Radiation Medicine Program in a Comprehensive Cancer Centre

WHO – IAEA Framework

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Radiotherapy programs provide benefits beyond their own modality

- Radiation therapy
  - Essential treatment modality in cancer
  - Fundamental element of a cancer centre
- Historically, cancer centres were built to provide access to safe radiotherapy
- Modern comprehensive cancer centres provide full spectrum of services
  - All diagnostic services
  - All treatment modalities
  - Supportive and palliative care
Comprehensive Cancer Centres

• Serve as nucleus for research and education
  – Develop a wide range of research programs
  – Engage in rapid translation of research into practice
  – Train future generations of cancer professionals
• Serve as catalyst for improved cancer services in their communities
• Engage with public health and primary care partners to integrate services
• Engage in advocacy and education of the public
Cancer Centres
WHO – IAEA Framework

- Major resource in ensuring a comprehensive approach to cancer care
- Integrate multiple resources required to provide services
  - Imaging, pathology, laboratory medicine
  - Surgery, radiotherapy, chemotherapy
  - Palliative care, support, rehabilitation
- Support clinical services: pharmacy, emergency and critical care
- Core services – informatics, governance, facilities, supplies, etc
- Emphasis on integration, quality, responsiveness to patients’ needs
Modern Radiotherapy Program

• Treatment delivered with unprecedented precision and accuracy
  – Data driven therapeutics

• Prerequisites for successful treatment delivery
  – Equipment, skilled professionals, standardized operations
  – Accurate planning and precise daily treatment delivery

• Optimal radiotherapy treatment process requires
  – Standardized approaches – policies and procedures
  – Orchestrated performance of all personnel involved
  – Consistent monitoring; multiple checks - focus on quality assurance

• It is a vanguard for quality assurance in cancer care
Challenges

~50% of all cancer patients globally require radiotherapy

<table>
<thead>
<tr>
<th>Income Grade</th>
<th>Health benefits in life years saved (2015-2035; discounted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>6.3 million</td>
</tr>
<tr>
<td>Lower-middle income</td>
<td>9.9 million</td>
</tr>
<tr>
<td>Upper-middle income</td>
<td>10.7 million</td>
</tr>
<tr>
<td>Total</td>
<td>26.9 million</td>
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</tbody>
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Return on investment

Radiotherapy equipment - June 2022
Trends in Cancer and Healthcare

- Patient centred programs
- Precision in diagnosis and treatment
- Standardization to improve quality
- Digitalization and automation – machine learning
- Data driven learning health systems
- Radiotherapy is in the forefront of
  - precision, standardization,
  - AI, data driven practice
Challenges of Cancer Care

- Complexity of cancer
  - Cancer - > 3000 distinct disease entities
  - Rapid progress – adoption of new technologies and drugs
- Specialized diagnostics
  - molecular profiles and imaging
- Multimodality treatment and multidisciplinary care
- Specialized support services
  - infection control, pharmacy services, informatics
- Comprehensive core infrastructure support
  - facilities, supplies, financing, administration and governance
Meeting Challenges of Cancer Care

• Requirements
  – Focus on measurement and data, precision
  – Focus on quality and safety
  – Focus on integrated multiprofessional team practice

• Radiotherapy program
  – Provides positive externalities to the cancer centre
  – Serves as catalyst for driving safety and data informed practice

HQSS
The Lancet Global Health
Commission on
High Quality Health Systems
in the SDG Era

Margaret Kruk et al.
Lancet Global Health
Nov 2018
Thank you