

18 March 2011

All whom it may concern,

## Possible Exposure to Radiation from Fukushima Nuclear Plant in Japan



### More Questions Answered

1. **What zones are affected by the Fukushima nuclear plant in Japan?  
What is considered a “safe” distance from primary source of leak?  
When would it be safe to go near site of leak or its surrounding areas?**

The “affected” and “safe” zones depend on the specifics of the incident, and may change as the situation develops. According to Japanese authorities, the current evacuation zones are 20 km-radius from the affected nuclear plant.

As the situation is evolving, the duration and size of the “exclusion” zones will be reviewed regularly based on the progress of containment measures.



2. **What should Singaporeans do if they are residing in the affected zones stated above?**

Singaporeans within that zone should immediately evacuate to the designated Japanese evacuation centres where radiation surveys for contamination are being done. If unable to evacuate, they should remain indoors, shut all windows and doors, keep the air-conditioning turned off and tune in to the Japanese local media for further advice and guidance.

3. **What should Singaporeans do after they return to Singapore from Japan?  
How does one get tested for exposure? Where in Singapore?**

Returning Singaporeans, who were within the exclusion zones from 12 March 2011, can visit the Emergency Department of their nearby Public Restructured Hospital (RH) for a medical consultation upon arrival in Singapore.

**4. Do Singaporeans need to seek medical treatment if they did not reside in the affected zones and do not feel unwell upon returning to Singapore?**

It is highly unlikely that any Singaporean who was not in the exclusion zones during the affected periods will need any form of medical assessment as there is negligible risk, if any, of impact on health.

**5. Can someone who is “exposed” pass on the “contamination” to another person/s?**

External exposure (on the clothes or skin) can be washed off. It is highly unlikely that internal exposure can be passed on to another person.



**6. What are the health problems from exposure to the radiation?**

The main health concerns come from the effects of internal exposure to radioactive substances released into the air from the incident or from contaminated food supply. There is an increased risk of getting thyroid cancer, between four to 20 years after the exposure. Cure rates can be as high as 95%.

**7. Who are most at risk of getting thyroid cancer from exposure to the radiation?**

The main group at risk is children aged below 15 years at the time of exposure; the younger the child, the higher the risk. Concurrent iodine deficiency also increases the risk from exposure.

**8. What can be done to reduce the risk?**

Potassium iodide (KI) pills are given to saturate the thyroid gland; an organ affected by radioactive substances, and prevent the uptake of radioactive iodine.

When given before or shortly after exposure, this step can reduce the risk of thyroid cancer in the long term. KI pills contain non-radioactive iodine. Non-radioactive iodine is also found in the food we eat and is needed by the body to make thyroid hormones.

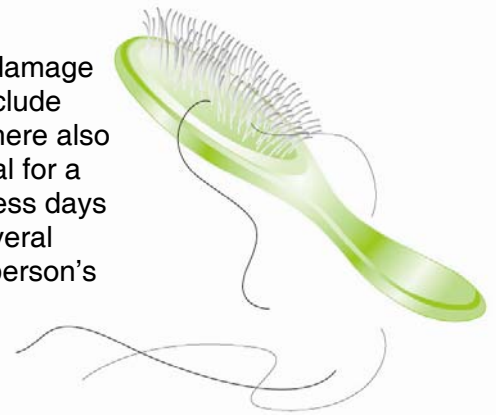
Potassium iodide pills are not "radiation antidotes". They do not protect against external radiation, or against any other radioactive substances besides radioactive iodine. Potassium iodide may also cause medical complications for some individuals such as persons with poorly functioning kidneys. Consumption of such pills should only be done upon medical advice.



## 9. What are the symptoms of radiation sickness?

The first symptoms of radiation sickness, also known as acute radiation syndrome (ARS), typically are nausea, vomiting, and diarrhoea. These symptoms will start within minutes or days after the exposure, will last for minutes up to several days, and may come and go. Then the person usually looks and feels healthy for a short time, after which he or she will become sick again with loss of appetite, fatigue, fever, nausea, vomiting, diarrhoea, and possibly even fits and coma. This seriously ill stage may last from a few hours up to several months.

People with ARS typically also have some skin damage. This damage can start to show within a few hours after exposure and can include swelling, itching, and redness of the skin (like bad sunburn). There also can be hair loss. As with the other symptoms, the skin may heal for a short time, followed by the return of swelling, itching, and redness days or weeks later. Complete healing of the skin may take from several weeks up to a few years depending on the radiation dose the person's skin received.



People exposed to radiation will get ARS only if:

- The radiation dose was high (doses from diagnostic medical procedures such as chest X-rays are too low to cause ARS)
- The radiation was penetrating (that is, able to reach internal organs)
- The person's entire body, or most of it, received the dose, and
- The radiation was received in a short time, usually within minutes.

## 10. How are people exposed to ionizing radiation?



Internal contamination may result from breathing in or swallowing radioactive material or through contamination of wounds.

External contamination is produced when a person is exposed to external sources such as X-rays or when radioactive material (e.g. dust, liquid, aerosols) becomes attached to skin or clothes. This type of contamination can often be washed off the body.

**Medical Director's Office**  
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For further enquiries, you can contact our Corporate Services Help Desk at **6311 1333**.

(Adapted from MOH website)