Potassium Iodide (KI)
Questions & Answers for Schools
(Revised January 2007)

1) What is potassium iodide (KI)?

Potassium iodide is a U.S. Food and Drug Administration (FDA) approved over-the-counter drug that can be used to protect the thyroid gland from immediate and future radiation injury caused by radioactive iodine released during a nuclear accident. A December 2001 FDA document, *Guidance: Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies, (www.fda.gov/cder/guidance/4825fnl.htm)* provides guidance on the use of KI in a radiological emergency.

2) How does KI work?

KI saturates the thyroid gland with stable (non-radioactive) iodine, thus preventing or reducing the amount of radioactive iodine that will be taken up by the thyroid. Radiological emergencies may release radioactive iodine in the environment. Since iodine concentrates in the thyroid gland, inhalation of air or ingestion of food contaminated with radioactive iodine can lead to injury to the thyroid - including an increased risk of thyroid cancer.

3) Does KI protect individuals from all types of radiation?

No. KI is only effective against exposure to radioactive iodine. KI does not protect against other types of radiation.

4) Does KI protect organs other than the thyroid?

No. KI does not protect body organs or tissues other than the thyroid.

5) Is a prescription necessary to obtain KI?

No. KI is a FDA-approved over-the-counter drug.

6) Should some people avoid KI?

Yes. According to the FDA, people with known iodine sensitivity, thyroid diseases, clusters of itchy skin blisters (dermatitis herpetiformis), and/or an inflamation in blood vessels involving the skin or multiple organs of the body (hypocomplementemic vasculitis) should avoid the use KI. Before an event occurs, physicians should be consulted with individual concerns on whether to take KI in an emergency.

7) What are the possible side effects to KI?

According to the FDA, the benefits of taking KI far exceed the risks. The possible side effects may include gastrointestinal disturbance and minor rash.

8) When is KI most effective?

To be most effective, KI should be taken shortly before or shortly after exposure to radioactive iodine. Even if taken three to four hours after exposure, KI would still provide a substantial reduction of radioactive iodine uptake by the thyroid.

9) How long is KI effective in the body?

The protective effects of KI last approximately 24-hours.

School KI Program Basics

10) What laws authorize New York State to engage in radiological emergency planning and response?

- *New York State Executive Law Article 2-B (1979 and Chapter708, 1981)*
- *New York State Public Health Law, Sections 201 and 206*
- *New York State Sanitary Code, Part 16*
- *New York State Defense Emergency Act, Chapter 784, Laws of 1951*

11) Is KI an alternative to evacuation due to a radiological incident at a nuclear power plant?

No. Evacuation remains the primary protective action in a radiological emergency as stated in the New York State Radiological Emergency Preparedness Plan: *www.semo.state.ny.us/uploads/REP%20Plan%202005%20Master%20Document.pdf*.

12) Why are schools being asked to store and possibly administer KI?

Schools play a vital role in county radiological preparedness plans. Studies have shown that children have a higher risk of developing thyroid disease from exposure to radioactive iodine.

13) Which school buildings have been asked to store and possibly administer KI?

School building administrators located within the ten-mile emergency planning zones (EPZ's) of nuclear power plants have been asked to participate in the KI program. These areas include: Indian Point (Westchester, Rockland, Orange, and Putnam), Ginna (Wayne and Monroe), and Nine Mile Point (Oswego).

14) Why and how were the ten-mile EPZ's established?

The Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission (NRC) established criteria, standards, and guidelines governing off-site planning surrounding nuclear power plants. This criterion stipulates that planning be focused on the ten-mile EPZ surrounding the plants. Potential exposure within the ten-mile EPZ depends on the duration of the release, as well as meteorological conditions.

16) What happens if the ten-mile EPZ cuts through the school district?

Only school buildings located within the ten-mile EPZ have been asked to store KI. However, all schools located in a school district that transects the ten-mile EPZ are eligible to receive KI free of charge from the New York State Emergency Management Office (SEMO). The KI has been provided to SEMO by the NRC.

17) Can school districts outside the ten-mile EPZ store KI for possible use?

Yes. KI is an over-the-counter drug that may be purchased at the district's own expense.

18) Will nonpublic schools located within the ten-mile EPZ have access to KI?

Yes. All schools within the 10-mile EPZ will have access to KI.

School KI Program Logistics

****19) Why has this guidance document on KI been revised?***

Since this guidance document was originally written, the FDA has approved KI in a 65-mg tablet. The 65-mg tablets are larger than the 130-mg tables and scored in quarters to allow breaking the tablets into smaller doses. Dosing at the FDA recommended level is much easier with the 65-mg tablets. In addition, the FDA has recently approved KI in liquid form, which also allows for ease of dosing at the FDA recommended level. (Question #25 and the table on page 5 provide additional dosage information.)

****20) How do schools located within the 10-mile EPZ receive KI?***

Schools located within the 10-mile EPZ should contact their county emergency manager and/or county department of health for assistance.

21) Where should KI be stored?

The KI should be stored in a secure, warm, and dry area in each school building.

22) How long can KI be safely stored?

The 65-mg tablets have a six-year shelf life, the 130-mg tablets have a seven-year shelf life, and the liquid has a five-year shelf life.

School KI Program Administration

23) Who may administer KI to children during an emergency?

Individuals designated by the school district may administer the KI to children once it has been recommended by the New York State and/or County Department of Health in a radiological emergency situation. This recommendation will be transmitted directly to schools in accordance with communication protocols in the county radiological emergency plan.

24) Is a physician's order necessary for KI administration in a radiological emergency?

No. KI administration in a school is part of an emergency protocol to deal with a radioactive iodine release into the environment.

25) What laws permit designated individuals in a school setting to administer/provide KI in a declared radiological emergency?

State Executive Law Article 2-B allows the Governor to declare a state-of-emergency.

Education Law §§ 6527(4)(a) and 6908 (1)(a)(iv) permits the furnishing of medical and/or nursing assistance during an emergency.

The provisions of the Good Samaritan Law (Public Health Law §3000-c) also apply.

****26) What is the recommended dosage for children in a radiological emergency?***

Current FDA guidance contains various age-dependent doses. These recommendations represent the lowest effective dose of KI.

<u>Elementary Schools and Day Cares:</u>
Since 65 mg is the recommended dose for children ages 3 to under 12 years of age, a supply of 65-mg tablets and liquid KI will be offered to elementary schools and daycare facilities. Children under age 12 and less than 150 pounds should take one 65-mg tablet or 1 ml of liquid. Adults and persons over 150 pounds should take two 65-mg tablets or 2 ml of liquid.

<u>Middle Schools/Junior High Schools</u>
65-mg tablets will also be offered to middle schools and junior high schools. Persons under 150 pounds should take one 65-mg tablet, while adults and persons over 150 pounds should take two 65-mg tablets.

<u>High Schools</u>
High Schools will only be offered 130-mg tablets.

A scheme of graded dosing may be difficult to implement during a radiological emergency involving large numbers of people. School administrators may conclude that graded dosing is logistically impractical for populations at risk to radioiodine exposure, and elect to administer the same dose to everyone. According to the New York State Department of Health (DOH), the overall benefits of taking up to 130 mg instead of the lower recommended dose for certain age groups far exceed the small risks of overdosing.

Additional questions on dosing protocols should be directed to your county DOH, State DOH (1-800-458-1158, ext. 27550) or see: *<u>www.health.state.ny.us/nysdoh/ki/ki.htm</u>*

Threshold Thyroid Radioactive Exposures and Recommended Doses of KI for Different Risk Groups				
Age Group	KI Dosage	Number of ml liquid (65 mg/ml)	Number of 65-mg tablets	Number of 130-mg tablets
Adults over 18 years	130 mg	2	2	1
Over 12 -18 years and over 150 pounds	130 mg	2	2	1
Over 12 -18 years and less than 150 pounds	65 mg	1	1	1/2
Over 3 -12 years	65 mg	1	1	1/2
Over 1 month to 3 years	32 mg	0.5	1/2	1/4
Birth -1 month	16 mg	0.25	1/4	1/8

***27) Our school already has a supply of 130-mg KI tablets on-hand. In light of the new FDA guidance, what should be done with the existing KI tablets*?**

In order to eliminate confusion, the 130-mg tablets should be removed from the school when the 65-mg tablets and/or liquid KI are delivered. Tablets may be discarded into the regular trash.

28) What procedure may be followed to administer KI in a radiological emergency?

SED does not provide health directives. However, according to the November 2001 FDA document, *Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies*, "KI from tablets (either whole or fractions) or as fresh saturated KI solution may be diluted in milk, formula, or water and the appropriate volume administered…" Furthermore, "…these recommendations are meant to provide states and local authorities as well as other agencies with the best current guidance on safe and effective use of KI to reduce thyroidal radioiodine exposure and thus the risk of thyroid cancer." FDA recognizes that, in the event of an emergency, some or all of the specific dosing recommendations may be very difficult to carry out given their complexity and the logistics of implementation of a program of KI distribution. The recommendations should therefore be interpreted with flexibility as necessary to allow optimally effective and safe dosing given the exigencies of any particular emergency situation. In this context, we [FDA] offer the following critical general guidance: *"…across populations at risk for radioiodine exposure, the overall benefits of KI far exceed the risks of overdosing, especially in children, though we [FDA] continue to emphasize particular attention to dose in infants."*

29) What if a child can't swallow pills?

KI is now available in liquid form. In addition, according to the FDA, the pill may be safely crushed, chewed or dissolved in water in the event that an individual can not swallow tablets.

30) How should schools best communicate with persons in parental relation on School KI Program?

Schools should provide written information to persons in parental relation on the School KI Program on an annual basis, at the beginning of each school year. This information should be in a form easily understood by the person in parental relation. This information may be developed in collaboration with the County Department of Health and should advise parents of their right to have their child exempt from KI administration.

31) Must parents allow the school to administer KI to their children?

No. Participation in the program is strictly voluntary, however the use of KI is strongly encouraged by the scientific and emergency preparedness communities. A parent or person in parental relation who does not want their child to receive KI, may decline involvement in the program and must provide a written opt-out notice to the school. Absent the receipt of an opt-out notice, the child may receive KI in an emergency situation. The opt-out may be revoked in writing at anytime by the parent or the person in parental relation.

32) How will schools be notified that events warrant the administration of the KI to children?

The State Department of Health and/or County Department of Health are charged with issuing the recommendation to administer KI. This recommendation will be transmitted directly to schools in accordance with communication protocols in the county radiological emergency plan.

33) What should schools do if a child has an allergic reaction to the KI?

Appropriate actions should be taken with any allergic reaction to relieve allergic reaction symptoms. If an anaphylactic reaction (extremely rare) occurs, non-patient specific ordered epinephrine and/or other agent to treat anaphylaxis may be used as appropriate. CPR should be initiated, if needed, and the individual transported to the nearest medical facility.

34) Will the adults in the school building also be provided with KI?

Yes. KI will be provided to all adults in school buildings located within the 10-mile EPZ. However, according to the FDA, KI is not necessary during a radiological emergency for persons over 40 years of age.

Other Emergency Planning Issues

35) How does the School KI Program fit into the existing school emergency planning process?

The responsibility and accountability for school emergency planning is detailed in Commissioner's Regulation 155.17. The comprehensive district-wide school safety plan and building-level school emergency plans developed under 155.17 should reflect the School KI Program. School personnel on the emergency response teams and post-incident response teams will play key roles in the KI program. However, it is anticipated that all faculty and staff will also be involved in the event of an actual radiological emergency.

Evacuation remains the primary protective action in a radiological emergency.

As with any school emergency, the chain of command must be set in a manner consistent with the incident command system (ICS).

36) Should details of the KI program be included in the existing emergency plan for the school building?

Yes. All logistical information surrounding radiological emergency planning, including the potential use of KI should be included in the building-level emergency plan. This should contain information such as (but not limited to):

- the exact location where the KI is stored in the building (a floor plan with this location highlighted is ideal)
- the names of the individuals designated to administer the KI
- the names of the students whose parent or person in parental relation has submitted an OPT-OUT notice stating that the student is NOT to receive KI
- the location of the school reception center for this building's population, including primary and secondary travel routes to these locations
- details describing who is responsible for providing transportation to these locations – including primary and secondary contact information

37) If an emergency occurs, what is the responsibility of the faculty and staff in the school?

In an actual radiological emergency where the State and/or County Department of Health has recommended that KI be administered, faculty and staff may be asked to assist in administering the KI to students in the school, as indicated in the building-level emergency plan.

Additional information on radiological emergency planning and ICS may be found at:

- *www.semo.state.ny.us/uploads/REP%20Plan%202005%20Master%20Document.pdf*

- *www.semo.state.ny.us/programs/training/ICS/ICSexplain.cfm*