This information is current as of the date faxed and for the patient specified ONLY. Do not use this information for other patients without contacting the Poison Center at 1-800-222-1222.

IODINE 131 (I-131) DIRTY BOMB: Health Care Information

I-131 is a radioactive isotope that is used as medical radiotherapy and diagnostic. It may be used as a "dirty bomb" by putting the isotope within a conventional weapon, detonating it and spreading small I-131 particles.

Radiation Information: I-131 emits both beta and gamma radiation.

Chemical Information: I-131 may be a solid or gas (from sublimation of the solid) and dissolves in water or alcohol.

Clinical Information:

Gastrointestinal absorption: high
Pulmonary absorption: high
Pulmonary retention: low

I-131 may cause radiation burns if allowed to approximate the skin for a period of time. I-131 is well absorbed in the lungs and GI tract. Once contamination of the lungs and GI tract occurs, I-131 is well absorbed and concentrates in the thyroid gland, which may lead to an increased risk of thyroid cancer. Significant internal contamination is considered unlikely in a dirty bomb scenario.

Diagnosis: I-131 may be detected by a Geiger-Muller counter that detects beta or gamma radiation.

Decontamination: Patients with external contamination (e.g., proximity to the blast, directly down-wind from the blast, covered in debris/dust or have detectable radiation contamination by Geiger-Muller counter) should:

1. Remove their clothing (clothing should be bagged).
2. Shower for 2 to 3 minutes with soap and water.

Treatment: Patients with significant internal contamination (e.g., detectable radiation on gastric sample or nasopharyngeal swabs) may require internal decontamination or antidotal therapy. Very few patients are expected to have significant internal contamination after a dirty bomb. GI contamination may be treated with activated charcoal (1 g/kg, up to 50 g PO) or whole bowel irrigation (1 to 2 liters PEG-ES/hour x 4 hours).

Patients with pulmonary or GI exposure should be treated with potassium iodide (KI). The doses are as follows:

Age <1 month: 16 mg ($1/8^{th}$ of a 130 mg tablet)
Age 1 month to 3 years: 32 mg ($1/4^{th}$ of a 130 mg tablet)
Age 3 years to 18 years: 65 mg (1/2 of a 130mg tablet)
Age 18 years to 40 years: 130 mg
Age > 40 years: KI is NOT recommended because it is less effective in this age group and there is an increased risk of allergic reactions.

The **following patients should NOT receive KI:** Patients with hyperthyroidism, thyroid nodules, or goiter, patients who are allergic to iodine and patients who have certain skin disorders (dermatitis herpetiformis or urticaria vasculitis).