

## Radiologic Antidote Fact Sheet

Following a Radiologic Dispersion Device (RDD – ‘dirty bomb’) detonation a few patients may benefit from antidotal treatment due to internal contamination. The following is brief, basic information about treatment of internal contamination. Additional information may be obtained from the Minnesota Poison Control System (1-800-222-1222). An on-line resource for radiologic response is: [www.remm.nlm.gov](http://www.remm.nlm.gov).

- Consultation with a radiation health physicist / radiation safety officer should ALWAYS be obtained prior to requesting / administering treatments.
- Aside from potassium iodide (KI), radiologic antidotes in Minnesota must be obtained from Federal sources. Hospitals with patients requiring treatment should call the Minnesota Poison Control System at 1-800-222-1222. The Poison Center will coordinate requests with the Minnesota Department of Health based upon the number of patients requiring treatment.
- Patients who have been *irradiated* (that is, radiation passed through them but without contamination) do NOT benefit from antidotal treatment.
- Patients who were externally contaminated but do *not* have evidence on nasal swabs or gamma-camera survey of internal contamination do NOT benefit from antidotal treatment.
- Chelating agents such as Ca-DTPA and Zn-DTPA may be parenterally administered to chelate a number of radioactive metals (especially plutonium, americium, curium) and promote their urinary excretion after internal contamination. These are most effective when given within hours after the exposure.
- Prussian blue can be given orally to trap radionuclides (cesium and thallium in particular) in the intestine, preventing absorption. This must be given within hours of the ingestion to be maximally effective.
- Patients who have limited internal contamination (less than one annual Allowable Limit of Intake - ALI) do NOT benefit from antidotal treatment (with the exception that potassium iodide may be given if available in cases of radioactive iodine element exposure). Treatment is strongly indicated for ALI > 10 and expert guidance should be sought for ALI between 1-10. ALI is usually measured in microcuries – for example 1 ALI for inhaled Cesium 137 is 200 microcuries. ALI will vary based on inhaled vs. ingested exposures.
- Potassium iodide (KI) is ONLY useful if the release contained radioactive elements of iodine AND persons inhaled or ingested contaminant. Benefit is increased the younger the patient and the sooner it is given. A *single dose* is all that is required unless exposure is ongoing. Usual dose:
  - Adult: 130mg ( single 130mg, two 65mg tablets, 2mL standard solution, or 0.15mL (3 drops) SSKI (super-saturated solution)
  - Child:
    - 3-18 years 65mg (one 65mg tablet or 1mL solution), SSKI 0.06mL (approx as 2 drops)
    - Infant (1month – 3 years) - ½ of 65mg tablet, ½ mL standard solution (32.5mg), or SSKI 0.03mL (approx as 1 drop)
    - Newborn ¼ of 65mg tablet, ¼ mL solution (16.25mg), or SSKI 0.015mL (approx as ½ drop)
  - Further information: <http://www.bt.cdc.gov/radiation/ki.asp>
- A variety of other techniques (forced diuresis, laxatives, oral binders such as calcium, kayexalate, gastric / bronchial lavage, etc.) may be useful depending on the isotope and exposure amount and location. See [http://www.remm.nlm.gov/int\\_contamination.htm#ref2](http://www.remm.nlm.gov/int_contamination.htm#ref2) for general information and consult with a radiation health physicist / radiation safety officer for further guidance.