



FACT SHEET

Radiation Facts

What is radiation?

Radiation is a form of energy. It comes from man-made sources such as x-ray machines, from the sun and outer space, and from some radioactive materials such as uranium in soil.

How can I be exposed to radiation?

Small quantities of radioactive materials occur naturally in the air we breathe, the water we drink, the food we eat, and in our own bodies. Radiation that goes inside our bodies causes what we refer to as **internal** exposure. The exposure that is referred to as **external** comes from sources outside the body, such as radiation from sunlight and man-made and naturally occurring radioactive materials.

Radiation doses that people receive are measured in units called "rem" or "sievert." (One sievert is equal to 100 rem.) Scientists estimate that the average person in the United States receives a dose of about one-third of a rem per year. Eighty percent of typical human exposure comes from natural sources and the remaining 20 percent comes from artificial radiation sources, primarily medical x-rays.

What are the health effects of exposure to radiation?

Radiation can affect the body in a number of ways, and the adverse health consequences of exposure may not be seen for many years. These adverse health effects can range from mild effects, such as skin reddening, to serious effects such as cancer and death, depending on the amount of radiation absorbed by the body (the dose), the type of radiation, the route of exposure, and the length of time a person is exposed. Exposure to very large doses of radiation may cause death within a few days or months. Exposure to lower doses of radiation may lead to an increased risk of developing cancer or other adverse health effects.

How can I protect myself from radiation?

The three basic ways to reduce your exposure are through—

TIME: Decrease the amount of time you spend near the source of radiation.

DISTANCE: Increase your distance from a radiation source.

SHIELDING: Increase the shielding between you and the radiation source. Shielding is anything that creates a barrier between people and the radiation source. Depending on the type of radiation, the shielding can range from something as thin as a plate of window glass or as thick as several feet of concrete. Being inside a building or a vehicle can provide shielding from some kinds of radiation.

Radiation Facts

(continued from previous page)

Where can I get more information about radiation?

More information can be obtained from the following U.S. government sources:

The [Environmental Protection Agency](#)

The [Nuclear Regulatory Commission](#) can be reached at (301) 415-8200

The Federal Emergency Management Agency ([FEMA](#)) can be reached at (202) 646-4600.

The Radiation Emergency Assistance Center/Training Site ([REAC/TS](#)) can be reached at (865) 576-3131 (ask for REAC/TS).

The U.S. Department of Energy ([DOE](#)) can be reached at 1-800-dial-DOE.

For information on other radiation emergency topics, visit www.bt.cdc.gov/radiation, or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)