IAEA
International Atomic Energy Agency

World Health Organization

Roadmap towards a National Cancer Control Programme

Milestones for establishing nuclear medicine, diagnostic imaging and radiotherapy services

Tackling the burden of cancer requires complex preventive, diagnostic, therapeutic and supportive care services. This document draws on expertise from both the International Atomic Energy Agency (IAEA) and the World Health Organization (WHO), bringing together the knowledge and services that countries need when establishing a comprehensive cancer control programme.

What is a cancer control programme?

A national cancer control programme is a public health programme designed to reduce the number of cancer cases and deaths and improve the quality of life of cancer patients. This is done by implementing systematic, equitable and evidence-based strategies for prevention, early detection, diagnosis, treatment and palliation, using available resources, that are formulated into a national cancer control plan or cancer strategy.

Why does it matter?

National cancer policies and programmes, when well-conceived and well-managed, will help reduce the cancer burden and improve services for cancer patients and their families, regardless of the country context. Comprehensive cancer prevention and control requires inclusion of all elements across the cancer continuum (prevention, early diagnosis, screening, treatment, survivorship care and palliative care), framed by the health system and supported by effective financing strategies, monitoring systems and quality management (Figure 1).

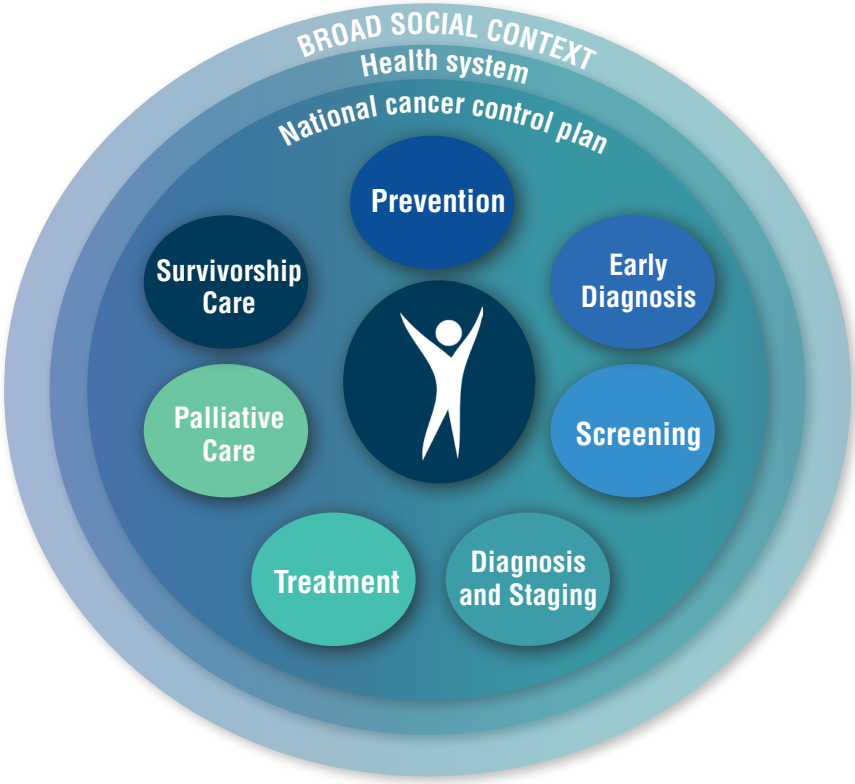


FIG. 1. Cancer prevention and control across the cancer continuum

Responding to the challenge of the growing cancer burden, many countries are planning to establish or scale up national cancer control programmes. Prior to investing in cancer control programmes, decision-makers must consider national cancer priorities as well as a country's health system capacity to deliver a sustainable programme within the context of a broader cancer strategy and national health plan (Figure 2).

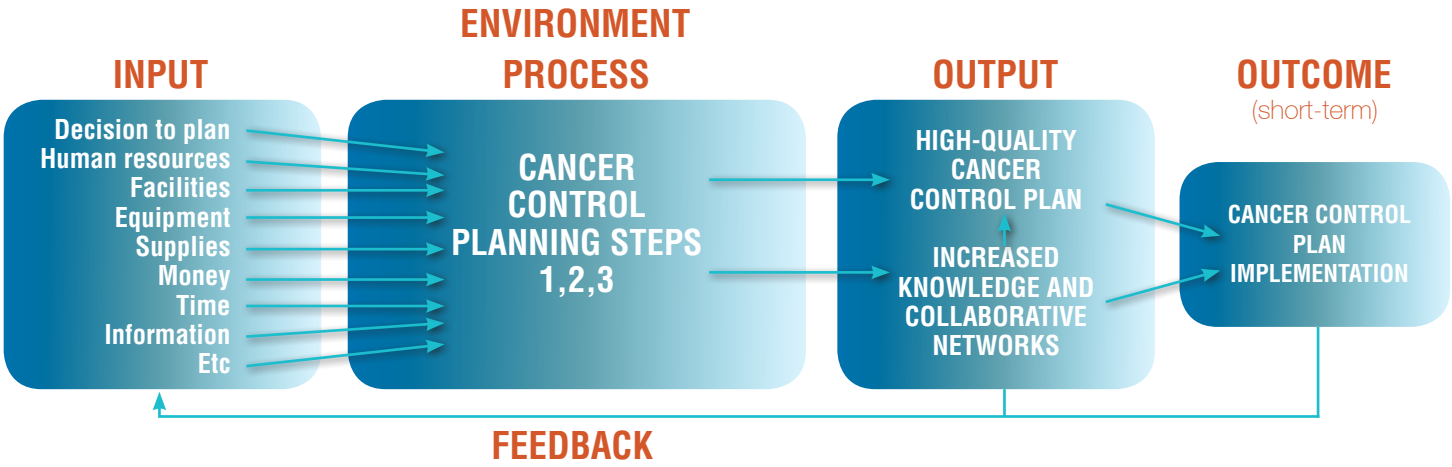
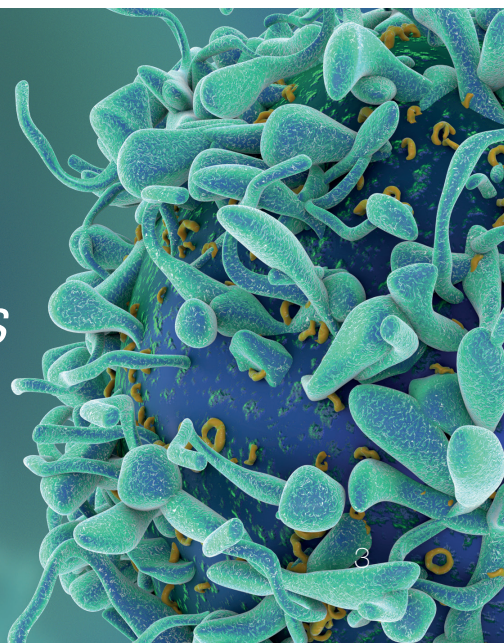


FIG. 2. Cancer control planning process

"Comprehensive cancer prevention and control requires inclusion of all elements across the cancer continuum."



Milestones in cancer control

PHASE I

PRE-PLANNING

Prepare the planning process

- Identify cancer control as one of the health priorities in the country
- Establish a nodal officer and a technical working group with national and international experts

MILESTONE 1 ····· Decision to start a NCCP

PHASE II

PLANNING

Formulate a balanced and realistic plan based on feasibility and capacity. Specify the expected deliverables with attention to pre-requisites. Learn and observe progress in similar countries.

- Planning step 1 (Where are we now?). Investigate the present state of the cancer problem, and cancer control services or programmes.
- Planning step 2 (Where do we want to be?). Formulate and adopt policy. This includes defining the target population, setting goals and objectives, and deciding on priority interventions.
- Planning step 3 (How do we get there?). Identify the steps needed to implement the policy.

MILESTONE 2 ····· NCCP created and costed

RADIOTHERAPY

Prepare the planning process

- Identify radiotherapy as an essential component of the NCCP
- Establish a focal point for radiotherapy

MILESTONE 1 ····· Decision to start RT

- Formulate a National Radiotherapy Sub-plan in the NCCP. Specify the pre-requisites in terms of land use, infrastructure, human resources and legal and regulatory framework. Learn and observe progress in similar countries.
- Stepwise planning in three steps (where are we now?; where do we want to be?; how do we get there?).

MILESTONE 2 ····· National RT plan

planning and implementation

PHASE III

PREPARATORY WORK FOR IMPLEMENTATION

Preparatory work for the implementation of the NCCP, legal and regulatory framework, infrastructure and human resource planning.

- Create a steering committee
- Cost and economic analyses
- Risk assessment
- Develop a strategy for implementation
- Specific project sub-plans
- Legal and regulatory nuclear safety and security infrastructure
- Human Resources development
- Logical Framework Matrix (LFM)

MILESTONE 3 ····· Preparatory work done

PHASE IV

IMPLEMENTATION

Phased implementation. Work on all the components of the NCCP including diagnostic capacity such as pathology, diagnostic imaging and nuclear medicine and radiation physics.

- Implementation step 1 (core interventions). Implement interventions in the policy that are feasible now, with existing resources.
- Implementation step 2 (expanded interventions). Implement interventions in the policy that are feasible in the medium term, with realistically projected increase in, or reallocation of, resources.
- Implementation step 3 (desirable interventions). Implement interventions in the policy that are beyond the reach of current resources, if and when such resources become available.

MILESTONE 3 ····· Preparatory work done

- Legal and regulatory infrastructure in place
- Contract and initiate infrastructure works
- Start human resource training
- Prepare procurement of equipment
- Prepare evidence-based treatment protocols

- Acceptance tests
- Commissioning of the equipment
- Quality Assurance/ Quality Management System
- First clinical treatment
- Safety assessment

The IAEA and WHO can assist countries within the different phases to achieve milestones in cancer control.

IAEA and WHO assistance in achieving the milestones in cancer control

The IAEA and WHO can assist countries within the different phases to achieve milestones in cancer control. This support extends from providing guidance to Member States on how to set national priorities for cancer control, developing, adopting and strengthening nuclear medicine, diagnostic imaging and radiotherapy practices, technical advice, training, Coordinated Research Projects, procurement of equipment, technical publications, public information and supporting the mobilization of the necessary resources to develop a National Cancer Control Plan (NCCP).

Phase I:

Cancer control aims to reduce the incidence, morbidity and mortality of cancer and to improve the quality of life of cancer patients through the systematic implementation of evidence-based interventions for prevention, early detection, diagnosis, treatment and palliative care.

The WHO can support phase I in the following way:

- Advocate to scale up cancer prevention and control to achieve the Sustainable Development Goals related to non-communicable diseases and to advance Universal Health Coverage in countries (WHO).

Phase II:

Assessing and supporting the significant global radiotherapy needs and transferring nuclear technology to countries are IAEA core activities. The IAEA has contributed to filling the gaps in access to technologies and education in the fields of nuclear medicine, diagnostic imaging and radiotherapy, contributing in this way to saving lives and improving quality of life in Member States.

The IAEA and WHO can support phase II in the following ways:

- Provide guidance on how to set national priorities for cancer control and assistance in the development of a NCCP, including selection, prioritization and costing of the programmes and interventions across the cancer continuum (WHO);

- Conduct imPACT Reviews to assess national capacities in cancer control (IAEA, WHO, IARC);
- Provide support to establish and scale up cancer registration and research implementation (IARC);
- Support Member States in evidence-based planning of cancer control resources and NCCPs (WHO, IAEA);
- Support to establish and scale up cancer registration (WHO, IARC);
- Provide guidance on the planning of national radiotherapy, nuclear medicine and diagnostic imaging services (IAEA);
- Provide guidance on setting up a radiotherapy programme taking into consideration clinical, medical physics, radiation protection and safety aspects (IAEA);
- Provide guidance and support for palliative care programmes (IAEA, WHO).

Phase III:

This phase requires preparatory actions for the implementation of the NCCP and radiotherapy plans. Supporting initial education and training of radiotherapy professionals, such as medical physicists, radiation therapy technologists and radiation oncologists, as well as continuing education and training of previously trained professionals to update or expand their knowledge and skills are a priority. It is important to begin training the different professionals well in advance to ensure their availability one year before beginning operation of the radiotherapy centre.

The IAEA and WHO can support phase III in the following ways:

- Provide support in financial and economic analyses, including the estimations of cost-effectiveness and impact (IAEA, WHO);
- Assist in the development of the legal and regulatory nuclear framework (IAEA);
- Provide expert assistance in cancer surgery, radiotherapy, nuclear medicine, diagnostic imaging, medical physics, medical oncology, as well as in supportive and palliative care (IAEA, WHO);
- Assist in the procurement of diagnostic imaging, radiotherapy and nuclear medicine equipment (IAEA);
- Provide guidance on revision of national treatment protocols and guidelines for early detection and treatment of cancer, their revision and adaptation to the national context and implementation (WHO);
- Provide technical support and policy formulation to assess, build and scale-up the capacity of the cancer workforce using a labour market approach (WHO);

- Support to train professionals and ensure their continuous development (IAEA);
- Support long-term and short-term fellowships, education and training workshops as well as virtual education platforms (IAEA).

Phase IV:

The IAEA develops internationally harmonized codes of practice and guidelines for dosimetry and quality assurance, as well as recommendations for best practices, and provides guidance to Member States for their implementation.

The IAEA and WHO can support phase IV in the following ways:

- Ensure that treatment devices can be accurately and safely operated for clinical use in Member States through the dosimetry laboratory services (IAEA);
- Validate the calibration of radiation beams in Member States through the IAEA/ WHO thermoluminescent dosimetry (TLD) postal dose quality audit service (IAEA, WHO);
- Improve accuracy in radiation dosimetry and achieve traceability to national dosimetry standards through the Network of Secondary Standards Dosimetry Laboratories (IAEA, WHO);
- Provide support for acceptance tests and commissioning of equipment (IAEA);
- Provide guidance in the elaboration of strong Quality Management/ Quality Assurance systems in diagnostic radiology, nuclear medicine and radiation oncology (IAEA);
- Enhance the safety and quality of diagnostic and therapeutic procedures in radiation medicine (IAEA);
- Assist in the revision of national essential medicines list (EML) and procurement planning for cancer priority medical devices and other health goods, enhancing the harmonization with the WHO EML, and Essential In Vitro Diagnostics and assist in dialogue related to the best practices in price negotiations (WHO).

Mobilizing resources to deliver

The IAEA supports Member States in the efforts to mobilize resources through the development of bankable documents and facilitates partnerships with prospective donors. The WHO supports advocacy and resource mobilization for the implementation and evaluation of a NCCP.

Diagnostic imaging, nuclear medicine and radiotherapy; their contribution to a comprehensive cancer control programme

Why does it matter?

The roles of diagnostic imaging and nuclear medicine are key to the diagnosis, staging and management of cancer, as the selection of the most suitable treatment options primarily relies on a clear understanding of the disease and the stage it has reached. Radiotherapy, one of three key treatment modalities alongside surgery and systemic therapy, is a critical pillar of curing or palliating cancer. Radiotherapy involves the use of ionizing radiation that can be delivered externally (external radiotherapy), internally (brachytherapy) or as a combination of both.

Recognizing that the resources available for health vary significantly between countries and across regions, the IAEA develops tailored strategies to support Member States optimize their resources in diagnostic imaging, nuclear medicine and radiotherapy without compromising the quality of the services provided.

Considerations related to legal and regulatory nuclear safety and security infrastructure

If establishing or scaling up diagnostic imaging, nuclear medicine and radiotherapy services are a strategic priority, the next steps include ensuring that 1) appropriate legal and regulatory frameworks, and 2) related national regulatory infrastructures are in place for the safe and secure delivery of these services for diagnosis and treatment. These must be in line with relevant international safety standards and nuclear security guidance. The IAEA has published a number of requirements and guidance documents related to the legal and regulatory framework that can be found in IAEA publications *General Safety Requirements Part 1*, *Nuclear Safety Series 14* and *Special Safety Guide 44*.

Radiation protection of people and safety of radiation sources need to be ensured in line with the requirements of the IAEA publication *General Safety Requirements Part 3*. This includes requirements related to justification and optimization of radiation protection of patients and prevention and management of unintended and accidental medical exposure, as well as the guidelines provided in the IAEA *Special Safety Guide 46.*

Recently the IAEA and WHO jointly published *The Bonn Call for Action* which highlights ten main actions that were identified as being essential for the strengthening of radiation protection in medicine over the next decade. Additional objectives of the call are to aid the full integration of radiation protection into health care systems, thus enhancing the safety and quality of diagnostic and therapeutic procedures in diagnostic imaging, nuclear medicine and radiotherapy.

Considerations for diagnostic imaging and nuclear medicine

Diagnostic imaging and nuclear medicine are essential for the optimal management of cancer patients. Medical images allow for early and accurate diagnosis, screening of population when appropriate, assessment of the location and staging of the disease, follow-up of the patient to detect relapses, prognostic evaluation, appropriate therapeutic decisions and follow-up of the treatment.

Before establishing a medical imaging department, epidemiological considerations such as the frequency of cancer and the most common tumours should be considered. Incorporating medical imaging facilities requires careful planning to establish different imaging modalities ranging from standard, e.g. ultrasound or X-rays, to complex modalities e.g. Positron Emission Tomography/Computed Tomography (PET/CT) or magnetic resonance (MR), that considers the benefit, cost and feasibility of each medical imaging modality.

Quality assurance programmes, diagnostic reference levels and other aspects of optimization of radiation protection of patients and medical personnel should be implemented as recommended in the IAEA *General Safety Requirements Part 3* and the *Specific Safety Guide 46*.

Considerations for radiotherapy

Radiotherapy is an important treatment intervention as part of multi-modality cancer therapy. It can be used with curative or palliative intent, saving lives and improving quality of life. Some of the considerations before investing in radiotherapy, include defining the national cancer priorities (i.e. the frequency of cancer and the most common tumours, the appropriateness of radiotherapy or other interventions), as well as the preparedness of the health system to deliver a sustainable radiotherapy programme (Figure 3).

FIG. 3. Elements for quality and safe radiotherapy services

”Priority interventions should be implemented using a stepwise approach, focusing initially on what can be done with better organization of available resources in a target area where there is high potential for success.“

Implementing diagnostic imaging, nuclear medicine and radiotherapy activities within a national cancer control programme

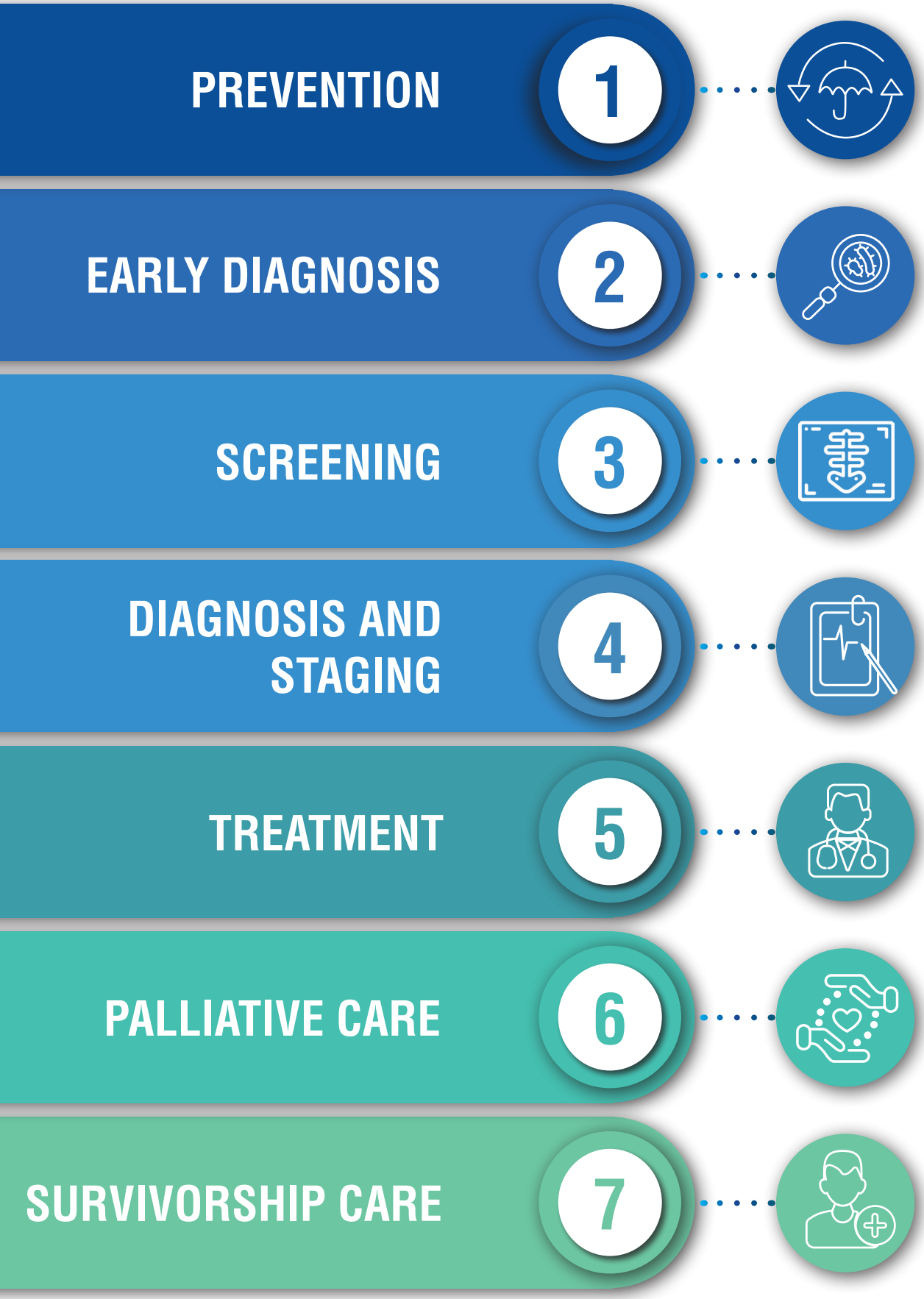
Implementation must focus on prioritizing a limited number of high impact, cost-effective and sustainable interventions in line with i) national capacity, ii) epidemiologic burden, iii) measurable processes and iv) outcome objectives that can be monitored and evaluated. In resource-constrained countries, for example, an initial focus on prevention programmes, early diagnosis of certain cancer types linked to effective treatment, and community-based palliative care would be key for feasible interventions.

Priority interventions should be implemented using a stepwise approach, focusing initially on what can be done with better organization of available resources in a target area where there is high potential for success. As results are successfully demonstrated, more resources can be justified and the programme can be expanded. Selected priority interventions should be tailored to the population at risk and efficiently organized to make the best use of the available resources. Furthermore, it is important to take a systemic approach to ensure that the various interrelated components of cancer control are coordinated and integrated with other related programmes or initiatives.

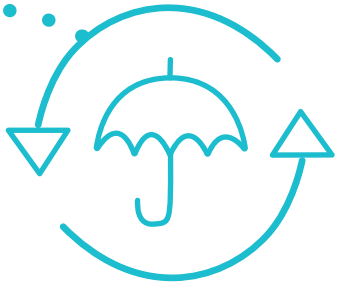
Monitoring and evaluation are essential components of a comprehensive cancer control programme to assess organizational progress and enhance effectiveness. A monitoring and evaluation framework should be put in place which includes outcomes assessment and analysis as well as service quality assessments.

ANNEX

Elements of the Cancer Control Continuum



Prevention



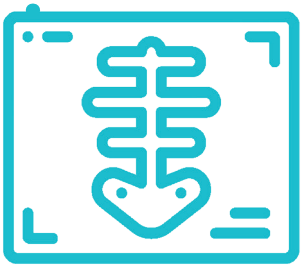
Eliminating or minimizing exposure to the causes of cancer and reducing susceptibility to the effects of such causes.

This approach offers the greatest public health potential and generally the most cost-effective interventions. Common priority cancer prevention activities include: controlling tobacco use through the Framework Convention for Tobacco Control (FCTC); reducing alcohol consumption; promoting a healthy diet and physical activity, reducing obesity; and vaccination for hepatitis B and the human papillomavirus.

Early diagnosis

Priority public health activity aimed to raise awareness of signs and symptoms consistent with cancer, increase access to care, and diagnose and treat cancer at the earliest possible stage.

The primary objective of early diagnosis is to improve survival and quality of life of individuals with cancer, by detecting and treating the cancer at its earliest possible, potentially curable, stage.



Screening

Public health programmes intended to identify and treat patients at risk, at an early stage of cancer, should be done in an organized manner. That includes systematic invitation to a defined target population, application of a screening test to asymptomatic individuals, notification of the results, diagnostic examination of the screen-positives, and treatment of the screen-detected cases.

The primary objective of cancer screening is to reduce cancer-specific mortality at a population level, by detecting the cancer at its earliest curable stage. For certain cancers with a detectable precancerous stage (e.g. cervical and colon cancers), screening also has the potential to reduce cancer incidence.

Screening programmes should be undertaken after a demonstration project has been completed, when resources (personnel, equipment etc.) are sufficient to cover the entire target group, when facilities exist for confirming diagnoses and for treatment and follow-up of those with abnormal results, and when prevalence of the disease is high enough to justify the effort and costs of screening. While screening for cervical cancer can be performed in all countries, screening for other cancers (e.g. breast) should only be performed in countries with strong health systems.

Diagnosis and Staging

Accurate cancer diagnosis is essential for effective cancer management. This calls for a combination of careful clinical assessment and diagnostic investigations including endoscopy, medical imaging, histopathology, cytology and laboratory studies, which are selected taking into account the disease being evaluated. Once a diagnosis has been established, it is necessary to determine the location of the disease and its spread (staging), in order to help in the selection of the appropriate therapy and to establish the prognosis. Diagnostic techniques are also essential in the follow-up of patients to detect early relapses and evaluate the efficacy of the established treatment.

Example: *Radiology and Nuclear Medicine (NM)*

Medical imaging covers several modalities that are included in the fields of radiology and nuclear medicine and use different principles.

X-rays are used in radiography, computed tomography (CT), mammography and fluoroscopy. Ultrasound waves are used to perform echographic studies and magnetic resonance imaging (MRI) relies on the use of magnetism. Radioactive isotopes are used in single photon emission tomography (SPECT) and Positron Emission Tomography (PET) as well as for the treatment of certain malignancies. Light is the main principle used in optical fluorescence. Interventional radiology can be used to provide minimally invasive image-guided diagnosis (and potentially treatment) of certain cancers.

The selection of the appropriate modality to stage cancer is based on the specific clinical condition and should be prescribed following guidelines.

Treatment

Interventions intended to cure, prolong life, and/or improve quality of life. Treatment may involve surgery, radiation therapy, chemotherapy, hormonal therapy, or a combination of these. Supportive care is an essential component of cancer treatment.

An initial priority, especially in resource limited settings, should be the development of national diagnostic and treatment guidelines to establish a minimum standard of care, and promote the rational use of existing resources and greater equity in access to treatment services.

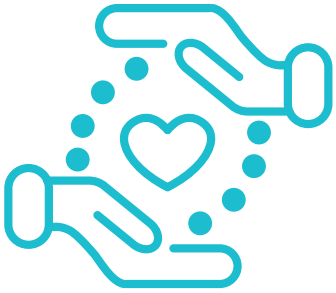
Optimal treatment of people diagnosed with certain types of cancer detected early, for example, cancers of the uterine cervix and corpus, breast, testis, and melanoma, will result in five year survival rates of 75% or more. Selection of treatment modality should be based on resource availability and health system capacity as some treatment approaches require sophisticated technology available only in locations with high resources.

Supportive care should include nutrition therapy, psychosocial support, pain management and physiotherapy. Nutritional support is a key consideration as increased fat mass and decreased muscle mass can be a strong prognostic factor. Nutrition interventions should focus on reducing fat mass and increasing muscle mass. Stable isotopes can accurately determine the effectiveness of the interventions in improving the components of fat and muscle mass.

Example: Radiotherapy (RT)

Radiotherapy, the loco-regional treatment of tumours or involved tissues using ionizing radiation is one of the pillars of cancer treatment, together with surgery and systemic therapy. Radiotherapy can be performed from outside the body, called external beam radiotherapy (EBRT) or teletherapy, using linear accelerators (LINAC) or cobalt machines. Radioactive sources can also be placed close or inside tumours, a technique that is known as brachytherapy (BT). In addition radionuclides can be used for targeted treatment of tumours.

Palliative care



Palliative care is an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of pain and symptoms.

Palliative care services should be available in every country and should be given high priority, especially in resource-limited settings where cure of the majority of cancer patients is likely to remain beyond reach for years to come.

Survivorship care

Set of services that include surveillance for recurrence or new primaries; prevention, detection of new cancers; monitoring and managing long-term toxicities; and coordination of care to ensure survivor care needs are met.

Survivorship care includes a detailed plan that contains a summary of the patient's treatment and follow-up care. Common activities for survivorship care may include clinical evaluations and medical tests to monitor for cancer recurrence or new cancers as well as to assess for evidence of long-term complications from cancer treatment. Additional survivorship care needs can include services to support the emotional, social, legal, and financial needs of the patient.

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http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1606_web.pdf
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http://www-pub.iaea.org/MTCD/Publications/PDF/trs469_web.pdf

The Role of PET/CT in Radiation Treatment Planning for Cancer Patient Treatment, IAEA TECDOC-1603, ISBN: 978-92-0-110408-3, ISSN: 1011-4289, IAEA 2008
http://www-pub.iaea.org/MTCD/Publications/PDF/te_1603_web.pdf
Dose Reporting Points in Ion Beam Therapy, IAEA-TECDOC-1560, ISBN: 978-92-0-105807-2, ISSN: 1011-4289, IAEA 2007
http://www-pub.iaea.org/MTCD/Publications/PDF/te_1560_web.pdf
Relative Biological Effectiveness in Ion Beam Therapy, Technical Report Series, ISSN: 0074-1914, no. 461, IAEA 2008
http://www-pub.iaea.org/MTCD/Publications/PDF/trs461_web.pdf
WHO list of priority medical devices for cancer management
https://apps.who.int/iris/bitstream/handle/10665/255262/9789241565462-eng.pdf?sequence=1
World Health Organization Model List of Essential Medicines
https://apps.who.int/iris/bitstream/handle/10665/325772/WHO-MVP-EMP-IAU-2019.07-eng.pdf?ua=1
Second WHO Model List of Essential In Vitro Diagnostics
https://www.who.int/medical_devices/publications/Standalone_document_v8.pdf?ua=1
BONN CALL FOR ACTION 10 Actions to Improve Radiation Protection in Medicine in the Next Decade
https://www.who.int/ionizing_radiation/medical_radiation_exposure/BonnCallforAction2014.pdf?ua=1

Publications and Guidance Documents

The IAEA has established several documents and requirements related to medical applications of radiation in cancer control. These include diagnostic imaging and nuclear medicine, radiotherapy, and regulatory nuclear safety and security.

Diagnostic Imaging and Nuclear Medicine

Quality Management Audits in Nuclear Medicine Practices
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1683Web-68161172.pdf
Comprehensive Clinical Audits of Diagnostic Radiology Practices: A Tool for Quality Improvement
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1425_web.pdf
Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1578_web-57265295.pdf
Good practice for introducing radiopharmaceuticals for clinical use
https://www.iaea.org/publications/10829/good-practice-for-introducing-radiopharmaceuticals-for-clinical-use
Radiolabelled autologous cells: methods and standardization for clinical use
https://www.iaea.org/publications/8223/radiolabelled-autologous-cells-methods-and-standardization-for-clinical-use
Guided Intraoperative Scintigraphic Tumour Targeting (GOSTT)
https://www.iaea.org/publications/10661/guided-intraoperative-scintigraphic-tumour-targeting-gostt
Standard operating procedures for PET/CT: a practical approach for use in adult oncology
https://www.iaea.org/publications/10423/standard-operating-procedures-for-pet/ct-a-practical-approach-for-use-in-adult-oncology
Practical guidance on peptide receptor radionuclide therapy (PRRNT) for neuroendocrine tumours
https://www.iaea.org/publications/8789/practical-guidance-on-peptide-receptor-radionuclide-therapy-prrnt-for-neuroendocrine-tumours
Planning a clinical PET centre
https://www.iaea.org/publications/8368/planning-a-clinical-pet-centre
Appropriate use of FDG-PET for the management of cancer patients
https://www.iaea.org/publications/8367/appropriate-use-of-fdg-pet-for-the-management-of-cancer-patients
Nuclear medicine resources manual
https://www.iaea.org/publications/7038/nuclear-medicine-resources-manual
Operational guidance on hospital radiopharmacy
https://www.iaea.org/publications/7708/operational-guidance-on-hospital-radiopharmacy
A guide to clinical PET in oncology: improving clinical management of cancer patients
https://www.iaea.org/publications/8015/a-guide-to-clinical-pet-in-oncology-improving-clinical-management-of-cancer-patients

Radiotherapy

Comprehensive Audits of Radiotherapy Practices: A Tool for Quality Improvement
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1297_web.pdf
Adequate national legal framework
https://www.iaea.org/sites/default/files/adequate-national-legal-framework.pdf
A practical tool to planning national radiotherapy services
https://www.iaea.org/publications/8419/planning-national-radiotherapy-services-a-practical-tool
Setting up a radiotherapy programme
https://www-pub.iaea.org/MTCD/Publications/PDF/pub1296_web.pdf
How to staff a radiotherapy centre
https://www.iaea.org/publications/10800/staffing-in-radiotherapy-an-activity-based-approach
Radiotherapy Facilities: Master Planning and Concept Design Consideration
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1645web-46536742.pdf

Safety and Security

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards
https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1578_web-57265295.pdf
Governmental, Legal and Regulatory Framework for Safety
https://www.iaea.org/publications/10883/governmental-legal-and-regulatory-framework-for-safety
Objective and Essential Elements of a State's Nuclear Security Regime
https://www.iaea.org/publications/10353/objective-and-essential-elements-of-a-states-nuclear-security-regime
Security of Radioactive Sources
https://www.iaea.org/publications/8113/security-of-radioactive-sources
Code of Conduct on the Safety and Security of Radioactive Sources
https://www-pub.iaea.org/MTCD/publications/PDF/Code-2004_web.pdf
Establishing the Infrastructure for Radiation Safety
https://www.iaea.org/publications/11085/establishing-the-infrastructure-for-radiation-safety
Radiation Protection and Safety in Medical Uses of Ionizing Radiation
https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1775_web.pdf

This document provides the context for implementing services related to diagnostic imaging, nuclear medicine and radiotherapy within a national cancer control programme. This roadmap can support countries to set up strategies for these services and understand where to start, what needs to be in place and how the International Atomic Energy Agency (IAEA) and World Health Organization (WHO) can support governments achieve milestones in cancer control.

IAEA
International Atomic Energy Agency

World Health Organization

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