



RADIATION FROM CESIUM-137 (Cs-137)

(*Treatments are similar for thallium and rubidium)

- Agent Information:** Cesium-137 (Cs-137) is a radioisotope and unstable chemical. Its radioactivity is measured by the number of atoms disintegrating per unit time. A Cs-137 atom emits radiation in the form of medium energy gamma rays, and to a lesser extent, high-energy beta particles, which disrupt molecules in cells and deposits energy in tissues, causing damage. Cs-137 is used in medical therapy for oncology, industrial radiography, radiation gauges, food irradiators, and soil testing. It is also a potential plume component following a nuclear power plant incident.
- Route of Exposure:** Significant external dose results from prolonged, close proximity to a Cs-137 source, or being immersed in a plume of airborne radioisotopes from a nuclear power plant release. External exposure stops when the person leaves the impacted area and is decontaminated. Inhalation and ingestion are the most likely routes for internal contamination from Cs-137. Internal exposure continues until the radioactive material is flushed from the body by natural processes, or when it decays. When a person inhales or ingests a radioisotope, it is distributed to different organs and stays there for days, months, or years until it decays or is excreted.
- Signs and Symptoms:** Very large doses of ionizing radiation can cause observable health effects: hair loss, skin burns, nausea, gastrointestinal distress, or death (Acute Radiation Syndrome). Long term health risks, including increased cancer risk, depend on the function of the specific radioisotope; and the route, magnitude, and duration of exposure.
- Protective Measures:** Emergency medical care to save lives is the first priority. Effective patient decontamination prevents exposure to other patients and staff. Limit the amount of exposure time to the radioactive source. They should avoid direct contact, maintain distance, and use shielding or respiratory protection. Deceased victims from a radiological event may be contaminated with radioactive material (internal and/or external).

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

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Medical

Lab Samples Requested for Evaluation:	CBC with absolute lymphocyte count. Repeat measurements for at least 48 hours.
Prophylaxis:	Appropriate PPE to avoid secondary contamination.
Treatment:	Treatment is supportive care and decontamination. Reducing internal dose is indicated for known uptake of cesium, thallium, and rubidium radioisotopes. Prussian blue can be administered to block absorption of these radioisotopes from the GI tract and prevent recycling. Expert guidance on medical treatment is available from REAC/TS at: 1-865-576-1005 (24/7 coverage).
Reporting:	Immediately report suspect cases to the Division of Public Health, 1-888-295-5156 (24/7 coverage).
For Additional Information:	Visit the CDC website: https://emergency.cdc.gov/ .