

Basic Facts regarding radiation exposure resulting from the nuclear plant accident caused by “Tohoku” area earthquake.

1. Precautions for people in surrounding areas of the nuclear accident

(1) Obtain the information from reliable sources such as radio, TV, cable TV, and wireless community systems. Don't be confused by rumors. If you are instructed by your local government to go to shelters or evacuate, do so immediately.

(2) If you take shelters indoors, close all the doors and windows.
Switch off the ventilator to avoid air-intake from outside.
Pay close attention to the latest information and instructions.

(3) In case of evacuation, act calmly.

(4) Don't eat agricultural products harvested at the refuge area until they are confirmed to be safe.

2. Precautions for evacuation from home

(1) To avoid inhalation of radioactive materials, cover your mouth and nose with wet folded towels or handkerchief or other materials. With this measure, you can avoid inhaling most radioactive materials.

(2) Wear hat or other head-covering so as not to expose your skin to the air.

3. What kind of effects do the radioactive materials in the atmosphere have on our bodies? How about the health effect in relation to radiation doses?

Leaked radioactive materials in the air may come down and remain deposited on the earth surfaces, buildings, and other places. In this case, radioactive materials may be taken inside of our body by ingesting contaminated water and agricultural products.

Moreover, protect your mouth and nose when you go out as you could directly inhale the radioactive materials in the air.

Radiation exposure may affect your health, but the influence and the type depend on the exposure level. For example below 100 milli Sievert (m Sv) (100,000 micro Sv (μ Sv)), there is no immediate health effect. It is thought that the probability of getting cancer may increase with radiation doses, and this happens only in the period between several years and several decades after the exposure. For example, the risk of getting cancer is about 0.5% in the case of 100 milli Sv (mSv) radiation exposure. This value is significantly lower than the risk of cancer caused by factors such as smoking and food. Thus, there is no need for undue concern.

4. Potassium Iodide Administration

In case you have ingested the radioactive iodine in the body (internal exposure), it is important to take the potassium iodide distributed in a shelter only as instructed. When potassium iodide is taken before or immediately after the radioactive iodine ingestion, it can prevent or reduce the influence of radioactive iodine at the thyroid due to the competitive nature of these iodine products. However, there is a possibility of side effects such as allergic reaction by taking potassium iodide. In addition, potassium iodide is only effective when radioactive iodine enters into the body. There is no effect for external contamination. In conclusion, any necessity of potassium iodide should be determined by a trained medical professional. (Please refer to the separate information regarding iodine intake.)

5. Explain the meaning of the numerical values reported by the media

• 100,000cpm (from the shoe of an evacuee at FUTABA evacuation center)

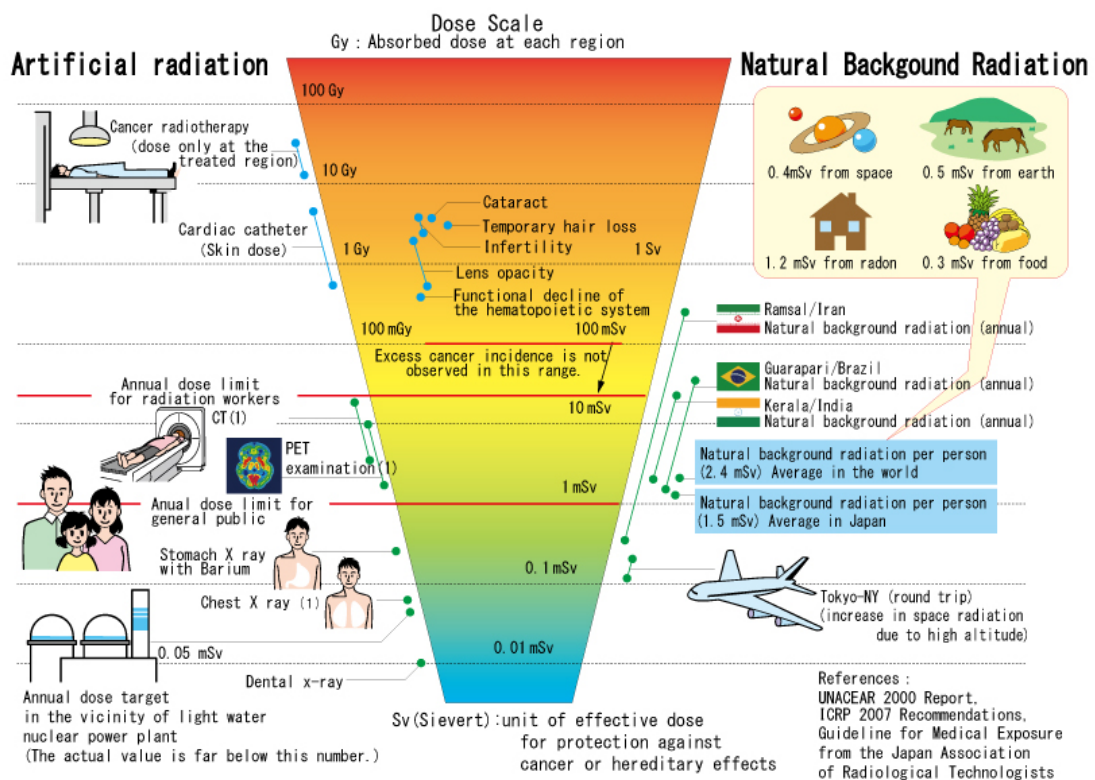
Assuming that this was measured by the GM survey meter commonly used for radiation measurement, the contamination level at the surface is 400 Bq/cm². The calculated values, however, would vary depending on the types of measuring instruments because of differences in detectable surface areas and device efficiencies. If the nuclide was assumed to be iodine 131 and attached to the skin, the absorbed dose rate at the skin is as follows:

Since the conversion factor is $1319(\text{nGy/h}) / (\text{Bq/cm}^2)$ for the skin surface (70 micro m in depth), the absorbed dose rate results in 0.53(milli Gy (mGy)/h). This rate would even be smaller if decontamination procedure is performed on the skin.

The half life of iodine 131 is 8 days. The contamination is thought to be eliminated by taking a bath or naturally metabolized by the body. Therefore, 0.53(milli Gy (mGy)/h) does not pose any health hazard.

• 1015 micro Sv (μSv) is the air dose rate as of the afternoon of March 12th measured at the main gate of the Fukushima Nuclear Plant. If you stay there for one hour, your radiation dose is 1015 micro Sv (μSv) or 1.015 milli Sv (mSv).

The radiation dose limit per year for the general public including nuclear power plants is regulated at 1 milli Sv/year. (1 mSv/year) Going over this amount, however, does not necessarily lead to the development of negative health effects. We are exposed to radiation in the natural environment at 2.4 milli Sv (mSv) in a year. There are some areas in the world with a high dose level such as 10 milli Sv (mSv) in the natural environment (See the illustration)



6. I live in Fukushima Prefecture. I passed through Fukushima prefecture. Is there any effect on me?

The release of radioactive substances has been reported, and the central and prefectural governments are implementing evacuation or sheltering for affected residents as a precaution for their safety. This is intended to prevent radiation exposure internally and externally. Though depending upon what routes you took in Fukushima, you don't have to worry about harmful health effects since the dose will only rise to 1 milli Sv (mSv) even if you keep standing at the main gate where 1015 micro Sv/h (μ Sv/h) was recorded on March 12.

What should I do?

For those other than the residents of evacuation areas, or if you are a traveler visiting Fukushima for a short stay, you don't have to be needlessly concerned.

References <measurement unit>

Sv (Sievert): Unit to show a degree of effect when a human body is exposed to radiation

Bq (Becquerel): Unit to show radioactivity. 1 Bq means one radioactive disintegration per second.

Gy (Gray): a dose of radiation energy absorbed in the substance hit by radiation. 1Gy means that 1 Joule of energy is absorbed in a substance of 1Kg.