

Potassium Iodide (KI) Briefing Bullets for Site Team

NOTE: The following information is general guidance. If you have specific questions regarding your use of potassium iodide, please contact the NRC Health Center at 301-415-8400 or your doctor.

- Regional policy and guidance regarding the use of potassium iodide is provided to employees on an annual basis (ROPG 0453), employees are expected to read/respond; therefore individuals should be somewhat familiar with the information that will be presented in this briefing.
- As a responder to event, it may be recommended, and you may be offered to take potassium iodide – KI. KI is a non-radioactive, stable form of iodine.
- Certain forms of iodine help your thyroid function properly. The thyroid (a gland) is designed to absorb and store iodine (convert it to thyroid hormone), but it can hold only so much. It will just as readily absorb non-radioactive KI as radioactive iodine. KI works by saturating/filling the thyroid gland with non-radioactive iodine so it is much less likely to take up any radioactive iodine.
- KI is a safe and effective means to block uptake of radioiodines by the thyroid gland in a radiation emergency under certain conditions of use, which I will briefly review.
- KI is not a magic anti-radiation pill and will only protect the thyroid gland from intakes of radioiodine. Taking KI is no substitute for following emergency directives, such as evacuation, sheltering, restricting certain food intake, etc.
- You will only be offered KI if there is a potential exposure to radioactive iodine that you might inhale or ingest, based on projected/predicted thyroid radiation doses. It is a recommendation; you are not required to take it. You can decline.
- Recommendation to take KI would come from the RA (or designee), in consultation with the HQ Executive Team.
- A decision by the licensee or State to issue KI does not mean that NRC will automatically recommend KI for NRC personnel. Our decision is made independently from the licensee and State.
- KI is most effective if used before or coincident with exposure to radioactive iodine, but will still have some beneficial effect if taken 3-4 hrs after exposure.
- If over 40, primary reason for taking KI is prevention of hypothyroidism (slow thyroid function).
- If 18-40, primary reason for taking KI is prevention of thyroid cancer
- There are potential side effects/adverse reactions you should be aware of, including: salivary gland inflammation, upset stomach, allergic reactions, including rashes. If subject to repeated doses of KI, you might suffer thyrotoxicosis (produce excess thyroid hormone – result is increased metabolism, etc.)

- You should decline KI if: you have had your thyroid gland removed (thyroidectomy); are sensitive to iodine (sensitive to shellfish or have had an adverse reaction during medical imaging using contrast agents); dermatitis herpetiformis (skin disease); or hypocomplementemic vasculitis (extremely rare disorder/skin lesions)
- You should use caution in taking KI if: you have multinodular goiter; Graves disease, or autoimmune thyroiditis (all essentially hyperthyroid conditions)
- If you are pregnant, might be pregnant, plan on getting pregnant while taking KI, or are currently breastfeeding, please see me after this briefing for additional guidance.
- The dosage guidance presented here is from the FDA:

Predicted Thyroid Radiation Exposures at which KI Prophylaxis is Recommended and Recommended Daily Doses of KI				
	Predicted Thyroid Radiation Exposure cGy or RAD	KI dose (mg)	Number of 130 mg tablets	Number of 65 mg tablets
Adults over 40 yrs	≥ 500	130	1	2
Adults 18-40 yrs	≥ 10			
Pregnant or lactating women	≥ 5			

- Our kit has 130 mg tablets, in packs of 14 (2 week supply), one tablet taken daily until risk of significant exposure to radioiodines by inhalation (and to some extent ingestion) no longer exists.
- We won't be handing out whole packets, since an exposure of that length is unlikely. Also, we don't want people to think they have to consume the whole 2 week supply. We should be giving out only a few tablets at a time.

Specific questions? – call the NRC Health Center 301-415-8400

Additional guidance for pregnancy:

- FDA recommends that pregnant women should be given KI to protect themselves and their fetuses, since iodine readily crosses the placenta. However repeated dosing with KI can block fetal thyroid function.

Additional guidance for females who are breastfeeding:

- FDA recommends that nursing mothers take KI for their own protection. Although KI passes into breast milk, infants should get their own KI directly. Refer to supplementary dosage table for children/infants in the FDA guidance (see ROPG). Repeated dosing of newborns with KI should be avoided.

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