
Frequently Asked Questions about a Radiation Emergency

What Is Radiation?

- Radiation is a form of energy that is naturally present all around us.
- Different types of radiation exist, some of which have more energy than others.
- Radioactive material is a substance that gives off radiation
- Amounts of radioactive material released into the environment are measured in units called **curies**. However, the dose of radiation that a person receives is measured in units called **rem**.

How Can Exposure Occur?

- People are exposed to small amounts of radiation every day, both from naturally occurring sources (such as elements in the soil or cosmic rays from the sun), and man-made sources.
- Scientists estimate that the average person in the United States receives a dose of about two-thirds of a rem per year. About 50% of human exposure comes from natural sources and the remaining 50% primarily comes from medical radiation exposures.
- Contamination refers to radioactive material that is deposited anywhere that they are not supposed to be, such as on an object or on a person's skin.
- Internal contamination refers to radioactive material that is taken into the body through breathing, eating, drinking, or open wounds.
- Exposure occurs when radiation energy penetrates the body. For example, when a person has an x-ray, he or she is exposed to radiation but they are not radioactive.

What Happens When People Are Exposed to Radiation?

- Radiation can affect the body in a number of ways, and the adverse health effects of exposure may not be apparent 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 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 later in life.

What Types of Terrorist Events Might Involve Radiation?

- Possible terrorist events could involve introducing radioactive material into the food or water supply, using explosives (like dynamite) to scatter radioactive materials (called a "dirty bomb"), bombing or destroying a nuclear facility, or exploding a small nuclear device.
- Although introducing radioactive material into the food or water supply most likely would cause great concern or fear, it probably would not cause much contamination or increase the danger of adverse health effects.
- Although a dirty bomb could cause serious injuries from the explosion, it most likely would not have enough radioactive material in a form that would cause serious radiation sickness among large numbers of people. However, people who were exposed to radiation scattered by the bomb could have a greater risk of developing cancer later in life, depending on their dose.
- An accident or explosion at a nuclear facility could cause a large amount of radioactive material to be released. People at the facility would probably be contaminated with radioactive material and possibly be injured if there was an explosion. Those people who received a large dose might develop acute radiation syndrome. People in the surrounding area could be exposed or contaminated.
- Clearly, an exploded nuclear bomb could result in a lot of property damage. People would be killed or injured from the blast and contaminated by radioactive material depending on their distance from the blast. Many people could have symptoms of acute radiation sickness. After a nuclear explosion, radioactive fallout would extend over a large region far from the point of impact, potentially increasing people's risk of developing cancer over time.

What Preparations Can I Make for a Radiation Emergency?

- Cecil County has a plan to monitor and decontaminate people, vehicles and responders who may be exposed during a radiological emergency.
- Check with your child's school, the nursing home of a family member, and your employer to see what their plans are for dealing with a radiation emergency.
- Develop your own family emergency plan so that every family member knows what to do.



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- At home, put together an emergency kit that would be appropriate for any emergency. If you evacuate take your kit with you unless it has been exposed to radiation.

How Can I Protect Myself During a Radiation Emergency?

- During and after a release of radioactive materials, local, state and federal authorities will monitor the levels of radiation and determine what protective actions to take.
- The most appropriate action will depend on the situation. You should be signed up with the Cecil County Department of Emergency Services' (DES) Blackboard Connect so you'll be called with the latest available information for your area. Check the Department of Emergency Services web site (<http://www.ccdes.org/>) and tune to one of the Emergency Alert System (EAS) radio stations: WXCY 103.7 FM, WAMD 970 AM, WJSS 1330 AM, WBAL 1090 AM, and WOEL 89.9 FM.
- If a radiation emergency involves the release of large amounts of radioactive materials, you may be advised to "shelter in place," which means to stay in your home or office; or you may be advised to move to another location.
- If you are advised to shelter in place, you should do the following: Close and lock all doors and windows, turn off fans, air conditioners, and forced-air heating units that bring in fresh air from the outside. Only use units that re-circulate air that is already in the building. Close fireplace dampers. If possible, bring pets inside. Move to an inner room or basement put as much distance and mass as possible between you and the radioactivity.
- In a above ground shelter stack whatever you have between you and the outside, washers, dryer, furniture, the more mass the better between you and the radiation. In your basement stay low, radiation is light you can't see, it can't go around corners but it can shine through walls not thick enough to offer full protection, so if you basement is only partially underground standing could be exposing you to radiation.
- If you are advised to evacuate, follow the directions that your local officials provide. Leave the area as quickly and orderly as possible. When outside cover your airway and as much skin as possible and do not turn on your car ventilation system. In addition take your disaster kit with you and take pets only if you are using your own vehicle and going to a place you know will accept animals. **Emergency vehicles and shelters usually will not accept animals.**

Should I Take Potassium Iodide During a Radiation Emergency?

- Potassium iodide (KI) should only be taken in a radiation emergency that involves the release of radioactive iodine, such as an accident at a nuclear power plant or the explosion of a nuclear bomb. You should only take KI if you have been instructed to do so by local public health or emergency management officials
- KI only protects the thyroid gland and doesn't protect from any other radiation exposure.

How You Can Limit Contamination

Since radiation cannot be seen, smelled, felt, or tasted, people at the site of an incident will not know whether radioactive materials were involved. You can take the following steps to limit your contamination.

1. **Get out of the immediate area quickly.** Protect your airway immediately; you want to avoid breathing in radioactive material as much as possible. Cover your head and exposed skin as much as possible and go inside the nearest safe building or to an area to which you are directed by law enforcement or health officials.
2. **Remove the outer layer of your clothing.** If radioactive material is on your clothes, getting it away from you will reduce the external contamination and decrease the risk of internal contamination. It will also reduce the length of time that you are exposed to radiation.
3. If possible, **place the clothing in a plastic bag or leave it in an out-of-the-way area**, such as the corner of a room. Keep people away from it to reduce their exposure to radiation. Keep cuts and abrasions covered when handling contaminated items to avoid getting radioactive material in them.
4. **Wash all of the exposed parts of your body** using lots of soap and lukewarm water to remove contamination. This process is called **decontamination**. Try to avoid spreading contamination to parts of the body that may not be contaminated, such as areas that were clothed.
5. After authorities determine that **internal contamination may have occurred**, you may be able to take medication to reduce the radioactive material in your body.

For more information: <http://emergency.cdc.gov/radiation/>



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