

### **Cesium-137 (Cs 137) – Dirty Bomb**

Cs-137 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 Cs-137 particles.

#### **Radiation Information:**

Cs-137 emits both beta and gamma radiation.

#### **Chemical Information:**

Cs-137 may be seen as a liquid or a powder, which may glow.

#### **Clinical Information:**

Cs-137 is well absorbed through the lungs, gastrointestinal tract and through wounds. Cs-137 is not absorbed through the skin. Once absorbed, Cs-137 is excreted via urine.

Cs-137 may cause skin burns if in proximity to the skin. If a significant amount of Cs-137 is absorbed, the patient may have an increased risk of cancer or fetal effects in pregnant women. Significant absorption is considered unlikely in a dirty bomb scenario.

#### **Diagnosis:**

Cs-137 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. Pulmonary contamination may be treated with bronchoalveolar lavage. GI contamination may be treated with activated charcoal (1g/kg up to 50 g PO).

Prussian Blue is an ion exchange resin that may be used as an antidote for patients with evidence of internal contamination and absorption. This will be suggested on a case-by-case basis. Please contact the Poison Center (1 800 222 1222) or REACT/S for guidance. The dose of Prussian Blue is PO 1 gram TID.