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### **TECHNETIUM 99 (Tc-99) DIRTY BOMB: Health Care Information**

Tc-99 is a radioactive isotope that is used as medical radiation therapy. It may be used as a “dirty bomb” by putting the isotope within a conventional weapon, detonating it and spreading small Tc-99 particles.

**Radiation information:** Tc-99 emits both beta and gamma radiation.

**Chemical information:** Tc-99 is soluble in water and may be seen as a liquid or solid.

**Clinical information:** Tc-99 is absorbed mostly through the gastrointestinal tract and may be absorbed through wounds. Tc-99 is not absorbed through the skin. Once absorbed, Tc-99 may concentrate in the thyroid gland and GI tract.

Tc-99 may cause skin burns if in proximity to the skin. If absorbed or the exposure is large, the patient may be exposed to enough radiation to have an increased risk of cancer or fetal effects in pregnant women. Significant absorption is considered unlikely in a dirty bomb scenario.

**Diagnosis:** Tc-99 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).