begin adding immunohistochemistry autostainers for each province. In the interim, a major limitation in performing immunohistochemistry is regular access to reagents, usually due to lack of funding and distribution system challenges. There is also no formalized referral process for pathologists to send slides to other centres for immunostains or outside of the country for testing.

Cytology services include both FNA and fluids diagnosis and Pap smear screening. Laboratories use cytospin and manual staining. The major limitation in cytology is the shortage of cytoscreeners across the country. Current training programmes include sending interested technicians for Pap smear training at the Family Health Bureau, after which they return to practice. A major outcome of the cytoscreener shortage is the long turnaround times seen in reporting Pap smears (up to 6 months). Thus, an interest in expanding HPV DNA testing for low- and high-risk subtypes has been discussed as an alternative approach to diagnose infection faster. Currently, there are two PCR machines used for HPV testing at Medical Research Institute (MRI), but additional sites are needed. One option discussed has been repurposing PCR machines purchased for COVID testing for this purpose. Autopsy is performed at most hospitals, with a separate judicial autopsy process handled by forensic pathologists. There are no biorepository efforts to support registry activities.

Haematology services include routine hematologic testing, as well as hematopathology. Much of the molecular pathology performed is also based in this specialty. In general, molecular pathology is in early stages of development in Sri Lanka. The NCISL is the main hospital with a molecular diagnosis laboratory capacity, such as RNA extraction, DNA extraction, next-generation sequencing (NGS), and bioinformatic support, in addition to multiple PCR thermocyclers. The lab was developed in 2022 (following the 2019 imPACT Review recommendation) housed in a new facility. Testing includes one quantitative PCR test for BCR-ABL in CML, as well as five detection PCR tests including detection of JAK2 mutation for APML. More than 500 PCR tests are performed annually. Additional PCR tests are planned for AML and ALL. Finally, EGFR and KRAS PCR testing is available on a limited basis. The major limitation for PCR testing is funding for reagent kits, which are currently generally obtained through donation. NGS is under development for solid tumours, and is currently used for some virology testing, but is limited. There is currently no cytogenetics laboratory in the public sector. HPV DNA is tested using PCR methodology, with two machines currently in use in the country, located at the Medical Research Institute.

Flow cytometry is available at four centres in Sri Lanka, but there is no process to formally refer cases or send materials to another site for testing. Generally, centres that have flow cytometry available utilize their systems at maximum capacity. In instances in which ancillary

testing (immunohistochemistry, flow cytometry, molecular pathology, cytogenetics) is not available, patients will need to have these tests performed either at private laboratories or send samples out of the country. Both options require patients pay out of pocket.

Biochemistry includes testing such as blood chemistry, biochemistry panels, and cancer marker testing services. Larger hospitals have expanded capacity to perform some tests by immunoassay platform using automated analysers for tests such as vitamin B, Hgb A1C, thyroid stimulating hormone, and tumour markers. Turnaround times for most panels are within an hour and 2-3 hours for immunoassays, meeting the clinical needs. Smaller hospitals typically have some degree of automation. Barcoding is in use in some, but not all, laboratories.

Microbiology laboratories generally perform tests in bacteriology, virology, and mycology. Blood cultures and screening test or culture for tuberculosis are available in most hospitals. At NCISL, blood cultures show a positive rate of 20%, suggesting high rate of bacteraemia in patients with cancer in Sri Lanka. The bacterial isolates also have a high rate of resistance against antibiotics, indicating the need to prioritize infection control. This is generally noted in hospitals beside the NCISL.

Quality Management

Quality standards tended to be specific to each hospital and laboratory, although national guidelines and standards are under development through the Colleges. Public hospital laboratories are not accredited by the Sri Lanka Board of Accreditation. Standard operating procedures (SOPs) are infrequently in place for staff training or assessment of competency, although these are under development at the national level through the Colleges. Proficiency assessments of laboratories across hospitals are under development by the various Pathology Colleges (reflects progress since the 2019 imPACT review). Some quality programmes are in place, such as quarterly review of slide staining, performed by the Medical Research Institute. Additionally, many pathology reports are handwritten or typed, rather than entered into an electronic medical record due to lack of functional laboratory information system (LIS) at most hospitals. This may increase the risk of inadvertent reporting errors in patient results. An LIS should become an important component of the laboratory quality management programme, in addition to effective and efficient flow of large amounts of test information as well as longitudinal patient result tracking.

Summary Findings and Conclusions

The pathology services in Sri Lanka are divided into four specialties: Histology, Haematology, Biochemistry, and Microbiology. Each specialty operates independently, with no overarching society or unifying college. The largest practice is based at the NCISL staffed by twelve pathologists and is developing advanced testing for cancer biomarkers. However, pathology services across the country face significant challenges, including understaffing, limited resources, and inadequate infrastructure. The shortage of pathologists and medical laboratory technicians has led to increased turnaround times for pathology specimens and laboratory tests. Additionally, many junior pathologists do not return to Sri Lanka after training abroad due to low salaries and less attractive placements in rural areas.

Infrastructure and equipment improvements are needed in most hospitals, particularly in terms of space, temperature control, and ventilation. Most equipment is outdated, and there are significant delays in equipment repair and reagent supply. Histology services are similar across the country, but immunohistochemistry is limited to larger centres. Cytology services face long turnaround times due to a shortage of cytoscreeners. Haematology services include routine testing and molecular pathology, with the National Cancer Centre housing a molecular diagnosis laboratory. Biochemistry and Microbiology services are generally adequate, but there is a need for better infection control practices. Quality management standards are under development, but many laboratories lack standard operating procedures and functional laboratory information systems, increasing the risk of reporting errors.

Recommendations

Short term (up to 2 years)
• Establish national standards, guidelines and implementation plan to strengthen Histopathology, Microbiology, Haematology, and Biochemistry.
• Increase utilization of existing PCR machines (from COVID era) for HPV DNA testing and ensure regular availability of reagents and technician training.
• Replace outdated laboratory equipment (>10 years).
Medium term (2 to 5 years)
• Continue development of National Centres for flow cytometry and Provincial/Regional Centres for immunohistochemistry at existing or new sites; develop standard process to refer cases.
• Continue expansion of centralized molecular pathology to include key solid tumour (KRAS, EGFR, BRCA1/2, HER2 FISH) and haematological malignancies (translocations) at key centres based on guidance from Colleges.
• Establish cytogenetics facility (FISH and karyotype) at NCISL.
• Identify CME opportunities and support training in specialized areas.
• Strengthen an infection control programme.
Long term (5 or more years)
• Develop incentives package to expand the training and/or retention of pathology and lab medicine workforce.
• Standardize approaches for the adequate laboratory space with appropriate ventilation and temperature control.
• Improve laboratory information system (LIS) to provide efficient communication of results and tracking over time.
• Introduce equipment for improved infectious disease testing, such as MALDI-TOF mass spectrometry for bacterial identification.

Relevant tools, guidelines and reference materials on cancer diagnosis

- Cancer. Disease Control Priorities, third edition, volume 3. (World Bank) http://dcp-3.org/cancer

- WHO Guide to Cancer Early Diagnosis
  https://www.who.int/publications/i/item/9789241511940
- WHO position paper on mammography screening

  https://www.who.int/publications/i/item/who-position-paper-on-mammography-screening
- WHO list of priority medical devices for cancer management

  https://www.who.int/publications/i/item/9789241565462
- IAEA publications related to nuclear medicine and diagnostic imaging

  https://www.iaea.org/publications/search/topics/division-of-human-health
- NCCN Clinical Practice Guidelines in Oncology

  http://www.nccn.org/framework/default.aspx

2.7.4. Medical Oncology

Infrastructure and Equipment

The NCISL and other cancer centres face high patient loads as well as workforce shortages. There is uneven distribution of cancer services among the regional centres due to the lack of infrastructure and staffing. While most of treatment modalities are now available at regional sites, many patients still prefer to receive care at NCISL, which is perceived to offer higher-quality services, Specialized treatments, such as bone marrow transplantation, are only available at NCISL, which is a dedicated modern Bone Marrow Transplant Unit. Outpatient chemotherapy administration is also available at NCISL, further expanding treatment option at the institute.

Medical oncology wards are overcrowded and overburdened. Also, it appears that the most urgent hospital challenge is effective infection control. Isolation of infectious patients is needed to protect the vulnerable cancer population with immunity impaired by treatment or disease. Even neutropenic patients are not able to be isolated because of lacking facilities. Nosocomial infections are common and often spread throughout the ward. The ward physicians report that broad-spectrum antibiotics are frequently required which is believed to contribute to antimicrobial-resistant pathogens, further compounding the problem. The hematologic oncologist consultants at the NCISL estimate that approximately 20% of acute myelogenous leukaemia patients die from infection during induction chemotherapy. Some older wards at the NCISL and at some regional hospitals are not fully enclosed, and patients are exposed to the outdoor elements. Some facilities are near sewers prone to flooding and there are anecdotal cases of mosquito-borne infections, such as Dengue, contracted by patients.

Additionally, there is a lack of appropriate facilities to treat critically ill patients. Intensive care unit beds are limited and patients who meet criteria for escalated care are frequently treated on understaffed wards without appropriate monitoring while awaiting a bed. There are no dedicated intermediate care step-down beds for patients transitioning to or from ICU beds.

Medications

The availability and quality of cancer medications continues to be an issue. Little progress has been made since 2019, largely attributed to financial constraints. There is a ‘Priority List for Pharmaceuticals’ and ‘Essential Cancer Drug List’, which are based on, but not identical to the WHO Essential Medicines List. Stock outs are frequent, and the list of unavailable medications is consistently lengthy. When stock outs occur, patients wait, have a different medication substituted or purchase the medication privately. Regional hospitals have more frequent stock outs.

Nearly all medications are imported, and the imPACT review team was informed that supplier selection is predominantly guided by price considerations. Quality certificates are provided by the supplier, and the validity of quality assurance may be impacted by conflict of interest. There is not a process for independent quality control or conflict of interest evaluation at the national level. Counterfeit drugs are sometimes included in the drug supply. At times, oncologists observe less efficacy or more toxicity than expected, however, it is difficult to prove that this is related to drug quality due to patient variability and combination therapies. While drug quality concerns exist globally, Sri Lankan oncologists report a high threshold to report concerns. Despite a reporting mechanism for medication toxicity, underreporting is common due to attribution challenges and fear of disrupting treatment. A medication pulled from use for quality

concerns is unlikely to be replaced until the following year, since the purchasing is done annually. The oncologist is placed in the difficult situation of weighing benefits and harms related to safety and access. Patients are also procuring privately, either brand name medicines or those not available in the public sector.

Although most of the WHO essential medications are included on the priority lists, there are gaps for later lines of treatment, particularly for advanced disease. Patients are often referred to the private provider and pay out of pocket. The Essential Cancer Drug List lacks important highly efficacious drugs, for example checkpoint inhibitor immunotherapy (part of WHO EML). Checkpoint inhibitor therapy is identified as the highest priority by the interviewed consultant oncologists. Other medications not included are fludarabine, vinorelbine, ibrutinib, pegfilgrastim and rasburicase. Other drug priorities felt to be beneficial by the oncologists are targeted therapies, including those for lung cancer, such as ROS1 inhibitors and additional HER2 targeted drugs for breast cancer, beyond trastuzumab. The consultant oncologists would welcome an opportunity to provide input into the priority list and a process to expand the priority list with associated timelines.

Coverage of services

Since the 2019 imPACT review Sri Lanka has been expanding cancer centres. Previously all chemotherapy was administered on an inpatient basis, whereas now some chemotherapy is given on outpatient basis. The NCISL has 70 treatment beds and sofas and approximately 150 patients per day. Despite this, there is a waiting list for chemotherapy. Drugs with high hypersensitivity rates are administered on inpatient basis. The chemotherapy orders are handwritten in the chart and there is a logbook that documents each treatment. Transfusions are administered in the blood transfusion unit in the outpatient unit. The emergency department evaluates and treats patients with urgent needs who are then discharged or admitted to the inpatient wards. The emergency department also administers most scheduled injections. In January 2025, 492 injections were administered.

The NCISL is best resourced with more stock outs of medicines in regional centres. Some cancer centres do not have a consultant oncologist and are unable to provide services, despite having the physical infrastructure. When this occurs, patients are referred to the next closest cancer centre for outpatient chemotherapy. Patients at all cancer centres have frequent treatment delays given waiting lists for chemotherapy (and radiation therapy). Even when receiving treatment in the public sector, patients have incidental costs related to travel and loss of salaries for the patient and caregiver.

Sri Lanka also has a significant shortage of cancer specialists. Oncologists at both main and regional cancer centres face heavy patient loads. Overall, there has been a loss of oncology providers since the 2019 imPACT review, which has been compounded by an increase of new cancer diagnoses. At the NCISL, the outpatient clinics care for approximately 700 patients per day; and Hematologic Oncology has 2 clinics per week, each caring for 200 – 250 patients

The NCISL Hematologic Oncology service has 3 dedicated consultants. A modern bone marrow transplant unit with good facilities, including isolation rooms, is functional. Due to staffing limitations, the ward does not operate at capacity and currently can support 6-8 transplants per month. There is a long waiting list, up to 1.5 years, and transplants are limited to patients under 55 years old. The majority of transplants are autologous, and a small number of sibling-matched allogeneic transplants have been performed.

Immunohistochemistry (IHC) results are often delayed, especially at regional centres, sometimes taking 8 or more weeks. The IHC results for some cancers, such as breast cancer and lung cancer are necessary for treatment planning, resulting in frequent treatment delays, which can in turn impact outcomes. The available IHC tests is limited, and many commonly used prognostic and predictive cancer markers are unavailable in the public sector. The imPACT Review team was informed that testing is also performed in the private sector if patients are able to pay.

Human Resources

The medical oncology workforce is competent and dedicated. Patients receive good care considering the available resources. Unfortunately, Sri Lanka has significant workforce shortages country wide. In 2025 Sri Lanka reported 55 certified clinical oncologists, with approximately half at the NCISL. Clinical oncologists are certified to practice both medical and radiation oncology; however, radiation oncology facilities are not available at all cancer centres. Consultant oncologists work with and supervise medical officers. Despite an increase in the number of cancer cases, Sri Lanka has fewer oncologists. It is difficult to determine an accurate number of practicing oncologists since many have not formally resigned and are on long-term leave while working abroad. Generally, migration of oncologists and nurses has been on the rise. While the reasons are multi-faceted, the major contributing factor is better compensation outside Sri Lanka and concerns about another financial crisis. And as noted above most oncologists also work in the private sector to supplement their income.

At the NCISL, the outpatient clinics have approximately 700 patients per day. Hematologic Oncology has 2 clinics per week, each caring for 200 – 250 patients. Similar high patient volumes are managed in regional facilities. According to the 2021 survey data, obtained from Sri Lanka oncologists, approximately 475 new patients treated/year per oncologist and an average of 35 outpatient clinic patients per day96. The oncologists reported that the number of patients is currently higher, although reliable data is not available. Certain clinics see 500 – 600 patients/day, with variations among different cancer centres. Some patients are seen by medical officers and fellows only.

The high clinic volume limits time spent with each patient, estimated to be approximately 15 minutes for new consults and 7.5 minutes for registered patients. Also, most oncologists are on call 7 days per week[97]. The oncologists lack time to provide comprehensive information on the disease and treatment and address social and financial needs.

Additional human resources are scarce, especially in regional centres, adding to the oncologist responsibilities. At most sites, social workers are not available, and nursing resources are also limited. As a result, oncologists spend significant time doing work that could be performed by support staff, such as navigating social, financial and resource issues and education on patients' disease, treatment and supportive care medications. More staff support would improve efficiency, permit oncologists to practice efficiently and provide more time for tasks that require specialist oncology input, for example, participation in multi-disciplinary tumour boards. There is not a competency-based training programme for oncology nurses or credentialing process and nurses learn on the job. As such, they are not able to assist the

[96] Journal of Global Oncol 7:1703-1710

[97] Journal of Global Oncol 7:1703-1710

oncologist by providing patient education. Cancer centres have dedicated chemotherapy pharmacists who are trained at NCISL and then support regional cancer centres.

Summary Findings and Conclusions

Cancer care in Sri Lanka is offered in the public and private sectors. Although care in the public sector is offered free of charge, cancer patients often incur out of pocket costs because of insufficient public sector resources. All cancer centres are burdened and face workforce shortages. Treatment outcomes are adversely affected by overcrowding, including inadequate Intensive Care Unit capacity, and infection challenges. Outpatient care faces treatment delays which are multi-factorial. Long waiting lists for chemotherapy (and radiation therapy) result in treatment delays. Medication shortages and inconsistent quality significantly hamper cancer care. Although Sri Lanka has an 'Essential Cancer Drug List', stock outs of multiple medications are frequent, and the list lacks important drug therapies. Additionally, there is no independent medication quality control programme with consequent instances of poor-quality medication procurement and lower public trust.

While the cancer workforce is dedicated and adept its numbers are insufficient to effectively manage the patient volumes. High workload, long hours, limited resources and compensation has resulted in loss of oncology specialists and decreased retainment of trainees. Inadequate support staff, social workers, and oncology-trained nurses places additional burden and reduces the specialists time for direct patient care. The shortage of oncologists has had significant impact on care including inability to staff regional centres, and decreased participation in multi-disciplinary tumour board discussions.

Recommendations

Short term (up to 2 years)

• Improve access to quality oncology medications:
  ○ Purchase drugs independently certified, such as by the US FDA or EMA.
  ○ Ensure that all medicines on the 'Priority List for Pharmaceuticals' and 'Essential Cancer Drug List' are routinely available. Develop a contingency plan for procurement of drugs, e.g. from the private sector.
  ○ Strengthen medicines tracking system to include private sector purchases. Further refinements in tracking of medicines is needed in both public and private sectors to improve forecasting and drug acquisition. Use objective medical data and input from consultant oncologists to improve treatment options by adding highly efficacious medications to the priority list.

• Strengthen infection control measures:
  ○ Develop appropriate isolation for patients at high risk for nosocomial infections, particularly neutropenic patients, to decrease nosocomial infections and infection-related morbidity and mortality.
  ○ Apply risk-based cohorting to determine inpatient ward assignment.
  ○ Develop a comprehensive infection control programme at each hospital through a working group of oncologists, ward nurses, microbiologists and

other key stakeholders. Develop short- and long-term action plans based on current infrastructure and resources.

Medium term (2 to 5 years)

- Improve retention and pipeline of oncology workforce:
  - The bond to opt-out of service should be increased so it covers the costs of medical school and post graduate training, at minimum.
  - Implement additional incentives, including long-term improvement of renumeration and work-life balance for oncology consultants.
- Nurses and other support staff should be empowered to become oncology experts:
  - Implement a competency-based training programme for oncology nursing credentialing which is associated with promotion and increased renumeration.
- Adequately staff oncology clinics and wards with certified oncology nurses, social workers and patient navigators who can perform tasks currently being done by the oncologist. (This will permit oncologists to better work to the top of their license, allowing more time to manage the large patient load and participate in multi-disciplinary tumour boards and other CME activities).

- Strengthen National Guidelines:
  - Develop guidelines for all common cancers and expand current guidelines to address advanced cancer. The same guidelines should be used at each cancer centre.
  - For diseases without national guidelines, provide instruction on what guidelines should be used for each disease (NCCN, EMA, etc.) so uniform, quality care is provided across the country.
  - Establish national quality metrics for guideline concordant care with a transparent tracking system.
  - Develop patient handouts for education of their cancer and treatment to reinforce discussions in clinic and serve as a resource for toxicity management.
  - Create standardized order sets for oncology treatments.

Long term (5 or more years)

- Improve infrastructure and facilities at cancer centres:
  - Provide a safe environment, including appropriate isolation for guideline concordant infection control.
  - Increase capacity to improve access to timely cancer care.
  - Expand intensive care unit beds and create intermediate care / step-down units.

- Expand specialization of cancer care: While availability of cancer care services throughout Sri Lanka is of value, patients with certain rare or complex cancers benefit from specialized expertise, such as bone marrow transplant.
  - Tiered referral centres should be clearly defined and resourced appropriately.
  - Oncology specialists should be empowered to develop expertise in areas of special interest.
  - Information sharing among physicians and hospitals throughout Sri Lanka should be prioritized. This will serve to improve patient outcomes while

appropriately conserving resources, so the right patient receives the right treatment.

2.7.5. Surgical Oncology

According to GLOBOCAN 2022, the five most common cancers among men in Sri Lanka are oral cavity, lung, colorectal, oesophageal, and prostate cancers. Among women, the top five are breast, thyroid, colorectal, and ovarian cancers. Surgery plays pivotal role in the management of all these cancers. In 2019, an estimated 37% of cancer patients required surgery, 44% required radiotherapy, and 51% required chemotherapy. With 40 421 new cancer patient registrations in 2024, the demand for surgical oncology services has inevitably increased.

Surgical Capacity

The leading centre NCISL has 109 surgical beds and 40 gynaecological beds and has registered 13 720 new cancer cases in 2024. It has 5 consultant surgical oncologists and two gynaecologic oncologists who together performed 3 major and 455 minor surgeries in 2024. There are only 2 onco-anaesthesiologists that look after the operation theatres and post-operative ICU wards.

Due to staff shortage in other diagnostic imaging disciplines (e.g., interventional radiology noted in diagnostic section of this report), surgical oncologists also perform diagnostic upper and lower gastrointestinal (GI) endoscopies. They are also responsible for performing reconstructions following ablative surgeries. This overburdens the surgeons - whose time could be better utilized - especially given the acute shortage of surgical oncologists in the country. The 2019 imPACT Review report estimates that Sri Lanka needs 62 certified surgical oncologists and 10 gynaecologic oncologists in the public sector by 2030.

Despite the constraints, some notable initiatives to introduce advanced treatment modalities is seen in some centres. For example, Hyperthermic Intraperitoneal Chemotherapy (HIPEC), an upcoming modality to treat peritoneal surface malignancies, is available in three centres in Sri Lanka - Teaching Hospital Kurunegala, KDU Hospital Colombo and in National Hospital Galle, and is under planning to be opened next year in Kandy. As of June 2025, 63 cases of HIPEC have been performed in Sri Lanka since the first procedure in 2018.

Outcomes and performance of surgical oncology services is heavily dependent on the ancillary services like radiology (including interventional radiology) and pathology. Delays in imaging and pathology reporting, along with challenges in access to services and availability of equipment and essential supplies, prolong time to treatment and adversely affect patient outcomes. Greater emphasis must be placed on onco-nutrition and post-operative rehabilitation, while patient education in managing stomas and tracheostomies is equally essential.

Training

The pathway to becoming a specialist surgeon in Sri Lanka begins with undergraduate medical education, followed by 4 years of training in general surgery. Those pursuing subspecialties such as surgical oncology undergo an additional 3 to 4 years of advanced training, which typically includes both local and international placements-most commonly in the United

Kingdom and Australia. The imPACT team was informed by the national counterparts that not all trained surgeons return home. There is currently no regular intake into the surgical oncology training programme, and participation relies on general surgeons choosing to pursue this specialty, although. Surgical oncology is not often seen as an attractive career path.

The neighbouring country India has a similar disease profile as Sri Lanka. The case load is very high with patients presenting in advanced stages of the disease and having similar socio-economic status. India could be considered as another teaching hub. The National Cancer Grid in India encourages visiting professionals and match them to appropriate high-volume institutes across the country.

Research

Research should prioritize the development of context-specific solutions tailored to address locally identified challenges. A good beginning has been made at the Centre for Research for Oral Cancer (CROC) in Peradeniya. Researchers are focusing on ways to improve screening of oral cancer and premalignant lesions, which represents a significant public health problem in Sri Lanka due to the widespread use of areca nut and tobacco.

Summary Findings and Conclusions

Surgical oncology in Sri Lanka is delivered within a broader cancer care system that is under significant strain, particularly in the public sector where services are free, but capacities are often under-resourced. All cancer centres are functioning beyond their intended capacity, with critical shortages of physicians, nurses, and support health personnel. These constraints lead to long waiting times for surgery, delays in diagnosis due to limited imaging and pathology resources, especially immunohistochemistry, and treatment interruptions attributed to shortages of essential medications and inconsistencies in drug quality. Overcrowded inpatient wards, limited intensive care unit (ICU) capacity, and suboptimal infection control practices further undermine the quality of surgical outcomes.

Although cancer physicians and staff demonstrate commitment and competence, the current oncology workforce is insufficient to effectively manage the high workload. In addition, extended working hours, limited resources and low remuneration have contributed to the attrition of oncology specialists and reduced retention of trainees. The shortage of support staff, social workers, and oncology-trained nurses also imposes additional burden on physicians. The shortage of oncologists has had significant impact on oncology care including inability for adequate staffing at regional centres, reduced multi-disciplinary coordination and participation at tumour boards as well as delays in health care delivery.

The formal training of the surgical oncologist in Sri Lanka is of a high standard. To complement this, provisions should be made to sustain and upscale the continuous medical education. The purpose should be to establish and maintain sub-speciality service at least within the tertiary-level cancer hospitals. Attention to training should be given to allied specialists like anaesthesiologists, as well as nursing staff. To provide a holistic approach, rehabilitation (e.g., speech and voice rehabilitation) and patient education services, along with should be in place.

Recommendations

Short term (up to 2 years)
• Ensure continuous medical education opportunities are available and funded with government support through participation at international conferences, workshops and trainings for cancer professionals (surgeons and allied health personnel) to update their skills and knowledge. Utilise online platforms to establish cooperation and enable exchange of experience and practice with regional and global surgical centres of excellence.
• Establish patient support programmes such as post-operative rehabilitation, patient education in managing stomas and tracheostomies, speech and voice rehabilitation support as well as nutritional programmes for patients, particularly those with head and neck and gastrointestinal cancers.
• Conduct cancer-specific training courses for general and gastro-intestinal (GI) surgeons in particular (and in due time for other specialists who provide cancer surgery) to standardize surgical clinical management among non-oncologic surgeons. *(Interim measure to fill the existing gap until there are enough onco-surgeons in the country)*
• Address waiting times and implement quality improvement measures through systematic process. For example, establish cancer surgery improvements with quality indicators[98] and establish databases in all cancer facilities on surgical procedures where data on quality measures like waiting times for surgery, perioperative mortality and complication rates, surgical margin positivity, lymph node yield, etc. are systematically collected and periodically analysed.
Medium term (2 to 5 years)
• Enhance clinical knowledge and practice by facilitating training placements at high-volume cancer centres in India through the National Cancer Grid (NCG).
• Encourage the use of intraoperative frozen sections to improve surgical outcomes.
• Establish a formal training or fellowship programme in onco-anaesthesia to build specialized capacity in cancer care
• Introduce onco-nursing as a distinct nursing specialty to improve the quality of care in oncology wards.
• Ensure regular annual intake into the surgical oncology training programme and improve work conditions to attract and retain specialists, including those returning from overseas.
• Explore option of medical gastroenterologist performing upper and lower GI endoscopies - whether diagnostic or therapeutic - with the aim of optimizing onco-surgeons time.
Long term (5 or more years)

[98] Quality Indicators for Evaluating Cancer Care in Low-income and Middle-income Country Settings: A Multinational Modified Delphi Study. Lancet Oncol. 2024 Feb;25

• Gradually increase dedicated urologists, gynaecologists, GI surgeons and maxillofacial surgeons that only perform oncology service– at least in the tertiary centres.
• Establish a dedicated cadre of reconstructive surgeons that will perform all the oncology reconstructive procedures including the microvascular free flaps surgeries.

2.7.6. Radiation Oncology

The GLOBOCAN 2022 estimated 34 482 new cancer patients in Sri Lanka in 2022. At least half of these patients required radiotherapy; thus, Sri Lanka should have human resources and infrastructure to provide radiotherapy for 17 241 patients annually. According to the IAEA guidelines Table 14 outlines the radiotherapy and human resources needed, from 2025 to 2045.

Table 14. Radiotherapy equipment and human resource needs (2025-2045)*

	Annual New Cancers	Patients Need RT	RT Units Needed	Radiation Oncologists	Medical Physicists	RTTs
2025	34 482	17 241	35	69	44	70
2035	41 126	20 563	42	83	52	**
2045	46 222	23 111	47	93	58	**

*Notes: * 500 patients/unit/year, 250 patients/year per radiation oncologist, 400 patients/year per medical physicist, 2 RT technicians for each RT unit*
***depends on number of equipment*

These requirements may need further review and refinement in the coming years based on[99]:

- The availability of new or updated and reliable information on the cancer burden;
- Changes of awareness, accessibility and affordability of cancer care for patients;
- Changes in the case mix (curative versus palliative), and updates regarding the main cancer sites and treatment techniques employed;
- Changes in the number of cancer patients requiring irradiation; and
- The potential decentralization of cancer services (establishment of new cancer centres).

Infrastructure

Radiotherapy is available in both public and private facilities. In 2025 there are 9 operating radiotherapy centres; 7 public and 2 private (latter all in Colombo). The leading radiotherapy

[99] IAEA, *Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection and Safety Aspects*, Vienna, 2008, http://www-pub.iaea.org/MTCD/publications/PDF/pub1296_web.pdf; and IAEA, *Planning National Radiotherapy Services: A Practical Tool*, Vienna, 2011, http://www-pub.iaea.org/books/iaeabooks/8419/Planning-National-Radiotherapy-Services-A-Practical-Tool.

facility is the NCISL located in Colombo and the other 6 public radiotherapy facilities are located in the regional capitals. The construction of additional 3 public centres is expected by end of 2025. Current radiotherapy centres and equipment is presented in Table 15.

Table 15. Radiotherapy centres and equipment

	Centre	City	Region	Type	Teletherapy Units	Brachytherapy Units
1	NCISL	Colombo	Western	Public	3 Co-60 5 linacs	1 HDR – Co-60
2	TH Kandy	Kandy	Central	Public	2 Co-60 2 linacs	1 HDR – Co-60
3	BH Tellippalai	Jaffna	Northern	Public	1 Co-60 1 linac	
4	TH Karapitiya	Galle	Southern	Public	1 Co-60 1 linac	
5	TH Anuradhapura	Anuradhapura	North Central	Public	1 Co-60 *1 linac (planned)*	
6	TH Badulla	Badulla	Uva	Public	1 Co-60 *1 linac (planned)*	
7	TH Batticaloa	Batticaloa	Eastern	Public	1 linac	
8	Ceylinco HC	Colombo	Western	Private	1 linac	
9	Asiri AOI CC	Colombo	Western	Private	1 linac	
10	TH Kurunagela	Kurunagela	North Western	Public	*1 linac (planned)*	
11	PGH Rathnapura	Rathnapura	Sabaragamuwa	Public	*1 linac (planned)*	
12	DGH Hambanthota	Hambanthota	Southern	Public	*1 linac (planned)*	

In 2013, Ministry of Health developed a National Radiotherapy Strategic Plan entitled “High Quality Radiotherapy for Cancer Patients in Sri Lanka with High Energy Radiation” to improve the quality of treatment, to reduce waiting times, to facilitate easier access to care, and to enhance patient outcomes which includes establishing a radiotherapy centre in each province having at least a linac and a HDR brachytherapy unit. The project plan was to establish 4 new radiotherapy centres in the provinces and install 14 linacs, 8 CT simulators and 8 HDR brachytherapy machines in the existing and new radiotherapy centres.

The first phase of the project was completed in 2-3 years. However, problems in construction of bunkers resulted in significant delays up to 6 years (all 9 linacs in the 1st phase were installed and running in 2020-2021).

In 2018 MoH initiated the 2nd phase on the establishment of 3 new radiotherapy centres and installation of 5 more linacs, 4 CT simulators and 8 HDR brachytherapy machines. The project includes the construction of radiotherapy facilities, purchase of linacs, treatment planning

systems, QA and dosimetry equipment, and CT simulators. However, this phase faced delayed construction and other implementation challenges.

Currently, there are only 2 HDR afterloading machines, one in Colombo and one in Kandy. However, as mentioned, 8 new machines are planned for installation.

Human resources

Radiation oncology is not a separate profession in Sri Lanka; clinical oncologists provide both radiotherapy and chemotherapy service. There are 55 certified clinical oncologists in Sri Lanka, however 34 of them are employed in centres with a radiotherapy service, and half of them are employed in the NCISL. It is challenging to ascertain how many clinical oncologists and how much of their time is dedicated to practicing radiation oncology. There are 41 certified medical physicists, where 36 of them are employed in centres with radiotherapy equipment. The current gap of manpower is 35 for radiation oncologists and 5 for medical physicists. In addition to this actual gap, Sri Lanka will need additional 24 radiation oncologists and 14 medical physicists in the next two decades. The number of RTTs are enough to provide current radiotherapy service, however with the acquisition of new linacs, CT simulators and brachytherapy machines will require additional RTTs.

Table 16: Human Resources

	Centre	Clinical Oncologists	Medical Physicists	RTTs
1	NCISL	17	14	32
2	TH Kandy	3	4	11
3	BH Tellippalai	3	3	8
4	TH Karapitiya	3	5	8
5	TH Anuradhapura	2	2	4
6	TH Badulla	2	2	5
7	TH Batticaloa	2	2	5
8	Ceylinco HC	1	2	4
9	Asiri AOI CC	1	2	3
10	TH Kurunagela	N/A	N/A	N/A
11	PGH Rathnapura	N/A	N/A	N/A
12	DGH Hambanthota	N/A	N/A	N/A
Total		**34**	**36**	**80**

Quality of services

Since 2015 Sri Lanka had been transitioning from cobalt-60 machines to linacs, and 2D radiotherapy to 3D radiotherapy. This upgrade of services requires strict quality control measurements and advanced knowledge of modern radiotherapy practices which can be possible only by advanced dosimetry equipment and well-trained staff. However, although most of the equipment was purchased around 2015, significant delays in the construction of radiotherapy bunkers resulted in installation of outdated equipment and required immediate upgrade of linacs and dosimetry systems. Upgrade of hardware and software of 15 linacs, treatment planning systems and dosimetry equipment is needed and there are ongoing discussions with vendors.

Maintenance and servicing of the equipment is not regularly done leading to several out of order equipment waiting for repair taking long time.

Education and Training

As stated above radiation oncology is not a separate profession. Clinical oncology training is available in Sri Lanka, and those employed in a hospital with a radiotherapy service are generally allocated on such facility. There is no regular postgraduate training programme and no CME certification for radiotherapy. Clinical oncologists generally improve their knowledge national or local conferences and workshops. Although the country is in transition to 3D radiotherapy there is no solid training programme for radiation oncologists.

Medical physicists are certified after completing a Master of Science programme in Medical Physics. Two Sri Lankan universities (University of Colombo and University of Peradeniya) provide Medical Physics programme. Most graduates are employed in the hospitals with a radiotherapy service.

RTTs graduate from Sri Lanka School of Radiography, where both diagnostic and therapeutic radiographers are trained. Some private schools also provide education for RTTs. Education lasts 2 years, where first year is common to all students and therapeutic radiography students (RTTs) practice radiotherapy in the 2nd year.

There are no properly trained medical engineers at radiotherapy centres. Maintenance and repair service is provided by vendors. Maintenance contracts are available for linacs but not for old cobalt-60 units and CT simulators; latter are more prone to being out of order.

In general, all staff need to be trained properly for 3D radiotherapy applications to operate the new modern radiotherapy systems.

Summary Findings and Conclusions

IARC's GLOBOCAN estimates 34 482 new cancer patients in Sri Lanka in 2025, with half requiring radiotherapy. To meet this demand, Sri Lanka needs 35 megavoltage external beam radiotherapy machines (currently 21 are installed), 69 full-time radiation oncologists, 44 medical physicists, and 70 radiotherapy technicians. Currently, there are nine operating radiotherapy centres, with seven public and two private facilities. The leading facility is the NCISL in Colombo. Despite efforts to improve infrastructure, significant challenges remain,

including outdated equipment, slow construction of new centres, and limited brachytherapy services.

Human resources for radiotherapy are also insufficient. There are 55 certified clinical oncologists, but only 34 are employed in centres with radiotherapy services. Similarly, there are 41 certified medical physicists, with 36 working in radiotherapy centres. The current gap in workforce is 35 radiation oncologists and 5 medical physicists, with additional needs projected over the next two decades. The number of radiotherapy technicians (RTTs) is currently adequate, but the acquisition of new equipment will require more RTTs. Quality control and maintenance of equipment are critical issues, with many machines awaiting repair and outdated dosimetry systems needing upgrades. Education and training for radiotherapy professionals are limited, with no regular postgraduate programmes or continuing medical education (CME) certifications. Overall, there is a need for improved infrastructure, increased human resources, and enhanced training programmes.

Recommendations

Short term (up to 2 years)
• Train clinical oncologists, medical physicists and RTTs to enhance their skill and knowledge on the transition from 2D to 3D radiotherapy including IMRT.
• Share the current upgrade and procurement plan with the IAEA and Sri Lanka College of Oncologists, and collaborate in planning and establishing new centres, and upgrading of current facilities.
Medium term (2 to 5 years)
• Complete the second phase of the project and provide CT simulators and HDR brachytherapy machines to all designated centres.
• Ensure regular supply of radiotherapy positioning aids, dosimetry and QA equipment and supplies, such as films and TLD chips, brachytherapy applicators and catheters.
Long term (more than 5 years)
• Develop a long-term project to provide necessary infrastructure and workforce by 2045.

2.7.7. Childhood Cancer

Childhood cancer is highly curable and generally not preventable or screened. Therefore, the focus is on timely, cost-effective, accurate diagnosis and high-quality treatment to prevent morbidity and mortality[100]. While early diagnosis is important for improving outcomes, the system must be equipped to respond to increasing patient needs with augmented awareness and demand for health services resulting from initiatives targeting improved diagnosis.

With approximately 30% of the Sri Lankan population under nineteen years of age (World Bank data from 2023 accessed 2025) and approximately 800 new cases of Childhood cancer

[100] World Health Organization. (2021). Cure*All* framework: WHO global initiative for childhood cancer: increasing access, advancing quality, saving lives. World Health Organization. https://iris.who.int/handle/10665/347370. License: CC BY-NC-SA 3.0 IGO

each year[101], it is vital to continue investment in childhood cancer to sustain and improve outcomes. This investment is necessary in human resources, infrastructure, essential diagnostics, medicines and technologies. While Sri Lanka has achieved relative success with respect to childhood cancer outcomes, there remain opportunities for improvement.

Since the 2019 imPACT Review, despite COVID-related and economic challenges, Sri Lanka has made notable strides in childhood cancer. Progress has been accelerated by Sri Lanka engaging in several convergent global initiatives: 1) Formalization of ongoing collaborations with St. Jude Children's Research Hospital (SJCRH), including National NCISL joining the St. Jude Global Alliance (a network of more than 400 hospitals and civil society organizations across 90+ countries) in 2019; and 2) Sri Lanka Ministry of Health and WHO formally committing to Sri Lanka being one of the first focus countries in WHO South-East Asia region in 2020, as part of the Global Initiative for Childhood Cancer (GICC). (Launched by WHO and St. Jude Children's Research Hospital, applying the **Cure*All*** framework to improve outcomes across health systems globally). The Sri Lanka Ministry of Health coordinated by National Cancer Control Program instigated several strategic efforts leveraging these two global initiatives. For instance, applying the Health Systems Plus and related **Cure*All*** frameworks as part of a multi-stakeholder engagement using the St. Jude C5 tool[102], developing The National Strategic Plan on Childhood & Adolescent Cancer Care (2021-2025). Furthermore, the Sri Lanka team utilized the St. Jude SJCARES Hospital Based Cancer Registry and IARC resources to strengthen childhood cancer registration and publish the first ever Childhood Cancer Registry Sri Lanka report (first in 2021, second soon to be released). Following these activities, Ministry of Health formalized the first Technical Advisory Committee on Childhood Cancer (TAC) in 2022, under a Deputy Director General of Health, reporting to the National Advisory Committee for Cancer Control. This standing committee now meets every quarter, amplifying the capacity for effective integration and communication of childhood cancer needs at a national level. With the guidance of this TAC and collaborations enabled with WHO Regional and Country Offices as well as St. Jude Global and the South-East Asia Regional Childhood Cancer Network (SEAR CCN) of Ministry-designated institutions, ten national GICC activities have been successfully delivered. These activities span guideline development, nursing capacity building modules, and policy formulation. The increased visibility of childhood cancer in Sri Lanka in turn helped mobilize domestic technical and financial resources, including those that led to the establishment of a new wing of the paediatric department at NCISL[103].

With only three trained paediatric oncologists across the country and limited specialized surgical and nursing support, multidisciplinary collaborations within and across hospitals in sharing resources and expertise must be strengthened to improve national outcomes for children with cancer. A culture of quality, continuous quality improvement, and patient safety at the national level across all centres would be a tremendous asset.

[101] National Cancer Control Programme. Ministry of Health. (2021) Childhood Cancer Registry Sri Lanka. Colombo.

[102] Lam, C.G., et al. (2019) Science and Health for All Children with Cancer. Science, 363, 1182-1186. https://doi.org/10.1126/science.aaw4892

[103] National Cancer Control Programme. Ministry of Health. (2021) National Strategic Plan on Children & Adolescent Cancer Care in Sri Lanka (2021-2025). Colombo.

It is important to establish standard operating procedures for a national-level referral system to ensure no children are inadvertently missed. The strong informal networks among providers within and across facilities are commendable. However, as new providers enter the system and other providers leave or retire, this process must be embedded beyond collegial, individual relationships. Access to childhood cancer medicines has been a well-recognized, prioritized challenge in Sri Lanka due to stockouts, substandard/falsified medicines and high out-of-pocket costs. Notably, Sri Lanka as of 2025 has been invited to engage as one of the core pilot countries for the Global Platform for Access to Childhood Cancer Medicines (GPACCM), an initiative by the WHO and SJCRH (USA), with UNICEF as the global procurement partner. Sri Lanka will have access to up to 50 quality-assured formulations of 35 essential childhood cancer chemotherapy medicines. Rather than a simple donation of medicines, this is a novel opportunity to collaboratively strengthen the health system, including enhancing local and regional supply chains, medical product forecasting, safety and quality processes related to medicines access and delivery, and governance structures connecting diverse stakeholders.

The Government of Sri Lanka has been committed to reducing mortality in childhood cancer. Engagement with St. Jude Children's Research Hospital (SJCRH) started in 2010, and in 2019 it was formalized as NCISL became a member institution in the St. Jude Global Alliance. Furthermore, in 2020 Sri Lanka became one of the first focus countries for the WHO GICC in the South-East Asia Region[104]. Since then, there has been significant work on the structural foundations in policy making and integrating children, adolescents and young adults into the dialogue. Following the publication of the MOH National Cancer Control Programme (NCCP)'s launch of the National Strategic Plan for Cancer Control 2020-2024, the National Strategic Plan for Childhood and Adolescent Cancer (NSP) 2021-2025 was published.

In support of the policy work, the NCCP applied the St. Jude Country Collaboration for Childhood Cancer Control (C5) tool, which provided a foundation for the establishment of the first NSP for Childhood and Adolescent Cancer. Capacity building and engagement was facilitated by Sri Lanka NCCP leading a national, Ministry-endorsed team to join the global knowledge exchange series, National Cancer Control Planning integrating Children, Adolescents and Young Adults (NCCP iCAYA) for three consecutive years since 2023, and which informed the imPACT Review.

There are approximately 800 new cases of childhood cancer a year. Sri Lanka's defined age range for childhood cancer is 0-18.9 years of age; however, some adolescent cases may be followed up after 19 years of age. NCISL and the National Hospital Galle see children ages 0-18.9, Lady Ridgeway Hospital for Children (LRH) sees children 0-13.9 years, the National Hospital Sri Lanka and the National Hospital Kandy see adolescents from 14-19 years of age.

Most children with cancer are managed in Colombo, with comprehensive care led by the team at NCISL, and essential diagnostics (imaging, including all MRIs and all imaging under general anaesthesia, as well as select pathology) and specialized surgery at LRH. NCISL, recognized as the main institute for cancer care, including for children, employs the only three board-certified paediatric oncologists in the country. While there is no formal Memorandum of Understanding between the two hospitals, there are multiple multidisciplinary collegial informal

[104] World Health Organization. (2021). Cure*All* framework: WHO global initiative for childhood cancer: increasing access, advancing quality, saving lives. World Health Organization. https://iris.who.int/handle/10665/347370. License: CC BY-NC-SA 3.0 IGO

exchanges that facilitate routine care coordination, including ad hoc MDT meetings approximately every two weeks (initiated by individual clinicians with no formal coordinator, documentation of discussion or follow-up). There is no approved mechanism to allow electronic pathology/laboratory reports or imaging to be accessed between facilities sharing care.

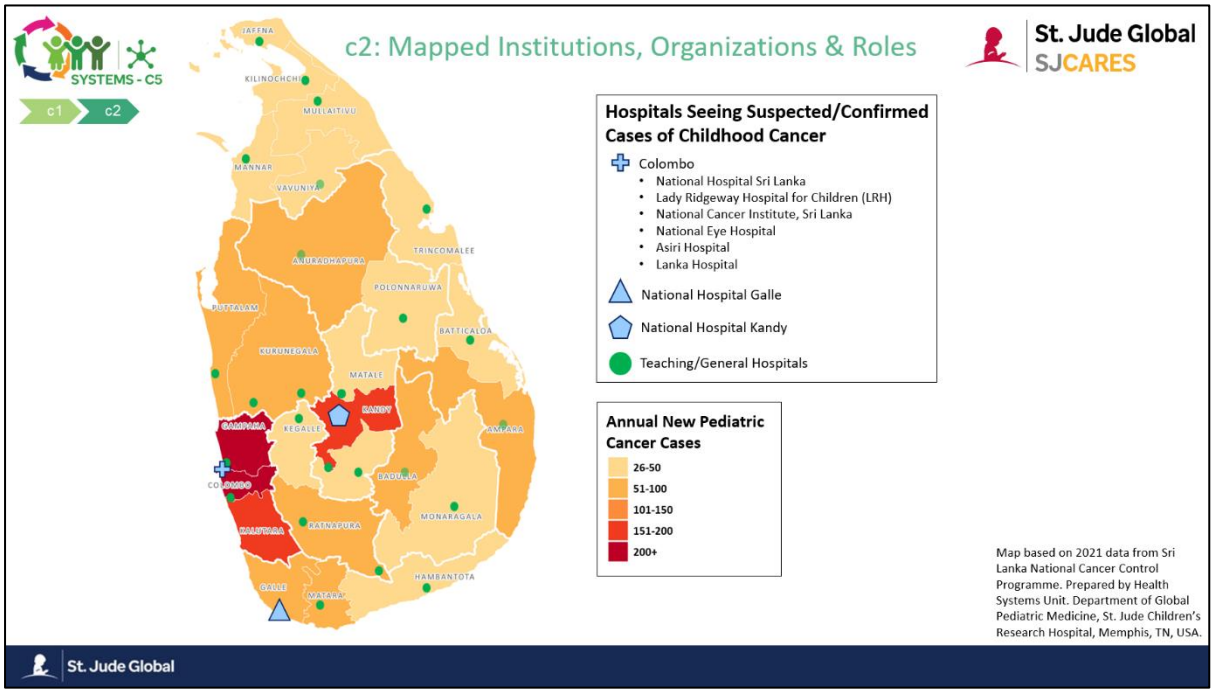

Figure 9. Hospitals Attending Cancer Cases and Annual Cancer Incidence

There is not yet a formalized cancer survivorship programme in Sri Lanka, nor team members/resources to help with re-integration in schools; however, most patients are followed up at variable intervals for five years after end of therapy at NCISL. A formal hospital-based education programme for children with cancer on therapy, including opportunities to sit for national-level examinations, is available at LRH and NCISL.

There is no formal mechanism for communication with local paediatricians/primary care providers. Medical school, general physician and paediatric specialty training all include childhood cancer (one week, one month, three months respectively). General physician and paediatrician programmes on early diagnosis, signs/symptoms and acute management and referral of childhood cancer are offered through their respective medical colleges and Sri Lanka Medical Association, as part of continuing education for professional development. In the nursing training syllabus, paediatric oncology is included, with no formal continuing education thereafter. During therapy, there is an established proforma for communication with paediatricians and adult oncologists for ALL maintenance so care can be delivered locally, and a customized card given to families to share with secondary/tertiary hospitals to expedite management of fever neutropenia. At the end of treatment, families are provided with a standard letter addressed to local medical officers with guidance on resuming vaccinations; patients with ALL receive a summary notebook of their diagnosis and treatment plan; other patients have an active treatment card.

Summary Findings and Conclusions

Sri Lanka would benefit from strengthening timely diagnosis and high-quality treatment. With around 800 new cases of childhood cancer each year and 30% of the population under nineteen, continued investment in human resources, infrastructure, diagnostics, medicines, and technologies is crucial. Despite challenges posed by COVID-19 and economic issues, Sri Lanka has made significant strides since the 2019 imPACT Review, including collaborations with St. Jude Children's Research Hospital and the WHO Global Initiative for Childhood Cancer.

Key initiatives have led to the development of the National Strategic Plan on Childhood & Adolescent Cancer Care (2021-2025) and the establishment of the first Technical Advisory Committee on Childhood Cancer. These efforts have successfully delivered ten national GICC activities, spanning guideline development, nursing capacity building, and policy formulation. However, there are still areas for improvement, such as strengthening multidisciplinary collaborations, establishing standard operating procedures for referrals, and improving access to childhood cancer medicines.

In conclusion, to further enhance childhood cancer outcomes in Sri Lanka, it is essential to formalize a cancer survivorship programme and improve communication with local paediatricians and primary care providers. Continuous quality improvement and patient safety at the national level are vital. Additionally, Sri Lanka's engagement with global initiatives like the Global Platform for Access to Childhood Cancer Medicines offers a novel opportunity to enhance the health system and improve outcomes for children with cancer.

Recommendations

The Health Systems Plus Framework[105] was used to guide the key recommendations, which was linked to the **Cure*All*** Framework. Detailed Recommendations related to childhood cancer are found in the Annex 6.

Short term (up to 2 years)
• Establish a National MDTB for paediatric cancer with all disciplines/specialties and defined criteria to formalize and support regularly scheduled meetings.
• Clarify gaps filled (and unfilled) by Civil Society Organizations to assess and clarify gaps that can be met by NGOs and any unfilled gaps.
• Formalize Shared Care Network with designated roles to help address follow-up and supportive care needs for children and families with challenges traveling to or staying in Colombo.
• Strengthen National policies/strategies integrating needs of children with cancer through support of the National Strategic Plan for Childhood Cancer for Sri Lanka for 2026 and beyond.

[105] Lam CG, Vasquez L, Loggetto P, Fuentes-Alabi S, Gonzalez Ruiz A, Benitez Majano S, Jarquin-Pardo M, Maza M, Spencer J, Metzger ML, Luciani S. Partnering to implement the Global Initiative for Childhood Cancer in the Americas: prioritizing systems strengthening. Rev Panam Salud Publica. 2023 Mar 10;47:e41. doi: 10.26633/RPSP.2023.41. PMID: 36909810; PMCID: PMC9996541.

• Empower families in cancer literacy and peer networking with the support to educate nurses or patient navigators to help improve outcomes and increase engagement.
Medium term (2 to 5 years)
• Define and Equip Reference Centre(s) + Referral Pathways with logistics support from the Ministry of Health to ensure that key centres providing expert care for children with cancer are adequately staffed and equipped.
• Establish National Quality/Safety Network with metrics & transparent tracking for paediatric cancer realize outcomes and support continuous quality improvements.
• Structured data sharing (medium) with systems for interoperability (long) needs to be provided by the Ministry of Health to seamlessly share data among hospitals and have continuous patient records that capture care at more than one institution.
• Accelerate Global Platform for Access to Childhood Cancer Medicines (GPACCM) implementation as the MoH support is critical to the Platform's success.
• Train & retain workforce with defined roles (e.g. infection preventionists; nurse educators) by defining positions with defined career pathways for trained team members that are typically vital for childhood cancer care and avoid rotation of childhood cancer trained nurses to other wards.
• Ensure availability of quality-assured supportive medicines by the MoH beyond those provided by GPACCM (e.g. antibiotics, opioids), with consideration of social behavioural change efforts addressing trust concerns and implementation of therapeutic drug monitoring.
• Establish National Quality/Safety Network with metrics & transparent tracking through the Ministry of Health to create shared national indicators for paediatric cancer to track processes and outcomes and support continuous quality improvements with training and collaboration with St. Jude Global and the Institute of Healthcare Improvement (IHI).
• Strengthen HBCR & PBCR through the Ministry of Health by supporting the expansion of HBCR through SJCARES or other programmes and continue support and commitment to establish and finalize a paediatric population-based cancer registry.
Long term (5 or more years)
• Explore financing mechanisms for essential medical supplies (e.g. prosthetics) and services not currently covered to fill gaps in essential needs that are currently beyond many families' capacity to pay, and these gaps lead to delays and increased risk leading to less effective therapy with suboptimal outcomes.

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2.8. PALLIATIVE CARE AND SURVIVORSHIP

National Palliative Care Policies and Strategies

The National Strategy Framework for Development of Palliative Care in Sri Lanka 2019-2023 developed by MOH NCCP formed the basis for development of palliative care. Many of the expected output in the Strategy Framework have been achieved leading to strong foundation upon which future development can be built. A National Policy and related five-year Strategy are in final stages of development.

Palliative Care Needs and Services

According to National Cancer Incidence and Mortality Data (NCCP 2021)[106], 37 753 new cases are diagnosed annually. Oral, lung, colon/rectum are the most common cancer seen in male whereas breast, thyroid, colon/rectum are the most common in female. 37% of breast cancer, 47% of cervical cancer and 63% of oral cancer are diagnosed in stage III/IV indicating the need for palliative care for cancer patients[107]. According to GLOBOCAN, there were more than 19 000 deaths from cancer in 2023. 90% of those who die from cancer require palliative care; of those living (non-decedents) the need for palliative care ranges from 28% for year 1 to 5% for year 5 after diagnosis[108]. This indicates the increasing need of palliative care for cancer patients as treatment improves, and more patients survive. Further, the need for palliative care for non-malignant conditions also remain a high priority. According to Global Atlas of Palliative Care (2017), palliative care was required for 45.3% of all deaths. Extrapolating this data to Sri Lanka with crude death rate of 8 per 1 000 calculated for 2023[109], 83 352 people will require palliative care each year.

At present, the following services have been developed to address the need:

i. Palliative care consult service (PCCS)
ii. Community based services
iii. Hospices

Palliative care consultation service (PCCS)

PCCS has been established in 11 tertiary and secondary hospitals and provides high quality care. The hospitals with this service are Base Hospital Thelippalai, NCISL, DGH Nuwara Eliya, Colombo South Teaching Hospital – Kalubowila, National Hospital Galle, DGH Embilipitiya,

[106] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Cancer Incidence & Mortality Data Sri Lanka 2021*. (Colombo: National Cancer Control Programme, 2021), URL: https://nccp.health.gov.lk/storage/post/pdfs/CANCER%20INCIDENCE%20&%20MORTALITY%20DATE%20SRI%20LANKA%202021.pdf.

[107] National Cancer Control Programme, Ministry of Health, Sri Lanka, *Cancer Incidence & Mortality Data Sri Lanka 2021*. (Colombo: National Cancer Control Programme, 2021), URL: https://nccp.health.gov.lk/storage/post/pdfs/CANCER%20INCIDENCE%20&%20MORTALITY%20DATE%20SRI%20LANKA%202021.pdf.

[108] Xiaoxiao J. Kwete et al., "Global Assessment of Palliative Care Need: Serious Health-Related Suffering Measurement Methodology," *Journal of Pain and Symptom Management* 68, no. 2 (2024): e116–e137, https://doi.org/10.1016/j.jpainsymman.2024.03.027.

[109] World Bank, "Death Rate, Crude (per 1,000 People) – Sri Lanka," *World Bank Data*, accessed May 20, 2025, https://data.worldbank.org/indicator/SP.DYN.CDRT.IN?locations=LK.

National Hospital Kandy, Teaching Hospital Rathnapura, NHSL Colombo, DGH Trincomalee and TH Kurunegala.

In this service, patients are referred by oncologist or physicians to the Palliative care team which provides holistic care, including end of life care. This team is led by consultants with interest in Palliative care, oncologists in cancer centres and physicians in general hospitals with support by Medical Officers and nurses with Diploma in Palliative Medicine. In general hospitals, the service is also offered to non-cancer patients. These services also conduct outpatient clinics. The NCISL Palliative care unit also has a hot line for patients from 7am to 5 pm. This unit reviewed more than 7 000 patients in a year which included 849 new patients.

Although there is no inpatient beds allocated to palliative care unit, the team is satisfied with the arrangement and has had no issue of bed shortage for patients requiring palliative care. Inpatient palliative care unit with dedicated beds is planned once palliative care consultant with MD becomes available.

Paediatric palliative care

The NCISL Palliative care unit looks after children and provides holistic care, including end of life care. In 2024, 46 new children with cancer were registered. It has also initiated last wish fulfilment programme. Palliative care for children is also provided to some extent at the Lady Ridgeway Hospital.

Training in paediatric palliative care has been provided by Two World Cancer Collaboration (TWCC) for the palliative care team. Paediatric palliative care needs to be expanded rapidly to provide care for more than 1 000 children diagnosed of cancer annually (leukaemia 33%, 14.3% lymphoma).

Community based services

A dedicated cadre of Public Health Nursing Officers (PHNO) has been developed to spearhead a successful model of community-based palliative care. They have gone through a one-year training which consists of six months of theoretical teachings and six months of field-based assignments. The main duties of the PHNO would comprise of Healthy Lifestyle Centre activities and NCD Care, Palliative Care and Geriatrics Care. 230 PHNOs have been trained to date. They make home visits to patients in their area and provide symptom management, psychosocial and spiritual support.

A referral system has been developed in which patients in hospitals with PCCS are referred to Primary Health Care Facility with clinical notes and care plan documented in a Shared care Folder. The PHNO at the PHC facility are contacted by the palliative care team and informed in advance. Some centres also communicate informally through WhatsApp to inform the team. Palliative Care Team at PHC including the PHNO then provide home care to the patients. Some PHC centres have small stock of oral morphine. At present about 200 PHCs are providing this service.

Hospices

There are 9 hospices in Sri Lanka, eight of which are run by non-governmental organizations. With the exception of few, most are used to house patients undergoing cancer treatment and do not have access to active symptom management. Three hospices provide home based care.

Steps have been taken to improve and standardize hospice care. Hospice must be registered under the Private Medical Institutions Registration Act unless it is managed by Government. Standard Operating Procedures for Hospice Programme in Sri Lanka has been published by NCCP, Ministry of Health in 2022 to guide, regulate and improve the quality of care of Hospices. The Hospices have to comply with the SOPs.

The beds in these facilities are underutilized with approximately 40% occupancy. These beds could be better utilized to take some pressure off the heavily burdened cancer centres.

Palliative Care Stakeholders

The National Palliative Care Programmes are managed and coordinated by NCCP and MoH NCD Directorate. The involvement of NCD Directorate is a crucial step that will enhance the development of palliative care for cancer as well as non-cancer patients. There are many stakeholders in non-governmental sectors, some back as far as 1996 with the establishment of Shantha Sevana Hospice. Apart from the Hospice mentioned above, there are many organisations working in this field, including Palliative Care Trust of Sri Lanka, Palliative Care Association of Sri Lanka, Sahan Suwa Charitable Trust, Indira Cancer Trust, Palliative Care and End of Lifecare Task Force of Sri Lanka Medical Association, Sri Lanka College of Oncologists, College of General Practitioners of Sri Lanka and College of Palliative Medicine of Sri Lanka. These organizations conduct training programmes for health professionals and public to raise awareness, support cancer patients and advocate for development of palliative care in Sri Lanka.

A National Steering Committee comprising of 60 members (from different stakeholders) and chaired by MOH Director General of Health Services meet quarterly to discuss critical issues arising in the development of palliative care.

Financing Palliative Care

Palliative care is free of charge to all those who need it at all levels of care, in the Government sector including services in tertiary and secondary hospitals as well as community-based services. However, travel and staying cost for the patient and the accompanying caregiver can be a significant burden which can prevent the needy patients from accessing the care. In the non-government sector, Hospices are also providing free services for patients staying in the facilities including meals. Some hospices also provide free home care.

Availability, Accessibility and Consumption of Opioids

The MoH Medical Supplies Division is the national authority for stocking and dispensing morphine in the country.

Oral and injectable morphine, fentanyl patches and tramadol (tablet and injection) are available. All doctors with a license to practice allopathic medicine can prescribe opioids.

Opioids need to be imported; supply can be disrupted at times with short periods of shortage, but this has improved (no significant problem in 2024). However, in the long run, country production will make the supply smooth and bring down the cost.

Palliative Care Education and Training

In 2018, the Postgraduate Institute of Medicine at the University of Colombo initiated a postgraduate diploma programme in Palliative Medicine for Medical Officers. 18 doctors have trained so far.

In 2022, the Post Basic Nursing School in Colombo in partnership with the Ministry of Health, launched a one year post basic Diploma programme in Palliative Nursing. So far 33 nurses have been trained.

Several short courses and training are being conducted across the country. The 'Train the Master Trainer' program was completed in 2018 in collaboration with Asia Pacific Hospice Palliative Care Network (APHN), Lien Foundation, NCISL and NCCP. About 50 Master Trainers continue to conduct training programmes across the country every year.

Palliative Medicine has been included in undergraduate curriculum in some medical and nursing schools.

There is no MD programme for Palliative care at present, but the curriculum has been developed and submitted for Senate of University and UGC approvals.

Summary Findings and Conclusions

There has been a significant development in the field of palliative care with strong support from Ministry of Health and leadership at NCCP. Health professionals, especially consultant oncologists and physicians with interest in palliative care have contributed. Lack of consultant Palliative Care physician is an obstacle; initiating MD programme soon will help. Initiation of PHNO model for NCD care, including palliative care at community level, has ensured care of people in rural areas.

Recommendations

Short term (up to 2 years)
• Finalize the National Policy on Palliative Care and National Strategy, with specific needs related to cancer, in alignment with the National Strategic Plan for Cancer Prevention and Control.
• Strengthen paediatric palliative care in centres caring for children by increasing the training opportunities for oncologists, doctors and nurses working in the field of paediatric oncology.
• Optimize the use of beds in the nine hospices through collaboration of hospitals with PCCS, developing a referral, support and supervision system.
• Initiate MD programme in Palliative Medicine.
• Expand palliative care teaching in all Medical and Nursing Schools.

• Expand the referral system already in place for cancer patients to include non-cancer and paediatric patients.
Medium term (2 to 5 years)
• Expand Palliative Care Consult Services at higher level hospitals with increased human resources, including Medical and Nursing Officers, at all the 27 Health Districts with mechanism in place for reporting and supporting the community-based services at Primary Health Centres in their own district.
• Expand the numbers of PHNO across the country as per the need taking into consideration the geography and population needs. Introduce online refresher training for PHNO and evaluate the impact of community-based care.
• Initiate cancer survivorship and rehabilitation programme (pilot in centres where PCCS have been running smoothly).
Long term (5 or more years)
• Explore morphine production in Sri Lanka to reduce stock outages and cost.

Relevant tools, guidelines and reference materials on cancer palliative care

1. WHO guide for effective cancer control programmes: palliative care module https://www.ncbi.nlm.nih.gov/books/NBK195248/
2. WHO Guide for Planning and Implementation of Palliative Care Services https://www.who.int/news-room/fact-sheets/detail/palliative-care
3. WHO Pain Management Guidelines https://www.who.int/news/item/27-08-2019-who-revision-of-pain-management-guidelines
4. WHO Guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents https://www.who.int/publications/i/item/9789241550390
5. Planning and implementation palliative care services: guide for managers (WHO) http://apps.who.int/iris/bitstream/10665/250584/1/9789241565417-eng.pdf?ua=1
6. WHO list of priority medical devices for cancer management https://www.who.int/publications/i/item/9789241565462
7. INCB – List of Narcotic Drugs Under International Control http://www.incb.org/documents/Narcotic-Drugs/Yellow_List/58th_Edition/Yellow_List_-ENG.pdf

2.9. RADIATION SAFETY CONSIDERATIONS

Introduction

Medical uses of ionizing radiation should be supported by a national legal and regulatory infrastructure for radiation safety in line with the IAEA Safety Standards to ensure the safe use of ionizing radiation in medical facilities.

This chapter summarizes the radiation safety infrastructure in Sri Lanka according to the information available in the IAEA Radiation Safety Information Management System (RASIMS), as well as interviews and discussions held with representatives of the Sri Lanka Atomic Energy Regulatory Council (the Council), the Sri Lanka Atomic Energy Board (the Board), the Ministry of Health (MoH) and visited medical facilities during the imPACT Review.

Responsibilities and functions of the government

Policy and strategy for safety

The Atomic Energy Act, No. 40 of 2014, establishes the long-term commitment to safety of the Government of Sri Lanka, sets out the main radiation protection principles, establishes the basis for the state safety regulation, defines the scope of the governmental, legal and regulatory framework for safety and for international commitments. Most of the elements of a national policy and strategy for safety, as per GSR Part 1 (Rev.1) are addressed in the preamble of this Act. Additionally, the Council has drafted a separate safety policy document, which is currently undergoing approval.

Legislative framework for safety

The legislative framework of Sri Lanka is comprised of Acts, Regulations, Orders and Rules, which are all mandatory, The Atomic Energy Act (the Act) promulgated in 2014 makes provisions for the protection of people and the environment from the harmful effects of ionising radiation and establishes the Sri Lanka Atomic Energy Regulatory Council, as an independent regulatory body to regulate all practices involving sources of ionising radiation in the country. Currently, the Council functions under the Ministry of Energy.

The Act makes provision in all relevant areas relating to radiation safety and applies to all types of facilities and activities in the country. Among others it sets out: the safety principles for protecting people and the environment against the harmful effects of radiation, both now and in the future; assignment of prime responsibility for safety; responsibilities of the various stakeholders and authorized parties; the types of facilities and activities to be regulated; the type of authorization that is required; the provisions for the inspections, enforcement and appeals and the provisions for establishing the safety requirements. The functions and responsibilities of the Council, as the single, independent regulatory body are well defined. In addition, the Act established the Sri Lanka Atomic Energy Board, organization responsible for promoting the peaceful use of nuclear technology and providing related services, conducting research, providing radiation protection services to meet regulatory requirements, and engaging in activities involving ionizing radiation for commercial or other purposes.

Establishment of an independent regulatory body

Article 9 of the Act establishes the Sri Lanka Atomic Energy Regulatory Council as the regulatory body for safety, with its specific roles and responsibilities further defined in Articles

11 and 12. The Council is governed by 5 Board Members, appointed by the Minister in charge (currently Minister of Energy). One member is appointed as the Chairman of the Council.

The Act specified that the Council is financed through its own fund, which consist of parliamentary allocations and revenue generated from its activities (fees or charges). There is no duplication of powers or responsibilities amongst the national institutions regarding radiation safety regulation. The Council cooperates with other state administrative bodies and institutions on matters within its competence, however, this cooperations is not formalized by Memoranda of Understanding.

Framework for the authorization or approval of technical service providers that could have a significant impact on safety have not been established, and no such providers have been authorized, including the Board which in practice provides several such services.

Responsibilities and functions of the regulatory body

Organization, staffing, competence and management system of the regulatory body

The Director General of the Council is responsible for managing the authority's daily activities, organizing its operations, exercising its powers, and overseeing the staff.

The Council currently comprises 31 employees. Its organizational structure includes 18 scientific staff and 13 administrative staff. The organization is divided into two main divisions: the Division of Licensing, Import, and Export Control, and the Division of Inspection, Emergency Management, and Enforcement. All staff, including Director, are public officers. The existing staff possess the necessary competencies to perform their duties, including advanced technical and scientific education. Additional training is provided, mostly through cooperating with the IAEA, US and Japan; however, considering the rapid development of new radiation technologies used in medicine further competence building is needed.

The Council's integrated management system, which should document processes and procedures for effectively carrying out its regulatory functions, has not yet been developed. However, some procedures, such as those for licensing, are already in place.

Safety related records

The Council has established and maintains the national register of ionizing radiation sources, with a procedure for registration in place. Registers for licenses and inspections are also available. The software supporting these registers is the IAEA Regulatory Authority Information System (RAIS version 3.4). The national dose register is maintained by the Board, and the Council has direct access to it.

Regulatory activities (authorization, review and assessment, inspection and enforcement)

The requirements for obtaining a license to conduct a practice, along with the provisions for renewal, cancellation, or suspension of a license are described in Chapter III of the Act. Article 18 stipulates that no person shall engage in a practice involving ionizing radiation without a valid license issued by the Council. The provisions for notification and for exemption of any practice or source within the practice from the regulatory control have been established. Currently, there is around 630 licensed medical facilities in Sri Lanka. Typically, 250 licences are issued annually. Authorizations are signed by the Director General of the Council. Applicants are required to submit documentation to the Council that includes among others,

layout of facility, human resources plan, radiation emergencies plan, safety assessment and technical information of the source. Licenses are issued for periods from one up to three years, depending on the practice and risks involved.

There is a possibility for multistage licensing process, typically used for high-risk facility, such as radiotherapy. The import or export of sources in Sri Lanka requires a permit and this permit can only be issued to a licensed user.

The Council's website provides application forms and the list of documents that must be submitted by the applicant corresponding to the licence application types, based on the Rules for Licensing No.1 issued in of 2015.

Review and assessment of the documentation submitted by the applicant is conducted as part of the authorization process. Based on the outcome of the review and assessment, the Council may set conditions to the license. Verification inspections are typically performed, prior to the license granted. The Act empowers the Council to inspect all facilities and activities. Under Article 15 of the Act, the Council appoints inspectors who meet the required qualifications and criteria. These inspectors are authorized to enter any licensed facility at reasonable hours to conduct inspections, either announced or unannounced. The inspection frequency is determined by risk categories and aligns with the licence duration of one, two, or three years. Inspections are always carried out by a team. The practice-specific procedures and checklists are developed. Inspection report with recommendations and corrective actions are sent to the licensees. Out of 18 scientific staff at the Council, 15 had been authorised as inspectors.

The Act provides the basis for the enforcement system and defines a range of enforcement actions. Enforcement actions by the Council comprise verbal warnings, written warnings, and legal prosecutions. The imposition of fines and penalties is not allowed, Provisions for appeals against decisions of the regulatory body are established. The Council has stated that the enforcement system needs to be strengthened. There is a need to develop an enforcement policy for responding to non-compliance, and the need for amendments to the Act will be considered.

Regulations and guides

According to the Act, the Minister is responsible for establishing regulations concerning all matters prescribed under this Act. The Council is responsible to develop rules, codes and standards relating to radiation protection and the application of ionizing radiation.

The Regulations on Ionizing Radiation Protection of the Atomic Energy Safety Regulations from 1999 remain valid. These regulations are based on the previous edition of IAEA Basic Safety Standards 115 (1994) and cover among other Radiation Protection in Occupational, Public and Medical exposure. The Council has developed the Rules for Licensing in 2015, specifying exemption criteria, licence validity periods, and various notification forms.

The new Regulation on Ionizing Radiation Protection and Safety of Radiation Sources, based on IAEA GSR Part 3, is in an advanced draft and will soon be sent for approval.

The Council is in the process of drafting a rule to specify the qualifications of radiation workers. Additionally, the Council has issued several guides to support the implementation of the regulations.

Radiation protection infrastructure

Radiation protection in occupational exposure

The Act in Article 86. (2c) provides the statutory basis for establishing requirements for protection and safety specific to occupational exposure. Regulatory requirements relevant to occupational radiation protection are established by the Regulations on Ionizing Radiation Protection (1999) specifying requirements for the occupational exposure control. This includes provisions related to the compliance with the principles of optimisation and dose limits, responsibilities for radiation protection, the designation of control and supervised area, the establishment of local rules and procedures, personal protective equipment, workplace and individual monitoring, medical surveillance, training and records keeping.

During the licensing process, the applicant is required to submit the relevant information, including arrangements for radiation protection in occupational exposure. There is one technical service providers for individual dosimetry in the country, Sri Lanka Atomic Energy Board. using the Harshaw systems. The Board is responsible for keeping of dose records of monitored occupationally exposed workers. Currently, there are about 3000 monitored radiation workers in the country, with bi-monthly monitoring for all workers in medical facilities. There is no provider of internal dosimetry in the country. The Board, the sole technical service provider in Sri Lanka is not authorised by the Council to provide a dosimetry service.

Licensees are required to establish a workplace monitoring programme; however, due to limited expertise and lacking equipment, this requirement is largely not implemented by hospitals, except in radiotherapy facilities. Additionally, there is no authorized technical service provider in the country that offers such services on a commercial basis. The Council conducts radiation survey during its regular inspections, which users often mistakenly perceive as a substitute for their own workplace monitoring responsibilities. Appointment of a Radiation Protection Officer (RPO) is required, and the RPO responsibilities are defined in the Regulations No 1. Health surveillance is required once a year for radiation workers.

The Act specifically mandates the Sri Lanka Atomic Energy Board to provide calibration services, and the Board currently performs calibrations for radiation monitoring equipment in the country. Its laboratory is accredited to ISO/IEC 17025 by the Sri Lanka Accreditation Board. There is no prescribed frequency of calibration of monitoring instruments in the regulations. Both the Council and the Board conduct radiation protection training courses. However, the Board training is not recognized by the Council due to the absence of a structured radiation protection training regulatory framework.

The hospitals visited during the imPACT Review mission had appointed RPOs, controlled and supervised areas have not been defined in most visited hospitals, and radiation protection.

Radiation protection in medical exposure

The Act in Article 86. (2e) provides the statutory basis for establishing requirements for protection and safety specific to medical exposure. Regulatory requirements relevant to medical exposure are established by the Regulations on Ionizing Radiation Protection (1999), Part VII. Regulatory requirements have been introduced covering the responsibilities of licensees and registrants for protection of the patients, the justification and optimization of medical exposure, the use of guidance levels for diagnostic medical exposure, quality assurance (QA) and incidents during medical exposures. There is no formal state mechanism

for the certification of medical physicists, and they are not recognized as healthcare professionals in Sri Lanka. Requirements for the education, training, and duties of medical physicists are not established. Typically, medical physicists complete a four-year diploma program offered at several universities in Sri Lanka and two years master's degree in medical physics, available at two universities. There are currently approximately 40 medical physicists in the country, with the majority working in radiotherapy. In diagnostic radiology, seven physicists are employed in a few hospitals, but they face significant and unique challenges in carrying out their duties. A major problem is resistance from radiographers, who perceive the presence of medical physicists as a threat to their professional responsibilities. This ongoing problem is widely recognized, yet neither hospital management nor the Ministry of Health has been able to resolve it, largely due to the strong opposition from the radiographers' union. In practice, medical physics duties are mostly assigned to RPO, a role usually taken by a radiographer. Without medical physicists in diagnostic radiology, patients may face higher radiation exposure, poor image quality, and consequently inaccurate diagnoses, while hospitals could be in non-compliance with safety regulations.

Currently, regulations relevant for medical exposure do not include clear provisions for justification for radiological procedures and the requirements and arrangements for using relevant national or international referral guidelines for the justification of the medical exposure of an individual patient are not in place. Draft regulation on ionizing radiation protection and safety of radiation sources address these issues. Optimization of protection and safety is considered in regulations. National Diagnostic Reference Levels (DRLs) are not yet established. Licensees are required to perform regular quality control (QC) tests on all medical X-ray equipment; however, these provisions are not implemented in practice due to the lack of medical physicists and dosimetry equipment in diagnostic radiology departments. Some QC kit was provided by the IAEA through the TC programme. QA/QC programme in radiotherapy is performed by medical physicists and in some hospitals, support is provided by the nuclear medicine departments.

The criteria for the release of patients after radionuclide therapy is established.

Currently, there is possibility to calibrate dosimeters used for patient dosimetry in radiotherapy through cross-calibration provided by the Board. To further improve its calibration capabilities the Board is planning to establish a therapy calibration facility, incorporating a used Co-60 therapy source.

There are no requirements to ensure that there are arrangements in place for appropriate radiation protection in cases where a female patient is or might be pregnant or is breast-feeding.

During the hospital visits the imPACT team observed that signs requesting female patients to notify the radiological medical practitioner in the event that she is or may be pregnant are not placed in patient waiting rooms. According to the information provided by counterparts, the most significant challenge they are facing is the maintenance and servicing of medical equipment, primarily due to the high cost and delays in responses.

Radiation protection of the public

The existing legal and regulatory framework make provisions for radiation protection of the public, including protection from exposure that can arise from the performance of a radiological medical procedure.

Summary Findings and Conclusions

Sri Lanka's regulatory framework for radiation protection and safety remains a challenge despite the existence of a draft regulation aligned with IAEA standards. While the Sri Lanka Atomic Energy Board provides essential services such as dosimetry and calibration, the regulatory authority—the Council—has yet to establish a formal system for authorizing technical service providers or enforcing compliance. The Council possesses the capacity to regulate medical radiation facilities but lacks a comprehensive training program for its staff and an Integrated Management System to ensure consistency in regulatory decisions. Additionally, the absence of a formal enforcement policy undermines the stability and predictability of regulatory oversight.

Critical gaps persist in hospital radiation safety practices, including unclear roles, insufficient monitoring expertise, and inadequate equipment. The lack of a national certification mechanism for medical physicists, combined with their limited involvement in diagnostic radiology, raises concerns about patient safety and diagnostic accuracy. Quality assurance measures, such as QC testing and the establishment of Diagnostic Reference Levels (DRLs), are largely absent. Although training is offered by both the Council and the Board, it is irregular and lacks a structured framework for competency development. Addressing these systemic weaknesses is essential to ensure safe, effective, and compliant use of radiation in medical settings.

Recommendations

- The Government should complete the regulatory framework for safety by establishing regulations to complement the Act; the requirements related to occupational and medical exposure control are of particular importance.
  [Basis: GSR Part 1 (Rev. 1), Requirement 2 and 33; GSR Part 3, Requirements 2 and 3]
- The Council should establish a regulatory framework for the authorization of technical service providers, including those offering calibration services, internal monitoring, and workplace monitoring. This framework should also cover the authorization of services provided by the Board, where applicable.
  [Basis: GSR Part 1 (Rev. 1), Requirement 13; GSR Part 3, Requirements 20]
- The Council should develop a comprehensive systematic training programme for their staff, and make arrangements to build and maintain competencies in the disciplines needed for regulatory control, particularly for new and more complex radiation technologies used in radiation medicine.
  [Basis: IAEA GSR Part 1 (Rev. 1), Requirements 11 and 18]
- The Council should develop, implement, and continuously improve its Integrated Management System that is compatible with international requirements and appropriate for its size and the scope of its regulatory functions and activities.
  [Basis: IAEA GSR Part 1 (Rev. 1) Requirement 19, GSR Part 2, Requirements 7-10]

- The Council should develop and implement an enforcement policy within the legal framework for responding to authorized party's non-compliances with regulatory requirements or with authorization conditions.
  [Basis: GSR Part 1, Requirements 30 and 31]
- The Council and the Ministry of Health should enhance the capabilities of medical facilities to conduct workplace monitoring and should require licensees to clearly define the boundaries of controlled and supervised areas.
  [Basis: GSR Part 3, Requirement 24]
- The Ministry of Health should establish a mechanism for the certification of medical physicists and make provisions for their required qualifications, training, and responsibilities. It should also ensure the involvement of medical physicists in diagnostic radiology, nuclear medicine, and radiation therapy, as necessary.
  [Basis: IAEA GSR Part 3, Requirement 36, para: 3.153–3.156]
- The Council and Ministry of Health should ensure that quality control (QC) tests and carried out regularly in medical facilities and for all radiation medicine modalities. There is a need to enhance expertise and increase the availability of equipment to effectively perform these measurements.
  [Basis: GSR Part 3, Requirement 25 and 38]
- The Council and Ministry of Health should ensure the establishment of the national DRLs, which reflect the country's own practice. Once DRLs are established, medical radiation facilities should compare their typical doses with the relevant DRLs to optimize medical exposure.
  [Basis: IAEA GSR Part 3, Requirement 38, para. 3.168-3.169]
- The Council should develop a regulatory framework for the development and maintenance of competence in radiation protection, including the authorisation of training providers. Licensees should be required to arrange appropriate training, and periodic retraining in radiation protection of their staff.
  [Basis: IAEA GSR Part 1 (Rev. 1), Requirement 11; GSR Part 3, Requirement 26]

2.10. RADIOACTIVE MATERIAL SECURITY CONSIDERATIONS

The legislative and regulatory framework for radiation safety and nuclear security in Sri Lanka includes the Atomic Energy Act No. 40 (2014), which contains the requirements for Safety, Security and Safeguards. Nuclear security responsibilities are identified in this Act and assigned to the Competent authorities. The Atomic Energy Regulatory Council is the national competent authority responsible for nuclear security. The Regulations on Security of Radioactive Sources during manufacture, use or storage was promulgated and published in 2023.

Sri Lanka approved its Integrated Nuclear Security Sustainability Plan (INSSP) in July 2014. The INSSP identified and consolidated Sri Lanka' nuclear security needs into an integrated document that includes the necessary nuclear security improvements. It also provides a customized framework for coordinating and implementing nuclear security activities carried out by the country, the IAEA and international partners. An

INSSP review mission took place in Colombo in August 2017 to track implementation progress and to identify additional needs and corresponding activities for improvements for 2018-2020. The next INSSP review mission is being planned for 8-11 December 2025.

Sri Lanka is a beneficiary of the IAEA Regulatory Infrastructure Development Project (RIDP) for Asia and the Pacific, and participated in the project kick-off meeting in December 2024. This IAEA technical assistance mechanism supports countries in establishing or enhancing their national regulatory infrastructure for radiation safety and for security of radioactive material. The project activities include expert missions, regional and national training programmes, and advisory missions, all aimed at establishing or enhancing regulatory frameworks, building competences to exercise core regulatory function and setting up management system for regulatory bodies.

The Sri Lanka Atomic Energy Regulatory Council has a national register for radioactive sources and other material. The register also includes disused radioactive sources. The Regulatory Authority Information System (RAIS) platform, provided by the IAEA, is used for the national inventory.

Physical protection systems have been implemented in facilities with high-activity radioactive sources (including hospitals), with the assistance through the US DOE NNSA Global Material Security programme.[110]

A National Workshop on Threat Assessment and Design Basis Threat was conducted in August 2024 in Sri Lanka. An International Physical Protection Advisory Service (IPPAS) Mission should be encouraged for Module 4 (radioactive sources).

Sri Lanka has expressed political commitment to the Code of Conduct on the Safety and Security of Radioactive Sources and the IAEA Guidance on the Import and Export, but has not yet committed to the supplementary Guidance on the Management of Disused Radioactive Sources.

Through shared expertise and coordinated initiatives, the IAEA and Sri Lanka are engaged in a collaborative effort, working closely to further enhance and fortify an effective nuclear security regime within the country. This joint commitment underscores the importance of ensuring a robust framework for the safe and secure handling of radioactive material and fostering international cooperation.

[110] For programme details refer to https://www.energy.gov/nnsa/nonproliferation

ANNEXES

ANNEX 1: COUNTRY MISSION AGENDA

23 March 2025

Time	Activity	Participants	Responsible officer MoH/WCO	Venue, Logistical Requirement
16.00-20.00	Mission Briefing Agenda: **16-18** Preliminary report presentation (PPT slides by each expert @5-10 mins) and discussion among international team members **18-19:30** Discussion with national focal team on outstanding critical data/information needs and targeted interviewees (based on the mission agenda) **20-** Dinner (whoever wishes to join)	All National Focal Team (NCCP) & International Experts	Dr. Bishnu Giri / Mr. Arsen Juric / Dr. Suraj Perera	WHO meeting room

24 March 2025

Time	Activity	Officials to meet / Sites to Visit	Responsible Officer MoH/WCO	Venue, Logistical Requirement
9:00 – 10:00	Meeting of international team with WR	WHO country representative	Rd. Farrukh Qureshi / Rd. Bishnu Giri	WHO meeting room
10:00 – 10:45	Meeting with Ministry of Health			
11:00-11:30	Inaugural Meeting with Ministry of Health Officials Welcoming remarks and background – Director NCCP Introduction Briefing by mission coordinator Address by WHO Representative Address by Ministry of Health Senior officials	Secretary, Additional Secretary, Director General Health Services, Deputy Director Generals, and NCCP team	Rd. Champika Wickramasinghe Dr. Shreeni Alahapperuma Dr. Suraj Perera	Secretary of Health Office, Ministry of Health
12:00 – 12:45	International Expert Team – Travelling to National Cancer Institute, Maharagama (NCI M)			
12:45 – 13:45	Lunch			Consultant Lounge / SLCO Office

13.45 – 14.30 p.m.	Meeting with Director, Consultants & Other officials	Director & MO Planning, National Cancer Institute Maharagama	Director NCISL Dr. Shreeni Alahapperuma Dr. Suraj Perera	Auditorium, NCI M
14.30 – 16.30	Site Visits at National Cancer Institute & institutes in the vicinity Team 1 – Pathology diagnostics *Dr. Dona Hansel, MD Anderson Cancer Center, USA* *Dr. Xiang-Yang Han, MD Anderson Cancer Center, USA* Team 2 – Radiology and nuclear imaging *Dr. Ferdosa Ahmed,* *Mr. Jovica Bosnjak, IAEA* Team 3 – Radiation Oncology *Dr. Serra Kamer, Ege University Hospital, Turkey* *Mr. Arsen Juric, IAEA*	 Histopathology, Haematology, Immunohistochemistry Radiology, PET Scan Radiotherapy and Radio Iodine unit	 Dr. Ruvanmalie / MO Pathology,NCI SL Dr.Thisari- MO NCCP Dr. Chathuri -MO NCCP	NCI M & Surroundings

	Team 4 – Surgical Oncology *Dr. Murad Lala, Hinduja Hospital, Mumbai*	General Onco-surgery, Head and neck surgery, Gynae-oncosurgery	Dr. Indiwaree	
	Team 5 – Medical Oncology *Dr. Rachel Layman, MD Anderson Cancer Center, USA*	Inpatient facility & Indoor Pharmacy	Dr. Nirma- SR NCCP	
	Team 6 – Paediatric Oncology *Dr. Catherin Lam,* *Ms. Heather Fosburgh, St. Jude Children's Research Hospital, USA* *Dr. Bishnu Giri, WHO SEARO*	Paediatric Oncology Unit	Dr. Gayani- Reg NCCP	
	Team 7 – Palliative Care *Dr Rajesh Gongal, Patan Academy of Health Sciences, Nepal*	Palliative Care Consult Service, '*Shantha Sevana*' Hospice, plus	Dr. Bhanuja Dr.Udani	

	Team 8 – Cancer Registry *Dr. Nalika Gunawardena, WHO SEARO* Team 9 – Financing of cancer services *Dr. Ajay Aggarwal, King's College London* *Ms. Mela Dewi, Boston University*	Paediatric palliative care, '*Suwa Arana'* (Indira Cancer Trust) HBCR unit / Medical statistics Planning and/or Procurement Unit Social service or similar unit	Dr. Nirmala -RMO NCCP Dr. Kumari MO Planning NCI SL Dr. Kulanga – Reg NCCP	
14:30 – 17:00	Team 10 – Early detection *Dr. Arunah Chandran, IAEA* *Dr. Cherian Varghese, Manipal Academy of Higher Education, India*	Director-MCH (cervical and breast cancer screening), Epidemiology Unit (HPV vaccination), Dir – Health promotion Dir – Nutrition	Dr. Hasarali Fernando / Dr. Yasara	Family Health Bureau, Health Promotion Bureau, NCCP (close to ministry – walking distance)

15:30 – 17:00	Team 9 – Financing of cancer services *Dr. Ajay Aggarwal, Kings College, London* *Ms. Mela Dewi, Boston University, USA*	Health focal point at national insurance council	Dr. Suraj Dr. Nadeeka	

25 March 2025

Time	Activity	Officials to meet / Sites to Visit	Responsible Officer MoH/WCO	Venue, Logistical Requirement
8:00 – 9:00 Team 1	Team 1 – Cancer Registration & Information Systems *Dr. Nalika Gunawardena, WHO SEARO* *Dr. Arunah Chandran, IARC* *Dr. Murad Lala, Hinduja Hospital, Mumbai*	Director – Health Information, Medical Statistics Unit,	Dr. Nirmala Jayanthi	Director Health Information Office
	Team 1 – Early detection *Dr. Arunah Chandran, IARC* *Dr. Nalika Gunawardena, WHO SEARO* *Dr. Murad Lala, Hinduja Hospital, Mumbai*	Cancer Early detection center, Narahenpita	Dr. Hasarali Fernando	Cancer Early detection center, Narahenpita

1130 – 12:30 Team 1	Team 1 – Oral Cancer *Dr. Nalika Gunawardena, WHO SEARO* *Dr. Murad Lala, Hinduja Hospital, Mumbai* *Dr. Arunah Chandran, IARC*	Dy Director General (Dental Service), Director (Dental Service), Director – National Dental Institute, Director Estate & Urban Health	Dr. Prasanna Jayasekara	National Dental Institute
9.00 - 12.30 Team 2	Team 2 – Cancer Control Planning & Financing *Dr. Cherian Varghese, Manipal Academy of Higher Education, India* *Dr. Ajay Aggarwal, Kings College, London* *Dr. Catherine Lam, St Jude Children's Research Hospital* *Mr. Arsen Juric, IAEA* *Ms. Mela Dewi, PHD Scholar, Boston University*	Dy Director General (Planning), Director (Planning), Director (Policy Analysis & Development), Chief finance officer, Medical supply division, Biomedical engineering and procurement division	Dr. Champika Wickramasingha Dr. Shreeni Alahapperuma Dr. Janaki Dr. Suraj Perera Dr.Kulanga	Planning Unit Representative from Medical supply division, Procurement (Biomedical equipment) division

9:00 – 12:30 Team 3	Team 3 – Paediatric Oncology *Dr. Bishnu Rath Giri, WHO SEARO* *Dr. Xiang-Yang Han, MD Anderson Cancer Center, USA*	Consultant Paediatric Surgeon, Consultant Pathologist, Consultant Neurosurgeon	Dr. Gayani Kalhari	Lady Ridgeway Hospital
9:00 – 12:30 Team 4	Team 4 – Palliative Care & Rehabilitation *Dr. Rajesh Gongal, Patan Academy of Health Sciences, Nepal* *Dr. Farrukh Qureshi, WHO Sri Lanka*	Dy Director General (ET & R), Director NCD, Dy Director General NHSL, Sri Lanka Medical Association Palliative Care Task Force, Palliative Care Association, College of Palliative Medicine	Dr. Bhanuja Wijethilaka	DDG NCD Auditorium
9:00 – 12:30 Team 5	Team 5 – Radiation Oncology *Dr. Serra Kamer, Ege University Hospital, Turkey* *Mr. Jovica Bosnjak, IAEA* *Ms. Miriam Mikhail, IAEA (remote)* *Mr. Younes El Abbari, IAEA (remote)*	Dy Director General (MS 1), Atomic Energy Board, Atomic Energy Council, Private Sector Radiotherapy Unit – Ceylinco, Asiri AOI Cancer centre	Dr. Thisari Dilshika, Dr. Chathuri	Atomic Energy Board, Ceylinco, Asiri AOI Cancer centre
9:00 – 12:30	Team 6 – Cancer management in General Hospital *Dr. Rachel Layman, MD Anderson Cancer Center, USA*	Pathology, Radiology and Surgery, and ENT on priority. Gynecology, Medicine/Oncology, and Pediatrics if feasible.	Dr. Nirma Dr. Kalumi	National Hospital of Sri Lanka

	Dr. Dona Hensel, MD Anderson Cancer Center, USA *Dr. Ferdosa Ahmed, Adis Ababa University Hospital*			
13.00 – 14.00	Lunch			NCCP Office
14.00 – 15:30	Meeting with UN Agencies, Other Development Partners		Dr. Farrukh Qureshi	UN Compound (Halls D and E)
15.30 – 18.00	Meeting of International Experts & WHO Team **Agenda:** Update Preliminary Findings and Conclusions (based on international team discussions and SEARO/WCO inputs).		Dr. Farrukh Qureshi/ Dr. Bishnu Rath Giri	WHO Country Office

26 March 2025 (Field visits to three provinces)

Time	Activity	Officials to meet / Sites to Visit	Responsible Officer MoH/WCO	Venue, Logistical Requirement
8:00 – 10:00	**Team A –** Financing of cancer services *Dr. Ajay Aggarwal, Kings College, London*	National level social service agency Health Services Research Unit- FOM, Colombo	Dr. Priyangani Dr. Udani Dr. Nadeeka	

6.00 a.m.-6 p.m.	**Team 1** – National Hospital Kandy, Regional Director of Health Services, University of Peradeniya *Dr. Nalika Gunawardena, WHO SEARO* *Dr. Rajesh Gongal, Patan Academy of Health Sciences, Nepal.* *Dr. Serra Kamer, Ege University Hospital, Turkey* *Dr. Catherine Lam, St. Jude Children's Research Hospital, USA* *Dr. Murad Lala, Hinduja Hospital, Mumbai* Team A *Dr. Serra Kamer* *Dr. Rajesh Gongal* *Dr. Catherine Lam* Team B *Dr. Nalika Gunawardena* *Dr. Murad Lala*	*Team A morning:* National Hospital Kandy Cancer Unit & Linear Accelerator Mammography Unit Haemato-oncology Unit Palliative Care Unit Hospital Based Cancer Registry Unit *Team B morning:* University of Peradeniya OMF Unit- TH Peradeniya Centre for Research on Oral Cancer Nuclear Medicine *Both teams afternoon:* Regional Director of Health Services- Kandy Shared care for community based palliative care involving MO IC & Department	Dr. Prasanna Jayasekara Dr. Bhanuja Wijethilaka Dr. Gayani	Travel to National Hospital Kandy & University of Peradeniya

	Team 2 National Hospital Galle, Regional Director of Health Services, Galle *Dr. Cherian Varghese, Manipal Academy of Higher Education, India* *Dr. Arunah Chandran, IARC* *Mr. Jovica Bosnjak, IAEA* *Dr. Dona Hansel, MD Anderson Cancer Center, USA* *Ms. Heather Fosburgh, St. Jude Children's Research Hospital, USA* *Dr. Farrukh Qureshi, WHO Sri Lanka*	National Hospital Karapitiya Cancer Unit & Linear Accelerator Mammography Unit Palliative Care Unit Hospital Based Cancer Registry Unit Regional Director of Health Services- Galle Community Health Services, WWC, Healthy Lifestyle centre	Dr. Suraj Perera Dr. Kulanga	Travel to National Hospital Galle
	Team 3 Teaching Hospital Rathnapura Regional Director of Health Services – Rathnapura	Teaching Hospital Rathnapura Cancer Unit (Radiotherapy to be available in this year)	Dr. Shreeni Alahapperuma Dr. Hasarali Fernando	Travel to Teaching hospital Rathnapura

	Mr. Arsen Juric, IAEA *Dr. Xiang-Yang Han, MD Anderson Cancer Center, USA* *Dr. Rachel Layman, MD Anderson Cancer Center, USA* *Dr. Ferdosa Ahmed, Adis Ababa University, Ethiopia* *Ms. Mela Dewi, Boston University* *Dr. Bishnu Rath Giri, WHO SEARO*	Mammography Unit Cancer Early Detection Centre Palliative Care Unit Hospital Based Cancer Registry Unit Regional Director of Health Services- Ratnapura Community Health Services, WWC, Healthy Lifestyle Centre		

27 March 2025 (National Workshop on Cancer Control Planning)

Tentative Time	Activity		Responsible Officer MoH/WCO	Venue, Logistical Requirement
9.00 - 15.00	Participants - Ministry of Health Officials National Team of experts, Professional Colleges, Civil Society Organizations, and other relevant stakeholders.		National Focal Team & Professional colleges Civil Society Organizations	To be decided SLFI / Hotel The detailed agenda for this day is to be developed separately.

15.00 - 18.00	Update Key Findings & Conclusions			

28 March 2025

Tentative Time	Activity	Officials to meet / Sites to Visit	Responsible Officer MoH/WCO	Venue, Logistical Requirement
8.00 - 10.30	Team 1 – IAEA projects – *Mr Jovica Bosnjak, IAEA* *Dr Miriam Mikhail, IAEA (Remote)* Team 2- Access to cancer medicines *Dr. Catherine Lam, St. Jude Children's Research Hospital* *Dr. Bishnu Rath Giri, WHO SEARO* *Dr. Rachel Layman, MD Anderson Cancer Centre, USA* *Dr. Nalika Gunawardena, WHO SEARO* *Dr. Farrukh Qureshi, WHO Sri Lanka*	National & RCA Projects related to cancer control; and Bio Medical Engineering Unit. Medical Supplies Division, NMRAi	Mr. Bandara Dr. Lakmini MT & S Dr Farrukh Qureshi	` Medical supplies division Other venues to be informed by NCCP colleagues

	Team 3 – Finalize presentation *Mr. Arsen Juric, Dr. Cherian Varghese, Ms. Mela Dewi, Et al.*			WHO meeting room
10:30 – 11:00	Briefing WR: *All team members*		Dr. Farrukh Qureshi	WHO meeting room
11:00 a.m.- 13:00p.m.	Presentation of Key Findings to Ministry of Health officials Q&A	Additional Secretary, DGHS, DDGs, Directors & NCCP		
13.00 – 14.00 p.m.	Lunch			
15:00 – 15:30 pm	Briefing to Secretary, Ministry of Health			venue

29 March 2025

Tentative Time	Activity	Responsible Officer	Venue, Logistical Requirement
9.00 a.m.- 12.00 p.m.	Report Writing and Finalization (International and NCCP Team)		WHO Country Office

ANNEX 2: CANCER UNITS OR CENTRES VISITED[111]

National Cancer Institute Sri Lanka (NCISL) (aka Apeksha Hospital)

NCISL has high patient volumes for imaging services, resulting in long waiting times. Notably, the hospital does not have an MRI scanner.

Staff Composition:

- 7 Radiologists
- 15 Radiographers
- 2 Support staff

Table 18. Imaging Modality and Equipment

Modality	Units	Annual Procedures
X-ray	2	22 000
Ultrasound	6	29 986
Mammography	1	30 200
CT	1	17 136
SPECT	1	3 380
PET-CT	1	425
Fluoroscopy	1	468

[111] The term cancer centre broadly covers three types of establishment treating patients with cancer, as defined in high-income settings:
• **Cancer units** are usually dedicated cancer wards within the general hospital setting, including nursing homes and hospices, particularly in low-income and middle-income countries (LMICs)
• **Cancer centres** are dedicated multispecialty centres that can be stand alone or part of a general hospital complex, including site-specific cancer centres (eg, haemato-oncology, breast, radiotherapy, hepato-pancreato-biliary, and palliative) often referred to as secondary or district cancer centres (as seen in most National Health Service hospitals in the UK)
• **Comprehensive cancer centres** are the highest tier and cover multidisciplinary centres that might be stand alone or part of general hospital complexes. These centres deliver not only the full range of cancer care, but also prevention, research, training, and education locoregionally or nationally and are often subject to national and international accreditation processes (e.g., National Cancer Institute accreditation in the USA or Organisation of European Cancer Institute accreditation across Europe).
Source: Sirohi B. et al. Developing institutions for cancer care in low-income and middle-income countries: from cancer units to comprehensive cancer centres, Lancet Oncol. 2018; 19:e395-406.

Interventional Radiology	N/A	2 577

Medical Oncology

The NCISL is the country's dedicated cancer hospital. In 2024, there were 13 720 new patient and approximately 73 000 inpatient admissions. The NCI provides comprehensive cancer services. Cancer directed therapy is primarily managed at dedicated adult oncology and hematologic oncology clinics. Most chemotherapy is administered in the outpatient chemotherapy unit with the exception of regimens at increased risk for severe hypersensitivity reactions or complex, multi-day regimens, which are given on the inpatient oncology wards. All oncology injections except for bortezomib are administered in the Emergency Centre, approximately 500/month. In addition, the Emergency Centre provides acute medical management and stabilization, after which patients are admitted to a ward or discharged, if improved. Patients can also undergo procedures, such as paracentesis. The Emergency centre managed 788 patients In January 2025 and 690 in February 2025. Transfusions are administered in a dedicated outpatient blood transfusion unit.

Inpatient care is primarily provided on the medical oncology wards, which are consistently over capacity. Patients have close quarters on open wards and isolation for infection or neutropenia is not possible. Intensive care unit beds are very limited and there are no step down or intermediate care beds available. Critically ill patients are often managed on the ward while awaiting an ICU bed. All bone marrow/stem cell transplants for the country are performed at the NCI, which has a well-equipped dedicated transplant ward.

Pathology

The NCISL's pathology and laboratory services are supported by a team of pathologists and consultants: 4 in histopathology, 4 in haematology, 1 each in microbiology, virology, and mycology, and 2 in biochemistry. Despite this staffing, there is a notable shortage of consultants relative to the high volume of diagnostic tests and specimen loads. Additionally, the overall shortfall in medical officers and medical laboratory technologists (MLTs) ranges between 20% to 40%, which significantly impacts service delivery.

Except for the molecular diagnostics laboratory, most labs operate with outdated equipment, including refrigerators, analysers, stainers, and cryostats. The Laboratory Information System (LIS) is currently non-functional. Furthermore, the laboratories are physically dispersed across more than ten different buildings, posing logistical challenges for specimen transport and report distribution—currently reliant on paper-based systems.

The **Histopathology** laboratory processes approximately 5 000 surgical specimens, 5 500 Pap smears, 1 300 fine needle aspiration (FNA) cytology samples, and 1,600 body fluid cytology samples annually. The IHC laboratory offers testing for 78 antibodies. In 2024, a total of 11 106 IHC slides were processed, including 2 615 for oestrogen and progesterone receptor (ER/PR) testing. A key operational challenge is the inconsistent supply of IHC reagents, which disrupts testing continuity. The **Biochemistry** laboratories conduct nearly 600 000 tests annually and operate a dedicated night lab. Services include immunoassays for serum tumour

markers and hormone testing. Flow cytometry is also available, and the turnaround times are generally satisfactory. **Haematology** services are delivered through six laboratories, which are also distributed across several buildings. This decentralization hinders efficient specimen sharing and communication between units. Staffing includes 6 medical officers, 14 MLTs, 2–4 trainees, and 10 support staff. While instrumentation is deemed adequate, the labs face a 20%–40% shortage in staff. In 2024, 228 300 haematology tests were performed, including 643 bone marrow examinations for hematologic malignancies. The labs currently lack cytogenetic testing capabilities and require updated reference materials for trainee education. **Microbiology** services are divided into bacteriology, virology, and mycology, each with a dedicated consultant. These labs are also spread across different buildings. Bacteriology reports a notably high positive blood culture rate of approximately 20%, indicating potential life-threatening infections. Numerous drug-resistant bacterial strains have been identified, but the mechanisms of resistance cannot be determined due to a lack of appropriate reagents. A significant portion of bacterial isolates cannot be identified using the current automated biochemical analyser, underlining the urgent need for a MALDI-TOF mass spectrometer for rapid and accurate bacterial identification.

The **molecular diagnostics laboratory**, established in 2022 following the 2019 imPACT review recommendations, is a state-of-the-art facility. It is equipped with PCR thermocyclers and next-generation sequencing (NGS) platforms and is housed in a new building. The lab is staffed by 4 consultants (who also share responsibilities in other labs), 3 MLTs, and 1 support staff. A bioinformatician is needed to support data analysis workflows. Since commencing services in June 2024, the lab has conducted 487 molecular tests, including BCR-ABL quantification, PML-RARA detection, JAK2 mutation analysis, and testing for myeloproliferative neoplasms (MPNs). It is currently the main facility within NCISL offering comprehensive molecular diagnostic capabilities, including RNA/DNA extraction, NGS, and PCR for hematologic malignancies.

National Hospital of Sri Lanka

NHSL is a major teaching hospital and the only centre in the country offering neurointerventional radiology services. It also houses a radiology residency training programme and uses PACS.

Table 19. Imaging Equipment

Modality	Units	Notes
X-ray (stationary)	15	No waiting time
Ultrasound	6	Available
Mammography	2	One functional with tomosynthesis; one out of service. Average of 15 patients/day
CT	4	Fully operational; 100 patients/day

MRI	4	3 functional; 1 under repair; 20 patients/day
SPECT	2	One machine out of order; 12 patients/day
PET-CT	1	Functional once weekly due to FDG shortages

Pathology

The **Histopathology** department is staffed by three pathologists who collectively interpret approximately 15 000 histology specimens annually. Each pathologist generates 40 to 50 reports daily, utilizing standardized reporting templates. While staffing levels are generally insufficient, the available pathologists and staff members are highly skilled and well-trained. The department not only diagnoses cancer specimens but also handles renal and skin biopsies, as well as neuropathology cases. The average turnaround time for specimens, including immunohistochemistry, is approximately 5 to 6 days. Breast cancer is a major focus of the practice.

Immunohistochemistry poses a significant challenge for the department, as it has a limited panel of core diagnostic antibodies. The department is currently lacking more specialized markers, such as IDH1 for brain tumours, ALK, and SOX10 for nerve sheath tumours. Cytology is conducted using cytospins, and while efforts are underway to implement HPV DNA testing, no other molecular testing is currently available. Due to equipment constraints, frozen section analysis is not offered at this time.

The **Hematology** department, located nearby, performs bone marrow biopsy readings, processes approximately 1 500 blood smears daily, and conducts coagulation studies, as they serve as a referral centre for specialized testing. Histopathology processes their samples and performs immunohistochemistry for haematology. However, flow cytometry has not been available for the past five years. Cytogenetic analysis for translocations is not performed in-house, with testing outsourced to private laboratories or international sites, contingent upon patient affordability. The Biochemistry department handles myeloma studies, including immunofixation and SPEP testing.

A major challenge across multiple services is the limited availability of immunostains, attributed to both inadequate equipment and frequent shortages of reagents. These reagents are received quarterly, yet supplies often run out before the next shipment arrives. The department faces additional difficulties due to a shortage of pathologists and technical staff, as well as the absence of an automated counter.

Immediate priorities include the acquisition of another immunohistochemistry machine and reagents. Long-term goals focus on increasing technical staffing, expanding space, and developing Centres of Excellence at regional sites to enhance service delivery.

Medical Oncology

The National Hospital of Sri Lanka (NH) is not a dedicated cancer centre but provides comprehensive adult medical care. NH has a haematology service which may include malignant haematology. The consultant haematologists read blood smears and perform bone marrow biopsies. Bone marrow samples are processed by the pathology lab and then returned to the haematologist who reads the slides and issues the report. IHC is performed at NH, but flow cytometry is not available. When a patient at NH is diagnosed with malignancy during haematology work-up, they are provided with the option of receiving treatment at NH or being referred to NCI. NH has a small outpatient chemotherapy unit but does not have a safety cabinet for preparing chemotherapy drugs. As a result, the chemotherapy drug for each patient treated at NH is couriered to NCI for preparation and then couriered back to NH to be administered to the patient, a process which averages 2-4 hours. Patients who require hospitalization are admitted to the general medicine wards since there are not dedicated haematology or oncology wards.

Teaching Hospital Rathnapura

Medical Oncology

TH Rathnapura is a Main Cancer Centre located in the periphery and also serves as a teaching hospital. Two consultant oncologists oversee the outpatient oncology clinic and inpatient wards. An estimated 500-1 000 patients receive chemotherapy and 1 000 – 1 500 receive hormonal therapy per year, however precise numbers are not available. Medication stock outs are common resulting in treatment delays. The inpatient wards are overcapacity; some patients do not have beds and are managed in chairs. Nosocomial infections are common and tend to spread throughout the ward. No neutropenic isolation precautions are possible. A busy Urgent Care Clinic operates 8 am – 8 pm and manages approximately 110 patients per day.

The site does not have IHC services and so tissue is sent out with resultant diagnostic delays. The facility is equipped with a linear accelerator vault and space for CT simulator, however the equipment is not yet available, and so radiation therapy services are on hold. A weekly multi-disciplinary tumour board occurs for 2 hours during which approximately 20 complex cases are discussed.

Pathology

This is a provincial central hospital, a reference centre for the province of 6 million people. The hospital has 1 390 beds, with annual 1 000 to 1 500 patients with cancer.

Path and lab medicine consultant staff include 2 in histopathology, 1 in haematology, 1 in biochemistry, and 1 in microbiology. The surgical path volume is around 8 000. Cytopathology is also performed, including Pap smear and other specimens. There is no LIS system. The hospital MIS is partially working in mix with paper records. The overall shortage of staff is around 20-30%, e.g., the current 2 cytoscreeners is ideally expanded to 3 to 4. Biochemical services are adequate, including tests offered, turnaround time, and personnel (1 consultant, 3 medical officers, and 9 MLTs). The microbiology services are adequate, including TB culture and PCR test, etc. All patients with respiratory illnesses are screened for TB with PCR tests. IHC lab space is allocated now, waiting for equipment and reagents to start validation process and service.

Recommendations include establishing LIS, speeding up the IHC service, and addition of more cytoscreeners and other MLTs. These are short to intermediate terms.

Galle National Hospital

Pathology

The pathologists at Galle National Hospital are situated in close proximity within the same space. The Histopathology department follows a general model, staffed by three pathologists, with the recent addition of a fourth pathologist specializing in oral pathology. The team also includes seven technicians, though this staffing level is insufficient to manage the workload effectively. The department utilizes two automated microtomes to assist with paraffin block sectioning. Annually, the group processes approximately 10 000 biopsy and surgical resection specimens. However, due to understaffing, the processing and work-up of specimens is delayed, resulting in reports taking up to 2-3 months to be finalized. The department's objective is to reduce the report turnaround time to 2-3 weeks. At present, reports are printed and not integrated into an electronic medical record system.

Previously, the department conducted frozen sections, but the cryostat, essential for processing frozen specimens, is currently non-functional. Additionally, the team processes around 5 000 cytology specimens annually, which includes fine needle aspirations (FNA) and bronchial brushings. Pap smears are processed at a nearby gynaecological hospital. Cytology is handled via cytospin and manual preparation techniques. The department has access to approximately 40-50 immunohistochemical markers, including those for basic breast cancer and lymphoma diagnoses. However, HER2 FISH testing is not available on-site and must be referred to a private laboratory.

The available space for the department is currently limited, though plans are in place to consolidate and integrate all four laboratories into a new, larger facility in the future. All equipment is covered by service contracts. Immediate needs include additional laboratory technicians, immunohistochemistry reagents, and support for continuing medical education.

The Haematology department features a dedicated bone marrow aspiration room, with a primary focus on diagnosing myeloma and lymphomas. Immunohistochemistry is performed within the Histopathology department. However, flow cytometry services are not available, and there is currently no established referral pathway for such testing to other centres.

The Biochemistry department operates several smaller automated lines, processing approximately 200 samples per month and conducting hormone testing. The Chemistry department is the only one with a Laboratory Information System (LIS) in place, utilizing barcoding for specimen tracking. Microbiology plays a significant role in tuberculosis testing, utilizing PCR testing and liquid TB culture, although reports are handwritten.

Gynaecologic Hospital Galle

Pathology

The Histology department is staffed by a single gynaecologic pathologist, who collaborates closely with the pathologists at Galle National Hospital. Annually, the department processes approximately 4 500 biopsy and surgical samples, along with 15 000 Pap smears. The laboratory has experienced a reduction in staff, having lost several technicians, and is now supported by 11 technicians, compared to the previous complement of 14. The number of cytoscreeners is also limited. In addition to histology, the laboratory houses one haematologist and one microbiologist; however, there is currently no chemical pathologist on staff. Immunohistochemistry services are available, though the supply of reagents is inadequately funded, resulting in inconsistent availability.

Rathnapura primary care centres

The centres are staffed by medical officers, nursing officers, and support personnel. They provide primary services, from vaccination, well women care, early detection of oral cancer, to dispensing common medications. One centre also prepares Pap smears. There are no pathology or lab services in these primary centres. It occurs to us that these primary centres might be benefited by some point-of-care tests.

Lady Ridgeway Hospital

Pathology

This is a children's hospital with 1 040 beds, a reference centre for Sri Lanka. It was established in the early 1900's. Overall the facility and environment are better than those in NCISL. Once children are diagnosed with cancer, such as a bone tumour, leukaemia, or blastoma, they are referred promptly to NCISL for further diagnostic workup and management. The hospital offers bone marrow transplant, not for the treatment of cancer, but for congenital anaemias, e. g., aplastic anaemia and Fanconi anaemia. So far, the hospital has performed 20 transplantations. The blood bank performs low resolution HLA typing. But high-resolution HLA typing tests are sourced to India.

Path and lab medicine consultant staff include 2 in haematology, 1 in histopathology, 1 in biochemistry, and 1 in microbiology. The numbers of medical officer and MLT are mostly adequate. There is functional LIS and in interface with the MIS. The short fall is quality management.

Recommendations include establishing quality management for histopathology and laboratories, and collaborative work with the molecular diagnosis lab in NCISL to develop high-resolution HLA typing. These are short to intermediate terms.

ANNEX 3: CANCER CONTROL BASELINE DATA AND INDICATORS

Year of data collection: 2025	
Country Overview	
Current Health Expenditure (% of GDP)	4.36 (2022 data)
Current Health Expenditure Per Capita (Current $US)[3]	$145.56 (2022 data)
Out-of-pocket Health Expenditure (% current health expenditure)[3]	40.2% (2022 data)
Policy Response	
Non-Communicable Disease (NCD) Strategy /Plan/Policy up to date	Yes
Cancer Control law	No
NCD Unit	Yes, Directorate of Non-Communicable Diseases (NCD) of Ministry of Health [112]
NCCP Unit	Yes, Directorate of National Cancer Control Programme
NCCP Plan (stage of development)	No, the previous National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (NSP) covered the period 2020-2024 and was developed based on the 2019 imPACT mission recommendations. Sri Lanka plans to develop the next National Cancer Control Plan based on the updated 2025 imPACT recommendation [113].
National Cancer Control Steering Committee and or equivalent	Yes, the National Advisory Committee (NAC) is the statutory body for prevention and control of cancer in Sri Lanka[114].
NCCP with Work Plan	No (last 2020-2024); update planned in 2025
NCCP with costed Work Plan	No (last 2020-2024 with partial costing several activities); update planned in 2025
Cancer Registration Policy	
Cancer registries	Sri Lanka Cancer Registry and Colombo Population Based Cancer Registry
Cancer registries: data type and coverage	Two PBCRs (neither meet the essential elements of PBCR) • Sri Lanka Cancer registry_- data from all the public sector points of diagnosis and points of treatment, located across the country • Colombo PBCR which reports data of the newly diagnosed cancer cases among residents of the Colombo district collected from both public and private sector points of diagnosis and points of treatment.
Cancer specific staging per diagnosis	Availability of staging information is limited in SLCR 2021.Only 35% breast cancers, 14% cervical cancers and 28% lip tongue and mouth cancers having this information. Among those with staging information 37% breast cancers, 47% cervical cancers and 63% lip, tongue and mouth cancers were diagnosed at the advanced stages (Stage III and IV).

[112] Annual Health Bulletin 2022-2023, Ministry of Health Sri Lanka

[113] National Strategic Plan on Prevention and Control of Cancer in Sri Lanka 2020-2024). National Cancer Control Programme. Ministry of Health. Sri Lanka. 2020.

[114] National Strategic Plan on Prevention and Control of Cancer in Sri Lanka 2020-2024). National Cancer Control Programme. Ministry of Health. Sri Lanka. 2020.

Cancer specific survival rates	Not available
Cancer is notifiable disease	No
Cancer registries: latest data year	SLCR-2021; Colombo PBCR-201302019
Cancer Prevention Policies	
HPV in national schedule and coverage	National programme currently targets 11-year-old girls through a school-based delivery system with a two-dose schedule using the quadrivalent Gardasil vaccine. Coverage for the first dose has exceeded 90% for the 2021–2023 cohorts, though second-dose coverage remains at 40–50%, with incomplete data reporting during the review process. The COVID-19 pandemic temporarily disrupted the programme in 2020 due to global supply constraints; services resumed in April 2024.
HBV in national schedule and coverage	Hepatitis B vaccination was introduced to the Sri Lankan national immunization schedule in 2003 for all infants at 2–, 4– and 6–months of age. Coverage was reported as 99% in 2023.
Tobacco Control Policy or equivalent and assess level of implementation	National Multisectoral Action Plan for the Prevention and Control of NCDs (NMSAP NCD) 2023-2027 In 2024 Sri Lanka recorded highest level of achievement for 3 out of 6 MPOWER measures for tobacco control
Alcohol Control Policy or equivalent and assess level of implementation	National Multisectoral Action Plan for the Prevention and Control of NCDs (NMSAP NCD) 2023-2027 Gaps in implementation of several WHO advocated cost- effective interventions to control alcohol i
Breast Cancer Early Detection	
Early Detection Programme and linkages to cervical cancer early detection/women health programmes	NA
Programme guidelines	NA
Type and coverage of the programme	NA
Programme primary screening test	NA
Programme target age range start	NA
Programme target age range end	NA
Cervical Cancer Early Detection	
Cervical cancer early detection Programme (linkages to breast cancer early detection programmes)	NA
Programme guidelines	NA
Type and coverage of the programme	NA
Programme primary screening test	NA
Programme includes treatment of precancerous lesions	NA
Programme target age range start	NA

Programme target age range end	NA
Colorectal Cancer Early Detection	
Early detection Programme	NA
Programme guidelines	NA
Type and coverage of the programme	NA
Programme primary screening test	NA
Programme target age range start	NA
Programme target age range end	NA
Cancer Diagnosis Infrastructure	
# X-ray units	NA
# Sonography units	NA
# Mammography units	NA
# CT scanners	NA
# MRI units	NA
# SPECT scanners	6
# PET scanners	2
# Cyclotrons	NA
Assess availability and access to conventional diagnostic imaging services	NA
Assess availability and access to nuclear medicine imaging services	NA
Assess availability and access to pathology services	NA
Cancer Treatment Infrastructure	
# Cancer centres	9 main cancer centres and 18 regional cancer centres.
# RT units	9 existing centres with RT units, and 3 additional centres are currently under planning.
# Cobalt-60	9 unit
# LINAC	12 existing unit, with 5 more currently in the planning stage.
# Brachytherapy	8 existing units, with 8 more currently in the planning stage.
List of Essential Medicines for Cancer	Yes (2013 data, updated 2024)
List of Essential Medicine compliant to WHO EML	Partially
Assess availability and affordability of chemotherapy	NA
Assess availability and access to radiotherapy (as per IAEA standards)	NA
Assess availability and access to cancer surgery	NA
Cancer Workforce	

Availability of national cancer-related pre-service training programmes	NA
Availability of national cancer-related in-service training programmes	NA
Number and profile of staff trained by the IAEA/WHO/IARC	NA
# Pathologists	53 pathologists are certified in histopathology, and 50-60 are certified in haematology.
# Pharmacists & radio pharmacists	0
# Nurses (specialized in oncology)	NA
# Medical oncologists	No exact number due to medical oncologists being included in clinical oncologist count
# Clinical oncologists	49
# Paediatric oncologists	3
# Radiation oncologists	69
# Medical physicists (RT)	44
# Medical physicists (NM)	NA
# Radiologists	200 (70 working abroad; 9 currently in training; 2 paediatric radiologists.
# NM physicians	3
# Radiographers	600
# Radiation therapy technicians	70
# NM technologists	NA
# Licensed surgeons	NA
# Licensed surgical oncologists	5 consultant surgical oncologists and two gynaecological oncologists in NCISL
QUALITY OF DIAGNOSIS & TREATMENT	
National guidelines for the cancer management	No
Quality Assurance System	NA
Multidisciplinary Tumour Boards	NA
Public, Occupational and Patient Safety Guidelines	NA
PALLIATIVE CARE	
National palliative care plan	Yes, National Strategic Framework 2019-2023 and 2025-2029 (status pending)
Status of development	NA
Availability and access to opioids	NA
Availability and access to oral morphine	NA
Availability and access to palliative care in PHC/hospital/hospices	NA

Availability and access to home-based palliative care	NA

ANNEX 4: NEW PATIENT REGISTRATION AT THE PUBLIC CANCER TREATMENT CENTERS 2008 – 2024

Cancer Centre	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
NCI Maharagama	11163	11756	11513	12403	12550	12689	13247	13890	14248	13651	14171	13928	11864	11686	13113	13711	13720
NH Kandy	3648	3634	4046	5042	3717	3516	4000	4023	3877	4150	4042	3882	3889	3619	4386	4940	5193
TH Karapitiya	1764	1866	1793	2193	2158	2455	2479	2394	2595	2585	2652	2473	2442	2372	2548	2763	3061
BH Tellippalai (TH Jaffna)	412	479	659	1055	1048	1061	1032	1100	1099	1103	1186	1198	1304	1615	1257	1344	1405
TH Anuradhapura	712	551	641	698	803	850	1114	1300	1131	1214	1483	1429	1542	1621	1632	1621	1539
PGH Badulla	753	794	858	1430	2152	2203	1527	2285	2225	2015	2151	2591	2552	2220	2365	2079	2072
TH Batticaloa		169	565	727	1094	932	897	900	1325	1048	876	699	924	1076	1235	1146	1094
TH Kurunegala	538	804	806	1174	1122	1042	1238	1680	1863	2062	2206	2177	2091	2103	2277	1988	2042
TH Rathnapura	319	485	636	735	808	767	807	902	1094	1103	1076	1098	1152	1016	970	1022	985
NCTH Ragama											747	648	819	1020	1408	1649	1668
DGH Gampaha										153	580	776	673	602	846	725	765
DGH Avissawella											76	294	274	313	334	313	351
DGH Kalutara											480	492	647	595	678	440	584
DGH Nuwara Eliya									238	236	203	286	414	353	463	435	410
DGH Matara												180	405	507	580	524	654
DGH Hambanthota										177	312	427	460	534	679	713	772
DGH Vavuniya										26	223	253	240	276	202	296	271
DGH Polonnaruwa										648	699	615	714	622	525	353	517
DGH Monaragala									125	136	413	262	266	256	172	177	204
DGH Trincomalee										702	568	350	333	260	313	60	43
DGH Ampara									164	140	111	161	156	180	158	226	311
DGH Chilaw									91	239	455	591	673	648	612	483	592
DGH Kegalle									183	276	243	297	332	337	293	311	407
DGH Embilipitiya														68	93	9	0
DGH Matale														49	304	328	318
KDU Hospital													1489	1614	1179	1406	1365
NFTH													208	106	150	53	78
Total	**19309**	**20538**	**21517**	**25457**	**25452**	**25515**	**26341**	**28474**	**30258**	**31664**	**34953**	**35107**	**35863**	**35668**	**38772**	**39115**	**40421**

ANNEX 5: CHILDHOOD CANCER CONTROL INDICATORS [115]

Country Overview	
Population (aged 0-19) as % of total [1, 2, 3]	30% (2023 data)
Childhood Cancer Indicators	
Annual New Childhood Cancer Cases Expected (aged 0-19)[7]	697 from GLOBOCAN (2022 data)
Local Data on Childhood Cancer Cases Seen per Year (aged 0-19)[4, 5]	800 at NCISL 1,032 from Sri Lanka Childhood Cancer Registry, with potential duplication of cases across sites (2021 data)
Ratio of mortality to incidence (aged 0-19)[4]	0.3 (2021 data)
Childhood Cancer included in National Benefits Package[5, 6]	Yes, some out-of-pocket costs. Includes coverage for direct costs as well as a small monthly stipend for indirect costs (for all patients with cancer regardless of age, diagnosis or prognosis; extended program for direct costs for school-age children (e.g. for prostheses) in place for ~ 5 years before paused in 2020)
Childhood Cancers in National Cancer Control	
National Strategy for Early Diagnosis[5, 6]	No
National Referral System for Childhood Cancer[1]	No (informal/ad hoc pathways exist)
National Essential Diagnostics List and Priority Medical Devices List[5]	Partial
National Essential Medicines List (including Cytotoxics for children)[5, 10]	Yes (2013 data, updated 2024)

[115] References:

1. WHO https://data.who.int/countries/144
https://www.who.int/teams/noncommunicable-diseases/surveillance/data/cancer-profiles
2. UN World Population Prospects https://population.un.org/wpp/
3. World Bank https://data.worldbank.org/
https://blogs.worldbank.org/en/opendata/world-bank-country-classifications-by-income-level-for-2024-2025
4. National Childhood Cancer Registry Sri Lanka 2021
5. St. Jude and local sources
6. National Strategic Plan for Childhood Cancer in Sri Lanka
7. GLOBOCAN https://goc.iarc.fr/en
8. National Strategic Plan on Prevention and Control of Cancer in Sri Lanka (2020-2024)
9. National Strategic Framework on Palliative Care Development 2019-2023 (Sri Lanka).pdf
10. The Revision of Pharmaceutical Formulary for Government Healthcare Institutions. FRC-2024.pdf

National Cancer Control Plan (yes/no and status)[5, 8]	Previous (2020-2024); new planned in 2025
National Cancer Control Plan includes children (yes/no)[6]	Yes, with additional 2021-2025 dedicated Childhood and Adolescent Cancer plan (age 0-18.9 years)
National Strategy for Palliative Care (yes/no and status)[5, 8, 9]	Yes, National Strategic Framework 2019-2023 and 2025-2029 (status pending)
National Strategy for Palliative Care includes children (yes/no)[5, 6]	Yes
National Guidelines for Childhood cancer management[5]	Yes (Pathology: Retinoblastoma, Wilms; Treatment: Acute Lymphoblastic Leukaemia, Wilms)
National Cancer Rehabilitation Program[5]	None
National Cancer Survivorship Program/Standards[5]	None
National Cancer Advocacy Organization / Family Support Group / Civil Society Organization[5]	None
Population-based cancer registry[5]	Yes (with some gaps); not contributing to global publications (e.g. IICC-3, CI5, CONCORD)
Hospital-based cancer registry[5]	Yes

ANNEX 6: CHILDHOOD CANCER DETAILED RECOMMENDATIONS

- **Define and Equip Reference Centre(s) + Referral Pathways with logistics support** *Medium Term*
  While many aspects of comprehensive cancer care are offered, opportunities (long term) include expansion of services at reference centres, including infection prevention and care service (NCISL and LRH), insertion and maintenance of tunnelled and non-tunnelled central lines (NCISL and LRH); conscious sedation service (NCISL); expanding onco-critical care (including a systematic early warning score system to identify patients at risk of acute deterioration at NCISL); paediatric palliative care (NCISL and LRH), rehabilitation (NCISL and LRH), survivorship (NCISL), transplantation (NCISL).

  Radiation oncology is expected to continue to be exclusively offered through NCISL based on the dedicated expertise required. Over time, public health nurses may also be engaged to support palliative care and early referrals for children outside of Colombo.

- **Clarify gaps filled (and unfilled) by Civil Society Organizations** *Short term*
  For instance, Lion's Hostel for Child Cancer Patients at the National Hospital Kandy is a multi-story air-conditioned building that was visited during the imPACT review, yet it is not used at all for the initially designated purpose. The building was handed over to the hospital including beds and mattresses, but it has never been used for the intended purpose despite being adjacent to the crowded cancer wards, while half the building has been used since October 2023 for outpatient palliative care consultations for adults.

- **Establish national clinical management guidelines for common childhood cancers** *Medium term*
  This can start with completing the two pathology guidelines underway (Wilms, Retinoblastoma) and the two treatment guidelines (Wilms, ALL) including endorsement by the Ministry, and dissemination including training workshops led by the Ministry in collaboration with the relevant Colleges to ensure implementation across centres nationally.

- **Strengthen HBCR & PBCR** *Medium to long term*
  For the two private hospitals in Colombo estimated to offer care for approximately 5% of children in Sri Lanka (Asiri Hospital offering radiotherapy under anaesthesia and the only private-sector PET service, and only PET service outside NCISL; Lanka Hospital offering a dedicated childhood cancer ward), the Ministry should mandate contribution of data to the national childhood cancer registry efforts.

ANNEX 7: LIST OF PARTICIPANTS IN THE CANCER CONTROL PLANNING WORKSHOP (*27 MARCH 2025*)

No.	Name	Profile
01	Dr. P.S Athapattu	OMF Surgeon
02	Dr. I.M Jayathilaka Bandara	Consultant Oncologist
03	Prof. R. Roheem	NGO Mithuruwela
04	Mr. M.L Tharanga Bathiya Jayawantha	Physicist
05	Dr. Nadeeja Herath	Consultant Community Physician / Family Health Bureau
06	Mr. Nimal Rathnayake	NGO / Rotary Club
07	Dr. Jayani T. Jayaweera	Consultant Nutrition Physician
08	Dr. G.A.M. Kularathnam	Chemical Pathologist
09	Dr. D.K Ilangasinghe	Consultant Community Physician - Estate and Urban Health Unit
10	Prof. Maheeka Seneviwickrama	Cancer Research Unit- University of Sri Jayawardenapura
11	Prof. M.K.D.L. Meegoda	Professor in Nursing University of Sri Jayawardenapura
12	Dr. Ajith Alagiyawanna	Consultant community Physician - / Health Promotion Bureau
13	Dr. N.S.Wadusingherachchi	Consultant Oral Pathologist
14	Dr. C.N. Jayasundara	Consultant Clinical Haematologist
15	Dr. Sarath Perera	Consultant Radiologist
16	Dr. N.A.Y. Isuruni	Consultant Radiologist
17	Prof. Hemantha Amarsinghe	Faculty Dental Sciences / University of Sri Jayawardenapura
18	Dr. U. Usgodaarachchi	Consultant in Community Dentistry
19	Dr. Kamila Wijayalathge	Consultant OMF Surgeon
20	Dr. Jaliya Jayasekara	Consultant Oncologist- Secretary, SLCO

21	Dr. Wasantha Wijayanayaka	Consultant Surgeon
22	Prof. Pramodh Chandrasinghe	Professor in Surgery / University of Kelaniya
23	Dr. Randima Nanayakkara	Consultant OncoSurgeon
24	Dr. Yasara Samarakoon	NPO/WHO
25	Dr. Farukh Qureshi	MO/NCD/WHO
26	Prof. Samadhi Rajapaksha	Cancer Care Association – Hospice council-Sri Lanka
27	Dr. Sandeepani Jayasooriya	Consultant Radiologist
28	Dr. Nadeeka Chandrarathna	Senior Lecturer in Community Medicine- University of Colombo
29	Dr. Manjula Herath	Consultant OMF Surgeon
30	Dr. G.U. Ramadasa	Senior Lecturer, Sabaragamuwa University
31	Dr. Sanjeewa Gunasekara	Consultant Paediatric Oncologists
32	Dr. S.J. Balasingham	Consultant Community Physician / NCD
33	Dr. Murali Vallipuranathan	Consultant Community Physician, Representing College of Community Physicians of Sri Lanka
34	Dr. Sumeda Gnanaratne	Consultant Community Physician, North Western Province.
35	Dr. M.F.F. Fazeena	Medical Officer / Public Health - North Western Province
36	Dr. Sujeewa Weerasinghe	Consultant Oncologist
37	Dr. Suresh Shanmuganathan	Consultant OMF Surgeon
38	Dr. Sanath Wanigasooriya	Consultant Oncologist, President- SLCO
39	Dr. Lanka Dissanayaka	Indira Cancer Trust / NGO
40	Dr. Shanikka Vitharana	Consultant Hematollogist
41	Dr. Nayana Samarasinghe	Consultant Radiologist, Lady Ridgeway Hospital
42	Prof. Priyani Amathunga	Consultant Histopathologist, President- College of Pathologists
43	Dr. Kanchana Wijesinghe	Consultant Surgeon, Colombo South Teaching Hospital.

44	Dr. N. Paranagama	Former Director/NCCP
45	Dr. Pramil Liyanage	Consultant in Health Informatics
46	Dr. Buddhika Somawardhana	Consultant Haemato Oncologist
47	Prof. Sudath Warnakulasooriya	Dean - Faculty of Nursing, University of Colombo

ANNEX 8: BACKGROUND INFORMATION ON, IAEA, IARC AND WHO

The International Atomic Energy Agency (IAEA) and Cancer Control

Widely known as the world's "Atoms for Peace and Development" organization within the United Nations family, the IAEA is the international centre for cooperation in the nuclear field. The IAEA was established in 1957 and for more than 60 years has been working with its Member States and multiple partners worldwide to promote safe, secure, and peaceful nuclear technologies, with emphasis on the use of radiation medicine and of related regulatory and safety infrastructures. Health is an important part of the IAEA's mandate and of its programmes, mainly because nuclear techniques play a major role in medicine and a particularly prominent role in fighting cancer.

The IAEA also provides advice, support and assistance with regard to all of the prerequisites to ensure radiation techniques and technologies in healthcare are used safely and securely. Focusing on capacity building and education and training in particular, the IAEA's assistance, through its technical cooperation and human health programmes, has enabled over one hundred LMI Member States to establish radiotherapy services, and in many cases nuclear medicine services.

The IAEA established its Programme of Action for Cancer Therapy (PACT) in 2004 to support more effectively the fight against cancer in developing Member States, through a focus on public health. PACT stands as the IAEA's umbrella programme for coordinating cancer-related activities and builds upon existing experience in radiation medicine technology to enable LMI Member States to introduce, expand and improve their cancer care capacity by integrating radiotherapy into comprehensive national cancer control programmes, which maximize therapeutic effectiveness, sustainability and impact. Following WHO guidelines, such programmes integrate and align activities and investments in cancer prevention, early detection, diagnosis, treatment, palliative care, and surveillance into a public health system based on available scientific evidence.

The World Health Organization (WHO) and Cancer Control

The WHO is the international agency within the UN system responsible for health. Established in 1948, its objective is the attainment by all peoples of the highest possible level of health, based on the "Health for All" concept. One of the missions of the WHO is to provide leadership and advice on the evidence base for international action on prevention and control of non-communicable diseases (NCDs), including cancer. Given cancer's human and economic cost, the WHO has intensified its efforts to respond to the cancer pandemic more effectively. The World Health Assembly has passed several key resolutions to put knowledge into action concerning cancer and NCD control. One such highly significant resolution related directly to cancer, resolution WHA 58.22 ("Cancer prevention and control"), was adopted by the World Health Assembly in 2005. That resolution listed a number of objectives, in particular the development of the WHO cancer control strategy at the global, regional and national levels, aimed at improving knowledge to implement effective and efficient programmes for cancer control, leading to a reduction of the cancer burden and improving quality of life for cancer patients and their families. In this context, the WHO has encouraged Member States to establish National Cancer Control Plans to respond to the cancer needs in populations by

preventing, detecting early, curing, and caring. Basic steps of the planning process can be consulted on the WHO's website.

In September 2011, the UN General Assembly convened for the High-Level Meeting on the Prevention and Control and Non-communicable Diseases, a significant milestone in the efforts to make international commitments that put NCDs high on the development agenda. In May 2013, the World Health Assembly endorsed the WHO's Global Action Plan for the Prevention and Control of Non-communicable Diseases 2013–2020 and adopted a global monitoring framework to enable global tracking of progress in preventing and controlling major NCDs, including cancer, and their key risk factors.

WHO, as the UN agency with the overarching health mandate, sets norms and standards in health planning and implementation and assists countries in developing national health plans, including on cancer control. The WHO country offices play a key role as interface to the national health authorities. The respective head of a WHO Country Office represents the WHO Director General and the Regional Director of the respective WHO regional. Important WHO partner organizations related to cancer are Union for International Cancer Control (UICC; advocacy and communication), European Society for Medical Oncology (ESMO; access to anti neoplastic medicines survey), International Network for Cancer Treatment and Research (INCTR; cancer treatment in resource constrained settings), and International Psycho-Oncology Society (IPOS; psychosocial support for cancer patients).

There are currently three WHO global initiatives on cervical cancer, childhood cancer and breast cancer. In 2018, WHO made a global call for eliminating cervical cancer as a public health problem and the World Health Assembly adopted the Global Strategy for cervical cancer elimination in 2020. For elimination, countries should reach and maintain an incidence rate below 4/100 000 women, and for this, they should achieve by 2030: 90% of girls fully vaccinated against HPV by age 15, 70% of women screened with a high-performance test twice by age 45 and 90% of women with pre-cancer treated as well as 90% of those with invasive cancer adequately managed. That same year, the WHO Global Initiative for Childhood cancer, aiming to achieve at least 60% of survival for all children with cancer by 2030, was launched and more recently, in 2021, WHO established the Global Breast Cancer Imitative, aiming to reduce global breast cancer mortality by 2.5% per year by 2040 and prevent 2.5 million global cancer deaths.

The International Agency for Research on Cancer (IARC) and Cancer Control

The International Agency for Research on Cancer was established in 1965 as an autonomous agency of the WHO with the aim of promoting international collaboration in cancer research. IARC's mission is to coordinate and conduct international studies on the causes of human cancer, the mechanisms of carcinogenesis, the development of evidence-based strategies for cancer prevention and control as well as education and training for cancer research.

IARC contributes directly to the planning, implementation, and evaluation of national cancer control programmes by supporting the necessary expansion of quality-assured population-based cancer registries worldwide, as well as the implementation of cancer prevention and early detection activities. The *Cancer Incidence in Five Continents* series, the GLOBOCAN database, and the publications/electronic resources, *Cancer Survival in Africa, Asia, the Caribbean and Central America (SurvCan),* and *International Incidence of Childhood Cancer*

(IICC), produced by IARC's Section of Cancer Information, are international reference sources of incidence, prevalence, mortality and survival data.

Through the Global Initiative for Cancer Registry Development in Low- and Middle-Income Countries (GICR), IARC seeks to increase the quality, coverage and usage of registry data in LMI countries, and advocates the central role of population-based cancer registries in planning, monitoring and evaluation of cancer control activities. IARC Regional Hubs provide support, training, and research capacity building activities to registries within defined world regions. IARC contributes to cancer prevention through its research into the causes of cancer and its international evaluations of carcinogenic hazards published in the IARC Monographs. IARC also coordinates research initiatives worldwide to evaluate specific strategies for prevention and early detection of cancer. The ultimate objective of this research is to guide the development of public health policies for implementing appropriate, quality assured prevention and early detection strategies in a range of health-care settings, particularly in LMI countries.

WHO–IAEA–IARC Joint Activities on Cancer Control

In March 2009, WHO and IAEA signed arrangements at the Director-General level to implement a Joint Programme on Cancer Control. The main purpose of this arrangement is to coordinate activities and resources to provide evidence-based and sustainable support to comprehensive cancer control programmes, particularly in LMI countries.

The joint activities currently under development by WHO, IAEA and IARC further seek to raise cancer awareness, assess cancer control needs, develop cancer control demonstration projects, and attract donors in order to establish effective new funding mechanisms beyond those currently available.

ANNEX 9: imPACT REVIEW OVERVIEW

The inherent complexity of the different aspects required for comprehensive cancer control and the burden of the disease make it a serious threat to public health, particularly in LMI countries. To address health system challenges and effectively respond to the cancer burden, WHO has recommended the development of national cancer control programmes, which are defined as “public health programme[s] designed to reduce cancer incidence and mortality and improve 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”.

To develop and strengthen national cancer control programmes, an understanding of the cancer burden of a country is crucial. The assessment should then identify structures, service-delivery mechanisms, and cost-effective interventions (based upon the latest scientific evidence) to effectively address this burden. The assessment allows healthcare authorities to plan any investments in cancer control in a balanced manner that is in line with country priorities, evidence-based strategies, and existing resources. It also enables Member States to build cancer treatment capacity in a manner that is complemented by other elements of cancer control.

In view of the above, the IAEA — through its Division of Programme of Action for Cancer Therapy— offers a service to its Member States known as **imPACT** (integrated missions of PACT) **Review**. The service counts on the engagement and support of TC regional division (in this case, TC Division for Asia and the Pacific) and technical support from the IAEA Division of Human Health (NAHU), Division of Radiation, Transport and Waste Safety (NSRW), Division of Nuclear Security (NSNS); with other IAEA technical divisions as appropriate.

This service assesses a Member State’s readiness to develop and implement a long-term radiation medicine infrastructure and capacity-building plan, including the relevant safety, regulatory and quality assurance requirements, within the framework of a national cancer control programme. The **imPACT Review** is carried out, upon request from the health ministry of a Member State, in consultation and close collaboration with WHO, IARC and other partners. Following an intensive desk review, data collection and research process, the **imPACT Review** expert team visits the Member State to assess its comprehensive cancer control capacity and needs.

During the mission the team examines the status of existing strategies, plans, safety practices, regulations, capacities and infrastructure related to cancer services (from prevention to palliative care, including radiation medicine and human resource development), and advises on actions to be taken on the issues reviewed. The National Focal Team identified the relevant stakeholders to meet and the facilities to visit in full consultation with the WHO country office. In addition to meetings with public stakeholders, the Union for International Cancer Control (UICC) was engaged in the process and facilitated linkages with national civil society stakeholders which were in turn involved them in the consultation process.

The outcome of this assessment is the “imPACT Review Report” submitted to the Minister of Public Health. The report is endorsed by the participating organizations and contains detailed findings and expert recommendations. Based on the report, the health ministry is expected to develop a “Short to Medium Term Action Plan” to improve services while ensuring the most

efficient use of resources in the control of cancer. The implementation of the Action Plan may also lead to the design of suitable project proposals, multidisciplinary assistance packages and identification of potential sources of funding for established priorities. This in turn will help in the planning of the country's cancer-related IAEA technical cooperation projects and the relevant Country Cooperation Strategy with the WHO.

ANNEX 10: CANCER CONTROL RESOURCES

World Health Organization

Cancer Control: Knowledge into Action, WHO guide for effective programmes (publication in 6 modules), *Policies and managerial guidelines*, 2002

Global Atlas of Palliative Care at the End of Life, 2020

WHO Collaborating Centre for Cancer Early Detection and Screening in Turin/Italy: WHOCC - WHO Collaborating Centres

WHO Pain Management Guidelines: WHO revision of pain management guidelines, 2019

Planning and implementation palliative care services: guide for managers, 2016

Palliative Care Toolkit: Improving care in resource poor settings (Updated 2016)

WHO Guide for Planning and Implementation of Palliative Care Services: Palliative Care (who.int)

International Agency for Research on Cancer

CANCERMondial – access to various databases on the occurrence of cancer worldwide, including GLOBOCAN; Cancer Incidence in Five Continents (CI5); Cancer Survival in Africa, Asia, the Caribbean and Central America (SurvCan): CANCERMondial (iarc.fr)

Global Initiative for Cancer Registry Development (GICR): The global initiative for cancer registry development (iarc.fr)

International Atomic Energy Agency

Radiotherapy Facilities: Master Planning and Concept Design Considerations (2014): RADIOTHERAPY FACILITIES: MASTER PLANNING AND CONCEPT DESIGN CONSIDERATIONS (iaea.org)

Planning National Radiotherapy Services: A Practical Tool (2010): STI/PUB/1462 (iaea.org)

Setting up a Radiotherapy Programme: Clinical, Medical Physics, Radiation Protection and Safety Aspects (2008): STI/PUB/p1296 (iaea.org)

Human Health Campus: Resources and Learning for Health Professionals: Human Health Campus - Home (iaea.org)

The IAEA Medical Imaging and Nuclear Medicine Global Resources Database: Human Health Campus - Database & Statistics (iaea.org)

Roadmap towards a National Cancer Control Programme. Milestones for Establishing Nuclear Medicine, Diagnostic Imaging and Radiotherapy Services: milestones-document-2019.pdf (iaea.org)

The Lancet Oncology Commission on Imaging and Nuclear Medicine Report (2021)

Medical imaging and nuclear medicine: a Lancet Oncology Commission - The Lancet Oncology

Lancet Oncology Commission | IAEA

The Nuclear Medicine Resources Manual 2020 Edition: 19-00731_PUB1861_15.12.20-Print-PDF.indd (iaea.org)

Planning a Clinical PET Centre: STI/PUB/1457 (iaea.org)

Additional

Cancer Basics | Oncology Nursing Society

ONS Foundations of Oncology Nursing Practice™ Bundle

Free Courses | Union for International Cancer Control (pathlms.com)

ANNEX 11: SUMMARY OF PAEDIATRIC HAEMATOLOGY/ONCOLOGY (PHO) AT KEY FACILITIES IN SRI LANKA

Indicators	National Cancer Institute Sri Lanka (NCISL)	Lady Ridgeway Hospital for Children (LRH)	National Hospital Sri Lanka (NHSL)	National Hospital Kandy (NH Kandy)	National Hospital Galle (NH Galle)
Legend					
Specialty centres					
Centres where children are seen for referrals and/or shared care					
BASIC HOSPITAL INFORMATION					
Facility type	Public, National Level	Public, National Level	Public, National Level	Public, Teaching Hospital	Public, Teaching Hospital
# new PHO patients annually	**800**	150 for work-up, surgery (shared with NCISL)	50 for orthopaedic & neurosurgery (shared with NCISL)	estimate up to 40/year, including co-treated patients at NCISL	30 for … (shared with NCISL); none seen independently
PHO ages served (years)	0-18	0-14	14-18	14-18	0-18
Separate wards/beds for PHO patients	Yes	No	No	No	No
# beds for children	125	650	Not specified	100	100
Dedicated PHO outpatient/day care	Yes	No	No	No	No
Number of patients that can be accommodated daily in the following departments					
Outpatients	100	Not applicable	Not applicable	Not applicable	Not applicable
Day care	20	Not applicable	Not applicable	Not applicable	Not applicable
Paediatric intensive care unit					
Unit availability	Yes	Yes	No	Yes	
# available beds	8 (Including 4 HDU beds)	12 (Not dedicated for PHO)	Not available	6 (Not dedicated for PHO)	6 (Not dedicated for PHO)
WORKFORCE SPECIALIZING IN PHO					
Competency based training programmes and credentialing before administering chemotherapy					
Doctors	Yes	**No**	**No**	**No**	**No**
Nurses	**No**	**No**	**No**	**No**	**No**
Paediatric nursing staff					
# formally trained in PHO care	0	0	0	0	0

Staff working exclusively in PHO	75	0	0	0	0
Nurses permanently assigned to ward/ service where children with cancer are treated	75 assigned to 1 of 4 wards (mixed, by consultant)	0	0	0	0
Paediatric oncologists					
# paediatric oncologists nationally	3	0	0	0	0
How paediatric oncologists trained	Through a university affiliated structured program (~6.5 years after MBBS)	Not applicable	Not applicable	Not applicable	Not applicable
Other paediatricians/ general practitioners in PHO Unit	1 (full-time, assigned to 1 of 4 wards)	No dedicated unit; 15 paediatricians	No dedicated unit; 8 paediatricians	No dedicated unit; 8 paediatricians	No dedicated unit; 8 paediatricians
Paediatric surgical staff* *more information below table*					
# cancer surgeons	0 surgeons on-site	0 with formal training in cancer	0	2	2
# general surgeons	0 surgeons on-site	4 general surgeons operating on children; In addition, 1 orthopaedic surgeon and 1 neurosurgeon perform cancer-related surgeries *Eye surgery performed at National Eye Hospital	12 general surgeons operating on 14-18 when indicated; in addition, 2 orthopaedic surgeons (based at NH SL) and 1 neurosurgeon from LRH and 2 from NHSL perform cancer-related surgeries in children	5 general surgeons operating on 14-18 when indicated	5 general surgeons operating on 14-18 when indicated 2 paediatric surgeons operating on children 0-14
Pathologists					
Pathologist experienced in childhood cancer	2[#]	1[#]	0	0	0
Pharmacists					
# oncology pharmacists	24	0	0	2	2
Pharmacist with expertise in	5 Plans for extending	0	0	0	0

paediatrics/ PHO	engagement with St. Jude/ international teams for continuing education exposure in PHO				
AVAILABILITY OF SERVICES FOR PHO PATIENTS					
Nuclear medicine therapy	Only Iodine 131	No	No	Only Iodine 131	Only Iodine 131
Nutrition services					
Drinkable caloric supplements	Yes for 0-18	Yes for 0-14	Yes for 14-18	Yes for 0-18	Yes for 0-18
Nasogastric feeds	Yes for 0-18	Yes for 0-14	Yes for 14-18	Yes for 0-18	Yes for 0-18
Percutaneous Endoscopic Gastrostomy (PEG) feeds	Yes for 0-18	Yes for 0-14	Yes for 14-18	Yes for 0-18	Yes for 0-18
Parenteral nutrition	Yes for 0-18	Yes for 0-14	Yes for 14-18	Yes for 14-18	Yes for 0-18
Paediatric surgery	No	Yes for 0-14 (all surgeries, Eye/Neuro elsewhere). ##	Yes for 14-18 for Ortho and Neuro. ##	No	Yes for 0-18 except for ortho and neuro (around 15 cases/year)
Palliative/ supportive care (Paediatric Palliative Care = PPC)	Yes for 0-18 – part-time service offered by consultant in medical oncology. Trained MDs and nurses in PPC#	Yes for 0-14 – part-time service offered by consultant in rheumatology also responsible for rehabilitation#	Yes for 14-18	Yes for 14-18	Yes for 14-18
Psychosocial support	Yes for 0-18	Yes for 0-14	Yes for 14-18	Yes for 14-18	Yes for 14-18
Radiotherapy	Yes for 0-18, with sedation, with one PHO also practicing paediatric radiotherapy.##	No	No	Yes for 14-18	No
Rehabilitation/ physiotherapy services	Yes for 0-18##	Yes for 0-14##	Yes for 14-18	Yes for 14-18	Yes for 14-18
AVAILABILITY OF SEDATION OR GENERAL ANAESTHESIA FOR PHO PATIENTS					
Radiologic imaging**	Yes	Yes; 1 with interest/training for IR including for paediatrics and exposure to	Yes	Yes	Yes

		St. Jude/ International teams			
Procedures (e.g. lumbar puncture, bone marrow aspirates, bone marrow biopsies) for PHO patients:					
Local anaesthesia	Not offered	Generally done at NCISL	Yes	Yes	Yes
Sedation	Not offered	Generally done at NCISL	Not offered	Not offered	Not offered
General anaesthesia	Yes, in paediatric OR	Yes, generally done at NCISL	Not offered	Not offered	Not offered
TREATMENT GUIDELINES FOR PHO PATIENTS					
Availability	Yes	No	No	No	No
MULTIDISCIPLINARY TUMOUR BOARD FOR PHO CASES					
Availability	Yes	Yes	No	No	No
Frequency	2/month, Joint with LRH	2/month, Joint with NCISL	Informal for ortho and Neuro	Clarify – Informal	Informal
Type	Hybrid	Hybrid	Informal for ortho and Neuro	Weekly (Thursdays) in person for cancer in general	
FINANCIAL SUPPORT FOR PAEDIATRIC PATIENTS AND FAMILIES					
Amount available	Limited; widely varies according to the province they live in	Limited; widely varies according to the province they live in	Limited; widely varies according to the province they live in	Limited; widely varies according to the province they live in	Limited; widely varies according to the province they live in
Transportation and accommodation covered for patients on treatment	Accommodation fully covered by CSO (Indira cancer Trust adjacent to NCISL); Transportation for selected patients	No	No	No	Limited housing (Not dedicated for PHO)

Notes:

*Neurosurgery is performed typically at the National Hospital Sri Lanka (NHSL) by the paediatric neurosurgeon from LRH with support from adult neurosurgeons at NHSL. Orthopaedic surgery for 0-13.9-year-olds are performed at LRH, with those 14 and above at NHSL. Eye surgery is typically performed at LRH for 0-13.9-year-olds with pathology reported at National Eye Hospital (NEH), with 80% of children presenting to LRH and presented by LRH at ad hoc multi-team tumour boards, and rare cases directly operated on by the NEH team; those 14 and above are managed at NEH. Abdominal, head/neck and general oncologic surgery may be performed by paediatric surgeons in the provinces, or referred to LRH/NCISL.

**Interventional radiology services for children, including image-guided procedures, are done at LRH, and more recently, NCISL. The extension of services at NCISL has helped alleviate diagnostic and treatment delays, administrative burdens, and inconvenience for patients and families. Although rehabilitation services exist at LRH/NHSL and at a more basic level at NCISL, these are not tailored for children nor for cancer, and not yet formally or routinely integrated into cancer care practices.

#Known engagement with St. Jude/international teams for continuing education exposure in PHO and PPC

Options to extend engagement with St. Jude/ international teams for continuing education exposure in PHO