DELAWARE HEALTH AND SOCIAL SERVICES
Division of Public Health

Frequently Asked Questions

RADON

What is RADON?

Radon is a colorless, odorless and tasteless gas found in nature worldwide. Radon is a radioactive gas, meaning that it sends out atomic particles or energy. It is formed when uranium decays slowly into radium, which breaks down to radon.

Radon itself goes through radioactive decay, emitting atomic particles called radiation. The decay process produces alpha, beta and gamma radiation. Alpha radiation can travel only a short distance and not go through your skin. Beta radiation can go through your skin but not through your body. Gamma radiation can go through your body.

Where can radon be found and how is it used?

Radon enters the environment from the soil. Sometimes radon results from uranium and phosphate mines, and from the burning of coal. Naturally occurring radon in the ground can enter the air and attach to dust and other tiny bits of matter. Radon can also move into groundwater. In the past, radon was used to treat diseases including cancer, arthritis, diabetes and ulcers. Radon is still used in some medical studies. Radon in the soil is also being studied as a way to predict earthquakes. It is used in other scientific studies, and in exploring for petroleum and uranium.

How can people be exposed to radon?

You could be exposed to radon through:

Breathing it in outdoor or indoor air. Outdoor levels of radon are usually low and tend to be higher indoors where radon gas can accumulate. Radon moves into your home through cracks in the foundation or basement. It can move into schools and office buildings in the same way.

Drinking radon found in drinking water. Levels may be higher in well water than in surface water sources.

Touching radon. Miners who work in uranium and hard rock mines are exposed to higher levels of radon. Phosphate and granite have high levels of uranium and radium. Therefore, radon levels in outdoor air and in groundwater in those mining areas may be higher.

How does radon work and how can it affect my health?

Radon enters your body when you breathe or swallow. Most radon in the body is breathed in, then breathed out again. However, some radon remains in the lungs, where it decays radioactively. Resulting radiation can cause lung damage. If radon is swallowed in drinking water, it proceeds to the stomach and intestines, then the blood stream, and lastly, the lungs, where most of it is exhaled. Any remaining radon will decay.

Breathing radon over a long period increases the chance of lung cancer and other lung diseases such as thickening of lung tissues. Small exposures may also increase your risk of developing lung cancer, especially for cigarette smokers.

Scientists have studied the human effects of radon in miners but they do not know if radon impacts other organs besides the lungs. There is no information on the effects of radon if you drink water or eat food containing radon. Since radon gives off little gamma radiation, harmful effects from exposure outside the body are unlikely.

How is radon exposure treated?

There are no specific treatments for radon poisoning. Decontamination is essential to remove the radiation. All clothing is removed and the exposed individual's entire skin surface is scrubbed with soap and water. Clothing, along with soap, wastewater and towels, should be placed in a sealed container and labeled as radioactive waste.

If the person has taken radiation into the body, special agents will be given to help remove the radiation from the bloodstream. Other agents can be used to prevent radiation from entering the tissues. These agents also allow the radiation to be expelled through urine.

What should I do if exposed to radon?

All work sites and medical facilities should have procedures in place to handle exposure to radiation. If you are exposed to high levels of radiation, decontamination should begin immediately. Emergency workers should first protect themselves with proper gear. The individual's clothing should be removed. Then, the entire skin surface must be scrubbed with soap and water. Clothing, along with soap, wastewater and towels, should be placed in a sealed container and labeled as radioactive waste. It is very important to determine the exact type of exposure. This will help the emergency workers and doctors provide the best treatment. It will also help protect the hospital staff.

What factors limit exposure to radon?

Testing your home for radon is the most important way to limit exposure. Radon test kits are available at a local hardware store. It is recommended that all homes be tested for radon, with basements being tested first. In Delaware, the geographic areas where radon is most prevalent are those closest to Pennsylvania.

Is there a medical test to show whether I've been exposed to radon?

Radon in human tissues cannot be found with routine medical testing.

Technical information for radon

CAS Number: 10043-92-2

Chemical Formula: Rn

Carcinogenicity (EPA): Causes cancer.

MCL (Drinking Water): There is no MCL specifically for radon.

OSHA Standards: 30 pCi/L

NIOSH: NIOSH has recommended breathing protection be used in concentrations above 0.083 WL.

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 1990. *Toxicological profile for radon.* Atlanta, GA: U.S. Department of Health and Human Services. www.cdc.gov/niosh

http://www.Radonseal.com/Radon-level.htm

http://www.atsdr.cdc.gov/toxprofiles/tp145.html