

# Protection Action in Radiation Emergencies, Including Nuclear Attack: Facts, Fears, and Fiction

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**W**hile radiation exposure can obviously be a serious danger, most people overestimate the actual risk.

**Be careful who you listen to** – The first reports of radiation dangers are likely to contain exaggerated claims and even complete falsehoods, because of the unique fear the public has for radiation issues.

The most reliable sources of information in radiation emergencies will be:

CDC (Centers for Disease Control and Prevention)  
<https://emergency.cdc.gov/radiation>

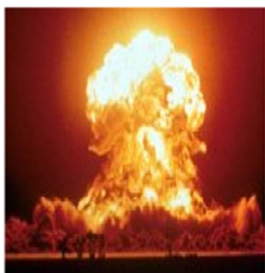
FEMA (Federal Emergency Management Agency)  
[www.fema.gov](http://www.fema.gov)

REMM (Radiation Emergency Medical Management)  
[www.remm.nlm.gov](http://www.remm.nlm.gov)

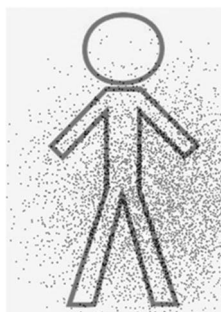
It is likely that social media outlets will have a great mixture of information, some might be useful but unfortunately much of it will be false, and even dangerous, due to the fear instilled in decision making.

## What are the most likely and most dangerous radiation events?

Nuclear detonation is overwhelmingly by far the most dangerous radiation event, as it involves not only the very large distribution of radiation in fallout for many miles from Ground Zero, but there is also a large blast at that detonation point that involves many trauma and thermal burn casualties.



Distribution of Radiation either deliberately or by accident is probably more likely to occur, but the *effects are much, much less* than from nuclear detonation. The most significant non-nuclear detonation distributions of radiation have been nuclear power plant accidents, which were significant to public health



at Chernobyl in Ukraine (thousands of thyroid cancers and unnecessary abortions) and Fukushima in Japan (hundreds of elderly deaths from evacuation in the cold). Radiation can also be distributed in a variety of other ways, such as from a conventional explosive, known as a dirty bomb, but these distribution threats are not believed to be likely to result in a significant level of radiation sickness unless very large amounts of radiation are involved.

## **The main message for people to take action immediately upon learning of a radiation event:**

Government websites (i.e., CDC) tell us to get inside. Here are important actions when taking shelter to protect yourself and others:



You need to immediately find a source of water as you might be in a basement (the best place) for a while. The tank behind a commode (not in it) has several gallons of sufficiently clean water, and that should be protected as it might be the only source of water there. As electricity will likely be gone during a nuclear crisis, the commode should not be flushed as this will remove this water supply and it will not be replaced automatically as before. Obviously, bottled water is best, and if the electricity is still working, putting water from the faucet into containers should be done right away.



When you are outside, you need to cover your mouth and nose and avoid breathing in dust particles as they may contain radioactive agents. Once you are inside, this is not necessary, as buildings generally are known to be highly effective in reducing the levels of dust particle entry. However, you should close windows and shut down the ventilation system to prevent it from bringing radioactive particles in from the outside.

### What about taking Potassium Iodide or other medicines to protect from radiation?

After every real or perceived radiation crisis in the recent past, there has been a great deal of interest in getting potassium iodide and various other highly promoted remedies to protect from exposure to radiation. There are several FDA approved medicines to flush radiation out of the body after it gets in, but the medical conditions where this would be advisable are actually fairly limited. The great majority of people who are in an area with radioactive contamination WILL NOT need these medicines. Only when it is established that someone has inhaled or ingested a large amount of radioactivity (such as by a whole body radiation scan) would it be advisable to take one or more of these medicines to help remove some of that radioactivity.



### Is my baby in special danger from the radiation in the environment?

It is true that high doses of radioactivity can cause birth defects and other health effects; this was discovered primarily from problems in babies induced by X-ray machines many decades ago before that danger was recognized. Due to this and all the media plots involving birth defects, the great majority of people (and even some medical personnel) believe that radiation in the environment (which is very different from X-rays in medicine) cause terrible birth defects. However, close examination of thousands of radiation exposed pregnant women at Chernobyl have not shown detectable birth defects, so that fear has not been justified.



### What actions should I take to be prepared for a Radiation Emergency?

- Have an emergency (bug-out) bag with general emergency essentials similar to that needed for other kinds of emergencies:



Bottled water, nonperishable food, your essential medicines, money, identification, medical records, means of

protection, warm clothing, batteries, other highly valued items

- Get a radio! It is absolutely essential to have radio contact during emergencies. For most people, a hand cranked radio is best to decrease dependence on batteries which may not last long enough. A Ham Radio is the best as it has two-way communication and is independent of other systems which may go down, especially in a nuclear emergency.
- Simple radiation meter. A radiation meter is great to have, but you have to be able to understand what the measurements mean. The simple presence of radiation is not necessarily dangerous. As with chemicals, small doses can be quite safe. Be wary of using cell phone radiation apps as most simply take data that is generalized for a wide area and may have little or no meaning to your exposure.



The most important issue in radiation emergencies is NOT TO PANIC! The lack of knowledge of the public and even medical professionals (since we have not encountered this issue until recently) about radiation will lead to an unusual amount of fear, irrational behavior, and bad decision making. Stay calm and keep in contact with governmental authorities, and be aware that in most situations the actual risk is likely to be far less than what is being assumed by most people around you.



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