Developments in nuclear medicine: new radioisotopes and associated challenges

Round table discussion on policy implications and research needs

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Nuclear medicine: policy implications and research needs (I)

A public health perspective for setting the scene

**Sustainable Development Goals**

**Goal #3:** Ensure healthy lives and promote well-being for all at all ages. One of its targets by 2030 is reduce by one third premature mortality from non-communicable diseases

**NUCLEAR MEDICINE ROLE IN NCD MANAGEMENT** (cancer, cardiovascular diseases)

**Universal Health Coverage (UHC)**

UHC means that all people can use the promotive, preventative, curative, rehabilitative and palliative health services that they need, of sufficient quality and without financial hardship.

This requires access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines, vaccines and medical products.

**Quality of care**

Building quality into the foundations of health systems is an imperative for UHC:

1. Health care workers that are motivated & supported to provide quality care;
2. Accessible & well equipped health care facilities;
3. Medicines, devices & technologies that are safe in design & use;
4. Information systems that continuously monitor and drive better care;
5. Financing mechanisms that enable & encourage quality care.
Nuclear medicine: policy implications and research needs (II)

Some areas relevant in terms of radiation protection

- Development, production, supply and use of diagnostic, therapeutic, and theranostic radioisotopes & radiopharmaceuticals;
- Design, manufacturing, commercialization/procurement and operation of nuclear medicine equipment & instrumentation
- Facility design & infrastructure (e.g. radiopharmacy - industrial, centralized, local)
- Health workforce – education, training, certification, accreditation, licensing;
- Dose and risk assessment (patients, comforters, workers, public)
- Development/ update & implementation of standards, norms and regulations;
- Identification of research gaps, implementation of a strategic research agenda
## Nuclear medicine: policy implications and research needs (III)

New health workforce paradigm, research challenges, existing instruments

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<thead>
<tr>
<th>Skilled health workforce</th>
<th>Research challenges</th>
<th>Existing instruments</th>
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<tbody>
<tr>
<td>Nuclear medicine physicians</td>
<td>Long-term <strong>risks from low-dose</strong> internal exposure (adults and children)</td>
<td>International BSS and supporting safety guides (8 int. organizations)</td>
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<td>Nuclear medicine technologists</td>
<td><strong>Internal dosimetry</strong> - methodology, tools and protocols (e.g. injection, inhalation, ingestion; ≠ radionuclides)</td>
<td>EC Directive Euratom BSS and related guidance</td>
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<td>Radiologists (hybrid imaging)</td>
<td><strong>Evidence generation</strong> (e.g. pre-clinical evaluation, clinical trials, research partnerships)</td>
<td>Regulations/ guidance from the European Medicines Agency (EMA) &amp; local agencies</td>
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<td>Radiographers (hybrid imaging)</td>
<td><strong>Quality assurance</strong>, breast-feeding interruption criteria</td>
<td>International Pharmacopeia, Good Manufacturing Practices (WHO, IAEA, EC)</td>
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<td>Medical physics experts</td>
<td><strong>Ethical</strong> issues (e.g. net benefit, equity, access, health financing)</td>
<td>WHO Lists of Priority Medical Devices (for NCDs – cancer, CVD, COPD, ..)</td>
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<td>Biomedical engineers</td>
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