

# Addressing Societal Challenges through Advancing the Medical, Industrial and Research Application of Nuclear and Radiation Technology

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## A global public health perspective

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# Talking about health

- WHO's objective is the attainment by all peoples of the highest possible level of health



***"Health is a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity"***

*WHO's Constitution (1948)*



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# Achieving the Sustainable Development Goals (SDGs)

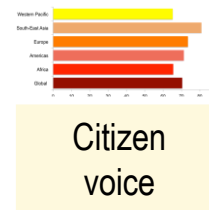
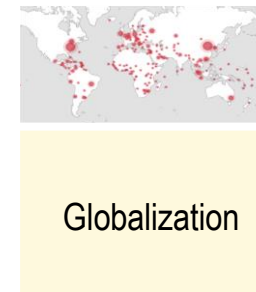
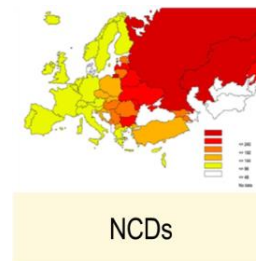
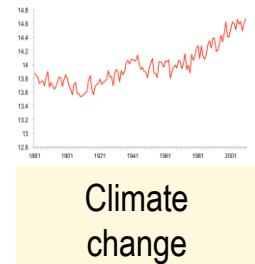
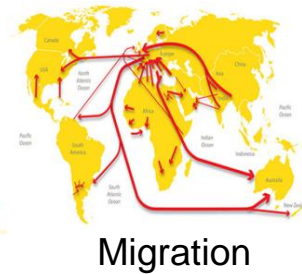
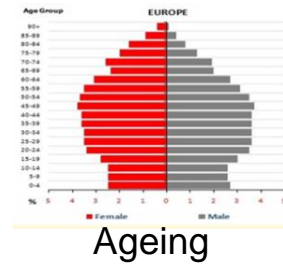


The UN Member States made a commitment towards the 17 Sustainable Development Goals (SDGs) by 2030

All the 17 SDGs have implications on human health and well-being  
**SDG 3: “Ensure healthy lives and promote well-being for all at all ages”**

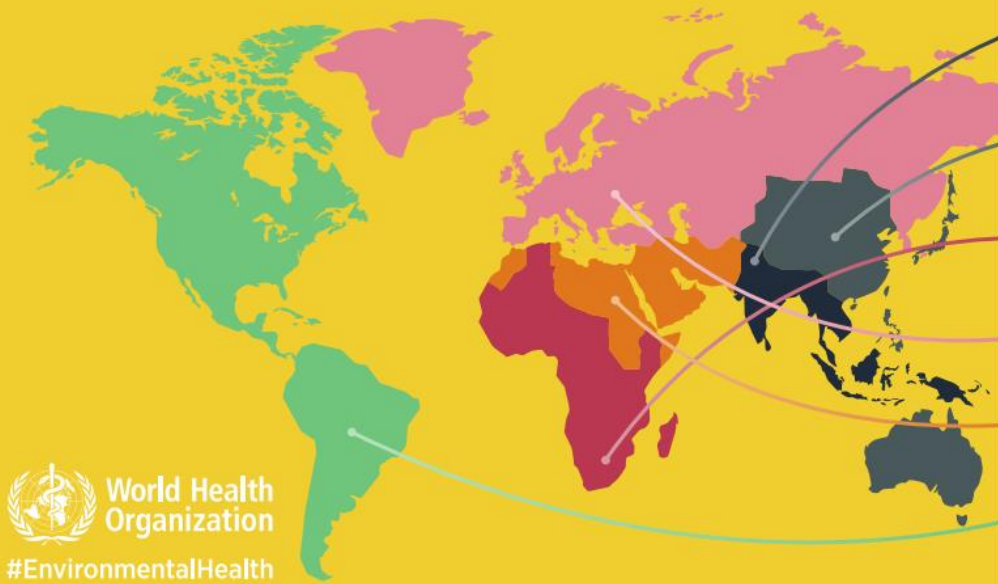
# The global context has changed in the 21<sup>st</sup> century

- A range of changes calls for new approaches to improve the quality of life of the population
- These changes pose new public health **challenges** while creating new **opportunities**



**23%**  
of all global deaths are linked  
to the environment.  
That's roughly **12.6 million deaths** a year.

## WHERE IS IT HAPPENING?



- **3.8 million**  
in South-East Asia Region
- **3.5 million**  
in Western Pacific Region
- **2.2 million**  
in Africa Region
- **1.4 million**  
in European Region
- **854 000**  
in Eastern Mediterranean Region
- **847 000**  
in the Region of the Americas

## WHO IS MOST IMPACTED BY THE ENVIRONMENT

Children under five and adults between 50 and 75 years old are most affected by the environment.

The illustration shows an elderly man with glasses and a cap on the left, and a young child in a blue hooded garment on the right, both within a circular frame.

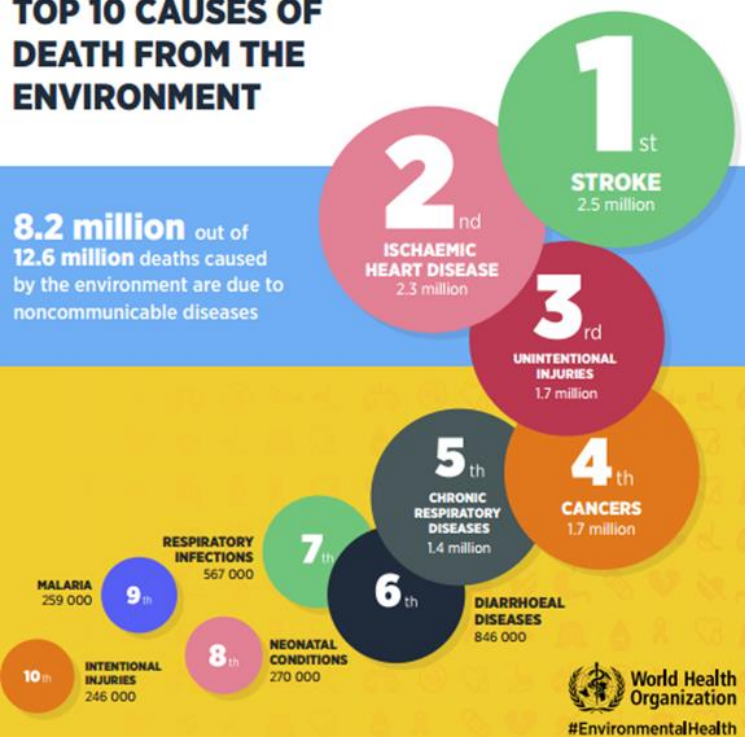
# HOW THE ENVIRONMENT IMPACTS OUR HEALTH

People are exposed to risk factors in their homes, work places and communities through:



## TOP 10 CAUSES OF DEATH FROM THE ENVIRONMENT

8.2 million out of 12.6 million deaths caused by the environment are due to noncommunicable diseases



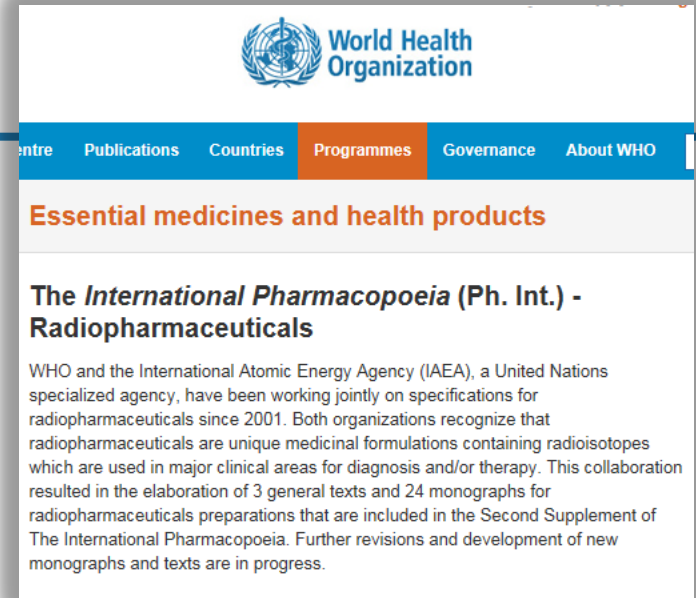
# Environmental factors and NCDs

- The 5 top causes of death from the environment are due to NCDs
- WHO has set an overarching target of 25% reduction in premature mortality from NCDs by 2025

- Diagnostic and therapeutic uses of radiation technologies play a key role in NCD management, which requires:
  - Secure supply of medical radioisotopes;
  - Access to appropriate radiological devices;
  - Adequate infrastructure; and
  - Skilled healthcare workforce.

# Radioisotopes and radiopharmaceuticals

- The supply of radioisotopes is essential to ensure access to radiopharmaceuticals used for **diagnosis and/or therapy** in major clinical areas
- WHO and IAEA cooperate for the update of the section on radiopharmaceuticals in the **International Pharmacopoeia**, and the specific Good Manufacturing Practices on radiopharmaceuticals



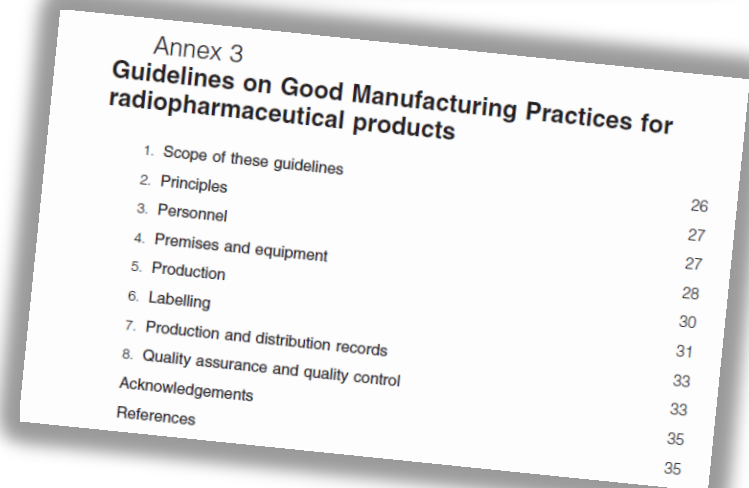
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Centre Publications Countries Programmes Governance About WHO

Essential medicines and health products

**The International Pharmacopoeia (Ph. Int.) - Radiopharmaceuticals**

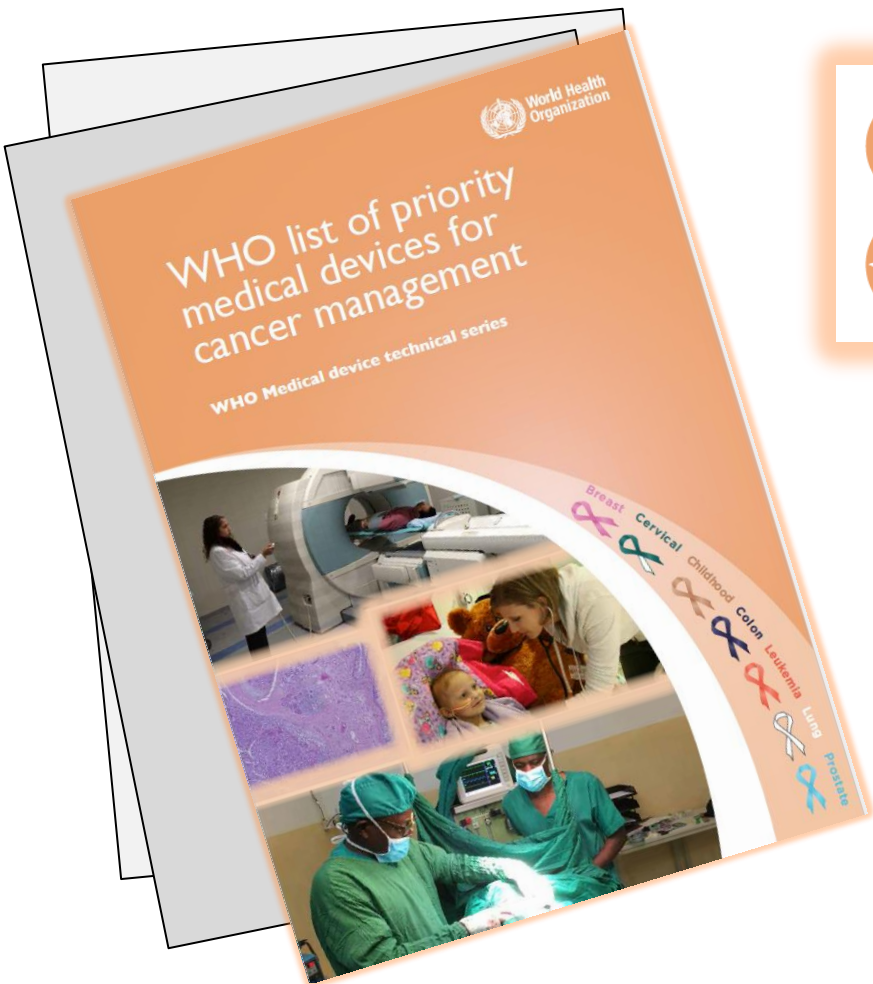
WHO and the International Atomic Energy Agency (IAEA), a United Nations specialized agency, have been working jointly on specifications for radiopharmaceuticals since 2001. Both organizations recognize that radiopharmaceuticals are unique medicinal formulations containing radioisotopes which are used in major clinical areas for diagnosis and/or therapy. This collaboration resulted in the elaboration of 3 general texts and 24 monographs for radiopharmaceuticals preparations that are included in the Second Supplement of The International Pharmacopoeia. Further revisions and development of new monographs and texts are in progress.



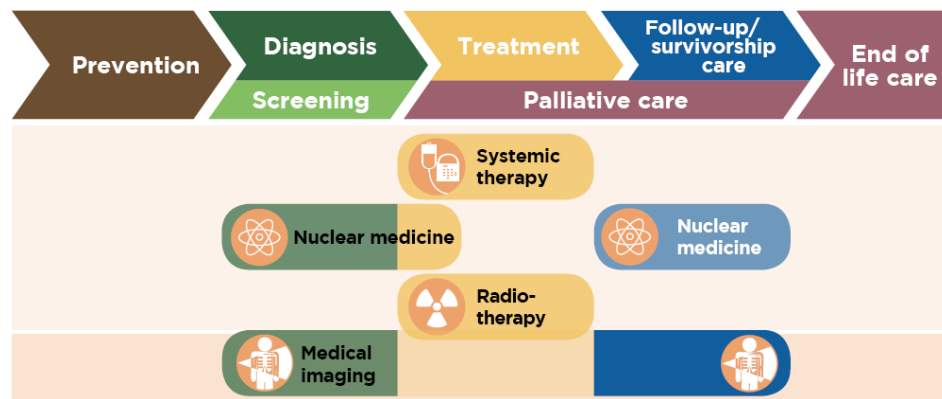
Annex 3	
Guidelines on Good Manufacturing Practices for radiopharmaceutical products	
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# Radiation technologies for advancing patient care



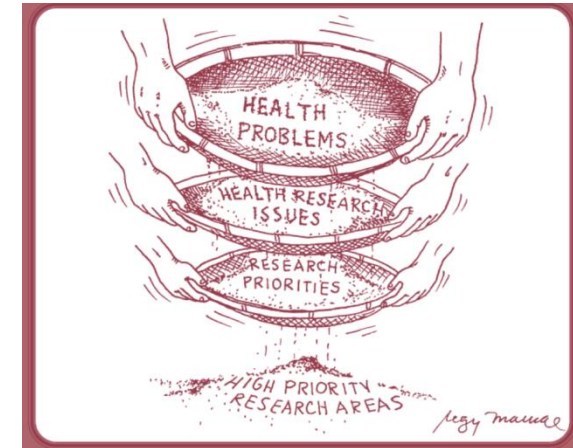
## 2. Medical imaging & nuclear medicine



# Radiation research and innovation

“Research and innovation can accelerate attainment of the SDGs ...” (*WHO GPW13*)

- Importance of setting research priorities and undertaking the research
- Innovations of diagnostic and therapeutic health technologies (*considering underserved settings and LMICs*)
  - Digital transformation of health care (e.g. digitalized imaging equipment, telemedicine solutions)
  - Clinical decision support systems
  - Artificial intelligence and machine learning



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# Radiation Basic Safety Standards

- The **International Radiation Basic Safety Standards (BSS)** are the global benchmark on radiation safety requirements.
- BSS cosponsoring organizations are cooperating to foster its implementation worldwide.
- EU countries are transposing/ implementing the **COUNCIL DIRECTIVE 2013/59/EURATOM**: this provides an opportunity for collaboration.
- EU countries may become “champions” for other parts of the world through their experience in implementing radiation safety standards

Jointly sponsored by  
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# Radiation quality and safety in medical practice

- The IAEA/WHO **Bonn Call for Action (2012)** identifies 10 priority actions to enhance **quality and safety in the medical use of radiation**
- Implementing these actions supports the application of the BSS in medical settings
- Safety and quality are part of good medical practice and are implicit in the concept of **Universal Health Coverage**



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# Universal Health Coverage

## Radiation safety and quality

- **Universal Health Coverage (UHC)** is a high priority for WHO and its Member States
- UHC includes **safety and quality** of health services
- Ensuring safe and appropriate use of radiation in medicine contributes to achieving UHC



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Please join the drive towards

# WORLD HEALTH DAY 2018

#HealthForAll

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7 April 2018



**UNIVERSAL  
HEALTH  
COVERAGE:  
EVERYONE,  
EVERYWHERE**

