

Use of Potassium Iodide During Radiological Emergencies Information Booklet

For Communities Located Within the Emergency Planning Zone of a Nuclear Power Plant

Massachusetts Department of Public Health

Bureau of Environmental Health - Radiation
Control Program

2019



This information is directed to residents within the emergency planning zone (EPZ) of a nuclear power plant who may have been exposed to radiation and have been provided with Potassium Iodide (KI) to the general public as a supplement to evacuation and sheltering during a radiological emergency.

The questions and answers contained within this booklet will provide information on KI's protective effects, dosage, and distribution in your community.

Q. What is potassium iodide?

- A. Potassium iodide is a salt, similar to table salt. Its chemical symbol is KI. It is routinely added to table salt to make it "iodized." Potassium iodide, if taken in time and at the appropriate dosage, blocks the thyroid gland's uptake of radioactive iodine and thus could reduce the risk of thyroid cancers.

Q. How does KI work?

- A. Taking KI saturates the thyroid gland with stable (non-radioactive) iodine. This prevents or reduces the amount of radioiodine that can be taken up by the thyroid. Breathing air or eating food contaminated with radioactive iodine can injure the thyroid and increase the risk of thyroid cancer.

Q. Is KI effective in all radiation emergencies?

- A. While KI is quite effective in reducing the radiation dose to the thyroid that could result from the intake of radioiodine, it does not protect other organs or tissues.

Q. When should KI be taken?

- A. To be most effective, KI should be taken before or shortly after exposure to radioiodine. If taken three to four hours after exposure, it would still reduce the uptake of radioiodine by the thyroid; however, its effectiveness would be reduced.

Q. How often should KI be taken?

- A. Administered KI is effective for about 24 hours. Once individuals are removed from the areas affected by the release, there is no need to continue taking KI.

Q. What age group is at the greatest risk from exposure to radioiodine?

- A. Children are at the greatest risk of developing health effects related to radiation exposure. A significant increase in the incidence of thyroid cancer among children in Belarus, Ukraine and Russia was observed following exposure to radioiodine related to the Chernobyl accident.

Q. Does KI have side effects?

- A. Generally health effects in adults and children over the age of one include gastrointestinal distress and rash in a very small percentage of individuals.

Q. Are there health concerns associated with children less than one year of age taking KI?

- A. Newborns may develop transient hypothyroidism. Newborns given KI should be monitored for hypothyroidism symptoms, and treated if such symptoms are observed. FDA recommends that neonates (newborn to one month), pregnant and lactating women, and those with known iodine sensitivity, should be given priority with regard to other protective measures such as sheltering and evacuation.

Q. Should any precautions be considered if an individual has KI sensitivity?

- A. Because of possible side effects, individuals with known iodide sensitivity or who have conditions associated with increased risk of iodine hypersensitivity should avoid taking KI. Individuals should consult their physicians to determine if they have iodine sensitivity or conditions that may increase their risk of developing iodine hypersensitivity. Such information should be obtained prior to an emergency, since, KI is most effective if taken within four hours of exposure.

Q. What dosage of KI should be administered?

- A. The recommended dosage of KI :

Number or fraction of 65 mg tablets / (dosage)	
Adults over 18	2 / (130 mg)
Children over 3 years through 18 years*	1 / (65 mg)
Children 1 month through 3 years **	1/2 / (32 mg)
Infants birth through 1 **	1/4 / (16 mg)

* Adolescents approaching adult size (> 150 lbs) should receive the full adult dose (130 mg)

The Department of Public Health advises that, in an emergency, it is safe for children at school or day care centers to take the 130 mg dosage. This dose is safe and well within the recommended therapeutic range of KI for other indications. The blocking effect of iodide on the thyroid lasts only a few days and any suppressive effect of KI on thyroid function has been shown to be minimal, even in young children. FDA's position is that the overall benefits of KI far exceed the risks of KI overdosing, especially in children.

** Additional information on infant and children KI dosing preparation is available from the FDA. See the Home Preparation Procedure for Emergency Administration of Potassium Iodide Tablets to Infants and Small Children
<http://www.fda.gov/Drugs/EmergencyPreparedness/BioterrorismAndDrugPreparedness/ucm072248.htm>

Q. What is the “Emergency Planning Zone” or EPZ?

- A. The EPZ is the area around a nuclear power plant reaching out to ten miles. Emergency planning focuses on this specific area, based on assessments by the Environmental Protection Agency (EPA) on the impact of an emergency in such a facility. The ten mile zone includes all areas where levels of radioactive materials released during an emergency may be of concern to human health within hours to days after an accident at a nuclear power station.

Q. How will I know if I should take KI?

- A. In the unlikely event that radioactive material from a nuclear power plant emergency poses a risk to communities, and you are told to shelter or evacuate, you may be advised to take KI. The Emergency Alert System communication broadcasts will tell people if the Massachusetts Department of Public Health advises them to take KI.

Q. How will KI be distributed to communities?

- A. KI distribution is managed through the local Boards of Health before an emergency occurs. During an actual emergency, MDPH with the cooperation of the local Boards of Health and the Massachusetts Emergency Management Agency (MEMA) will distribute KI at locations outside the affected area.

Q. Does one need a prescription to obtain KI?

- A. No. The drug is approved for use by the U.S. Food and Drug Administration (FDA) and is available over the counter.

Q. Can KI be purchased at local pharmacies?

- A. Despite FDA's approval to distribute it over-the-counter, most pharmacies do not have it for sale over-the-counter. Individuals can purchase it over the Internet.

Q. Is there a shelf life for KI?

- A. The shelf life approved by FDA for KI is now six years. However, if properly stored (protected from air, heat, light and moisture), KI can maintain its potency for many years without significant degradation.

ADDITIONAL INFORMATION

Massachusetts Department of Public Health, Radiation Control Program

617-242-3035 TTY: 617-624-5286

Radiation Control Program, MDPH <http://www.state.ma.us/dph/rcp>

For information on KI distribution within your community, contact your local Board of Health

Nuclear Regulatory Commission <http://www.nrc.gov>

Food and Drug Administration <http://www.fda.gov>

Centers for Disease Control and Prevention

<http://www.bt.cdc.gov/radiation/KI.asp>