



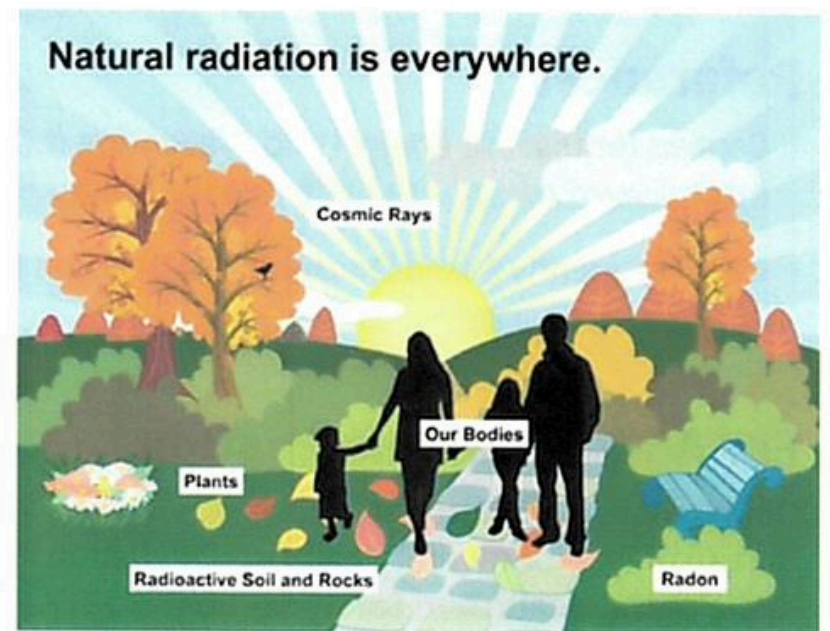
## Natural and Man-made Background Radiation

### What is background radiation?

Background radiation is an average of what the public is exposed to on a yearly basis. It is composed of natural radiation and man-made radiation. The average background radiation for an individual is estimated to be 620 millirem (mrem) per year.

### What is natural background radiation?

Natural background radiation is the level of naturally occurring radiation in the environment that the public is exposed to everyday. It is ionizing radiation from natural sources, such as earth-based radiation from radionuclides in the soil or cosmic radiation originating in outer space. It is estimated to be about 50% of the total background exposure. Natural background levels can vary greatly from one location to another.



### What about natural radioactivity in the body?

Small traces of many naturally occurring radioactive materials are present in the human body. These come mainly from naturally occurring radioactive nuclides present in the food we eat, such as bananas and Brazil nuts, and in the air we breathe. These isotopes include tritium, carbon-14, and potassium-40.

### What is man-made background radiation?

Man-made radiation comes from medical imaging and nuclear medicine testing as well as consumer products. Man-made sources of radiation exposure include some electronic equipment (such as older television sets), medical sources (such as X-rays, certain diagnostic tests, and treatments), and nuclear weapons testing that took place in the 1950s and 1960s.

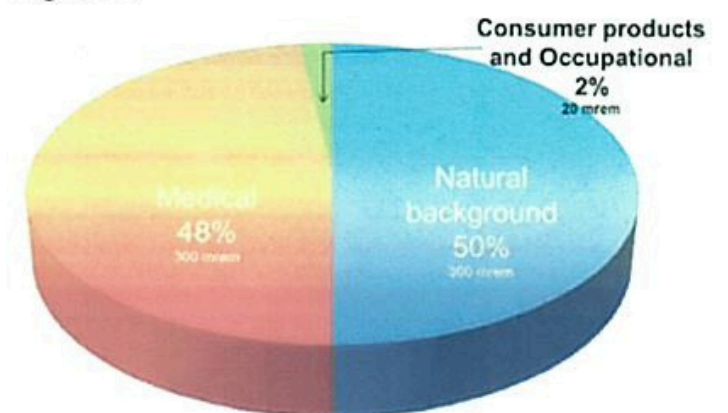
### More about medical radiation

Radiation used in medicine is the largest source of man-made radiation today. Most exposure is from diagnostic testing such as X-rays and CT scans. The benefits of diagnostic medical exams are vital to good patient care. Radiation is also used in some cancer treatments, with precisely targeted radiation destroying diseased cells without killing nearby healthy cells.

Some uses of radiopharmaceuticals (radioactive drugs) in imaging include locating tumors, measuring blood flow to the heart, and determining whether there has been any effects on the bones due to injury or illness. Other radiopharmaceuticals are used to treat thyroid cancer or hyperthyroidism.

For more information on the use of radiopharmaceuticals see the National Institute of Health's "[Nuclear Medicine](#)" webpage.

Figure 1



Source: NCRP Report No. 160, *Ionizing Radiation Exposure of the Population of the United States* (2009).



## What about consumer products?

Small amounts of man-made background radiation are attributed to consumer products like older color televisions, smoke detectors, gas lantern mantles, natural gas heating, cooking fuel, and mining and agriculture products, such as coal, granite, and potassium salt.

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## References

- Centers for Disease Control and Prevention (CDC). Radiation in Your Life.  
[https://www.cdc.gov/radiation-health/data-research/facts-stats/?CDC\\_AAref\\_Val=](https://www.cdc.gov/radiation-health/data-research/facts-stats/?CDC_AAref_Val=)
- CDC. Frequently Asked Questions (FAQ) about Radiation Emergencies.  
<http://emergency.cdc.gov/radiation/emergencyfaq.asp>

## For Additional Information

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