

PERSONAL PREPAREDNESS GUIDE

Radiological Attacks: Dirty Bomb

What It Is

A dirty bomb, or radiological dispersal device (RDD), combines conventional explosives, such as dynamite, with radioactive material, such as spent nuclear reactor fuel rods. The device is designed to kill or injure by creating a zone of intense radiation that could extend several city blocks. People in the immediate vicinity of the blast would be killed. It is unlikely that the radioactive material contained in a dirty bomb would kill anyone. The radioactive material would be dispersed into the air and reduced to relatively low concentrations, resulting in low doses to people exposed. A low-level exposure to radioactive contamination could slightly increase the long-term risk of cancer. However, exposure to radiation at higher levels could result in radiation sickness or radiation poisoning.

In addition, dirty bombs have a significant psychological impact - causing fear, panic and disruption.

Symptoms

The extent of radiation contamination depends on a number of factors including the size of the explosive, the amount and type of radioactive material used, and weather conditions. The symptoms of radiation sickness include nausea and vomiting; diarrhea; skin burns (redness, blistering); weakness, fatigue, exhaustion, fainting dehydration; inflammation of areas (redness, tenderness, swelling, bleeding); hair loss; ulceration of the mouth; ulceration of the esophagus and the remainder of the gastrointestinal system; vomiting blood, bloody stool; bleeding from the nose, mouth, gums, and rectum bruising; sloughing of skin; open sores on the skin.

Prevention/Treatment

Radiation cannot be detected by human senses. However, a variety of instruments are available for detecting and measuring radiation. Federal officials have placed radiation sensors throughout the District. If individuals are facing a situation in which they know there has been a release of radiation, they should seek shelter in homes or buildings to reduce exposure. People should stay put until the radiation levels drop. Ventilation systems using outside air should be shut off and contaminated foods should be avoided. If people are in an area where there has been an explosion or are covered with residue, they should remain in that location for emergency response personnel who will begin decontamination. By leaving the area before being treated, people run the risk of spreading the contamination.

Emergency response officials will arrange medical treatment for those injured by the blast, evacuating people from the area, decontaminating those who were contaminated and assessing any internal or external exposures. Potassium iodide pills are effective in keeping the thyroid gland from absorbing radioactive iodine and developing cancer, but they are ineffective against other radioactive isotopes that may be used in a dirty bomb attack.

Recovery potential

People will likely die during a dirty bomb attack, but the blast, not the radiation, would exact the greatest toll. Many experts contend that very few people will die or become sick from radiation exposure.

Environmental Clean Up

Use of a dirty bomb could result in radioactive contamination of an area of a city, up to several city blocks, with low levels of contamination that would require cleanup. Cleanup of the contamination could be costly and would take weeks to months to complete.

Water supplies could be contaminated from the fallout from air and water runoff. Radioactive sediments would accumulate on the bottom of bodies of water, and in plants and fish living in the water. People can be infected by consuming contaminated water or fish, or by irrigating crops with infected water.

The information was compiled from the following sources:

Nuclear Regulatory Commission

<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/dirty-bombs.html>

HowStuffWorks

<http://www.howstuffworks.com/dirty-bomb.htm>

Nuclear Files

<http://www.nuclearfiles.org>

Britannica.com

<http://www.britannica.com>

Federal Emergency Management Agency

<http://www.fema.gov>

Trinity Atomic Web Site

<http://nuketesting.enviroweb.org/hew/Nwfaq/Nfaq0.html>

How Bad Would A Dirty Blast Be? Here's What The Experts Say.

<http://www.washingtonpost.com/wp-dyn/articles/A41297-2002Jun12.html>