

RADIATION

An aerial, black and white photograph of a crowded beach. The top half of the image shows the sandy beach, densely packed with people, many of whom are sitting or lying on towels or blankets. Numerous beach umbrellas are open, providing shade. The bottom half of the image shows the ocean, with several people swimming or wading in the water. The overall scene depicts a busy, sunny day at a popular beach destination.

People are exposed both to natural radiation, for example ultraviolet radiation and radon, and to radiation generated by human activities. Radioactive sources (emitting for example X-rays) are used in medicine for diagnosis and treatment, and in research, industry and nuclear energy production. Other forms of radiation include electromagnetic fields emitted by electricity, by devices such as mobile phones, lasers, and LED lamps, and also by the sun. To protect people from overexposure to radiation, the health sector should engage further with other sectors tasked with managing these sources.

Aerial view of beach
in Mallorca, Spain.

KEY RISKS TO HEALTH

EXPOSURE TO RADIATION FROM SEVERAL SOURCES CAN INCREASE RISKS OF CANCERS AND DEATHS



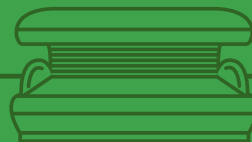
58 K

Over 58 000 deaths from lung cancer were caused by residential radon in 2016.



60 K

More than 60 000 skin melanoma-related deaths are caused by solar ultraviolet radiation yearly (2000).



450 K

More than 450 000 non-melanoma skin cancer and 10 000 melanoma cases are caused by sunbed use each year in the United States of America, Europe and Australia (2014).



20 K

20 thousand thyroid cancers were caused by the Chernobyl accident (up to 2015).

MEDICAL PROCEDURES EXPOSE PEOPLE TO LEVELS OF RADIATION:

4 B

Four billion medical imaging and millions of radiotherapy and nuclear medicine procedures are performed each year (2008).



MANY COUNTRIES HAVE DEVELOPED LEGISLATION FOR PROTECTION FROM SELECTED RADIATION RISKS:



78%

of surveyed countries (40 of 51 countries) developed legislation for protection against any electromagnetic frequency (e.g. power lines, radiofrequency).



56%

of surveyed countries (25 of 45 countries) developed legislation for protection against artificial tanning sunbeds.



Chernobyl nuclear power plant.

WHAT ARE KEY ACTIONS FOR IMPROVEMENT?

Key actions to combat the adverse health effects of radiation include the following:

1.

Legislation

Establish relevant legislation, tools and mechanisms to protect the public, workers and patients from radiation.

2.

Protective measures

Inform the public about the effects and risks of overexposure to radiation, and protective measures that can be taken.

3.

Radon

Reduce exposure to radon, for example through radon mitigation strategies.

4.

Ultraviolet radiation

Encourage personal protection against ultraviolet radiation.

5.

Medical use of radiation

Promote a safety culture in the medical use of radiation and reduce unnecessary medical radiation exposure.

6.

Emergencies

Build and strengthen national capacities to respond to radiation emergencies.

MAIN WHO ACTIONS

WHO actions on the adverse health effects of radiation include the following:

Radiation safety standards

Develop radiation safety standards and support countries in their implementation.

Information

Produce information on the effects of radiation through advocacy and communication.

Emergencies

Coordinate preparedness and public health response to radiation emergencies.

Research agendas

Develop research agendas on radiation-related topics.

Evidence-based policy

Assess health risks from radiation exposure and provide evidence-based policy options, guidelines and tools, for example on radiation safety in medicine, sunbed use, radon control, and emergency preparedness and response.

SECTORAL POLICIES INTERACTING WITH HEALTH PROTECTION FROM RADIATION

Cooperation with the following sectors may be required to sustainably reduce risks to health:



Industry



Energy



Telecom



Housing



Labour



Health

Further information: www.who.int/health-topics/radiation.

Source: Healthy environments for healthier populations: Why do they matter and what can we do? WHO, 2019.



World Health
Organization