



RADIATION FROM RADIOISOTOPES (General)

Agent Information:	Radioisotopes are unstable chemicals whose radioactivity is measured by the number of atoms disintegrating per unit time. A disintegrating atom emits a beta particle, an alpha particle, a gamma or x-ray, or some combination. These disrupt cell molecules and cause tissue damage. Contamination is defined as residual radioactive material, which may be internal or external to the patient.
Route of Exposure:	Alpha particles disrupt more molecules in a shorter distance than gamma rays, but have low penetrating power. Significant external dose results from close proximity to gamma or high-energy beta-emitting sources, or from being immersed in a plume of airborne radioisotopes, which have high penetrating power. External exposure stops when the person leaves the impacted area. Inhalation and ingestion are the most likely routes for internal contamination. Internal contamination continues until the radioactive material is flushed from the body by natural processes; or it decays. When a person inhales or ingests a radioisotope, it is distributed to different organs and stays there for days, months, or years, delivering a steady radiation dose, until it decays or is excreted (committed dose).
Signs and Symptoms:	Ionizing radiation exposure causes short-term observable health effects: hair loss, skin burns, nausea, gastrointestinal distress, or death (Acute Radiation Syndrome). Long-term health risks include an increased cancer risk. Such risks depend upon the function of the specific radioisotope; and the route, magnitude, and duration of exposure.
Protective Measures:	Limit time exposed to the radioactive source, avoid direct contact, and use shielding or respiratory protection. Deceased victims from a radiological event may be contaminated with radioactive material (internal and/or external).
Lab Samples Requested for Evaluation:	CBC with absolute lymphocyte count. Repeat measurements for at least 48 hours.
Prophylaxis:	Potassium iodide effectively reduces the amount of radioactive iodine taken up by the thyroid, following exposure to iodine radioisotopes. It is effective for the thyroid alone, and only from radioactive iodine. It must be administered quickly after exposure to be effective (within hours). Use appropriate Personal Protective Equipment (PPE) to avoid secondary contamination.

24/7 Emergency Contact Number: 1-888-295-5156

Revised: 05/2018

Page 1 of 2



Medical

Treatment: Emergency medical care to save lives is the first priority. Use radiation survey meters to decontaminate patients, limit the spread of radioactive materials, and prevent exposure to patients and staff. Supportive care and decontamination are indicated. Treatment to reduce internal dose is possible for certain radioisotopes. Expert guidance on medical treatment is available from REAC/TS at: 1-865-576-1005 (24/7).

Reporting: Immediately report suspect cases to Division of Public Health, 1-888-295-5156 (24/7 coverage).

For Additional Information: Visit the CDC website: <https://emergency.cdc.gov/>.