

# This is an official **CDC HEALTH UPDATE**

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## **Update on Public Health Precautions related to Orange Threat Level: Part 3 (Information for Clinicians in the Event of a Radiation or Nuclear Emergency)**

In preparation for any possible public health emergency related to the current orange (high) threat level, the Centers for Disease Control and Prevention (CDC) is disseminating a series of notices on potential hazards. This is the third in a series of four updates. This message focuses on information for clinicians and hospitals in the event of a radiation or nuclear emergency.

During an orange (high) alert clinicians should be prepared to respond to a terrorist event involving radiation or nuclear weapons. In the event of a terrorist attack involving radiation or nuclear weapons, the Department of Homeland Security would be the lead federal agency responding. However, health care providers would be called upon to play a major role responding to protect the public's health.

CDC has developed new interim guidelines for hospital response to casualties from a radiological or nuclear emergency. These guidelines can be found at [Guidelines for Hospital Response to Mass Casualties from a Radiological Incident](#):

**<http://www.bt.cdc.gov/radiation/pdf/MassCasualtiesGuidelines.pdf>**

Clinicians and hospitals may face special challenges regarding staff with reluctance to treat patients with suspected radiation contamination. If patients are injured in a radiation or nuclear event and present with life-threatening conditions, the highest priority should be placed on treating the serious conditions, not on decontamination procedures. The threat of contamination is not an excuse for withholding treatment for life threatening conditions. Clinicians should be informed that removing clothing from potentially contaminated patients eliminates most external contamination and that universal precautions are generally sufficient to protect clinicians from harm of radiation exposure.

In case of a radiation or nuclear emergency, clinicians should be aware of the immediate symptoms of acute radiation syndrome (ARS), sometimes called radiation sickness.

### Radiation Sickness:

Radiation sickness may be defined by several responses to exposure from ionizing radiation caused by depletion of immature parenchymal stem cells in specific tissues. If the patient knows that he/she has definitely been exposed to a radiation source, the history of the exposure and the time of onset and severity of symptoms should be documented. Repeat complete blood count (CBC), with attention to lymphocyte count, every 2 to 3 hours for the first 8 to 12 hours following exposure. Focus should be placed on prevention and treatment of infections.

Ø Mild Radiation Sickness:

(Onset of initial symptoms 1 hour to 2 days after exposure)

A hematopoietic syndrome characterized by decrease in white blood cells, platelets, neutrophils, bleeding, anemia, and infections. These findings separate radiation exposure from colds, flu, and food poisoning.

Ø Moderate Radiation Sickness:

(Onset of initial symptoms within 2 hours of exposure)

In addition to the above; A gastrointestinal syndrome characterized by loss of appetite, nausea, vomiting, diarrhea, cramps, fluid and electrolyte loss, fatigue, and anorexia.

Ø Severe Radiation Sickness:

(Onset of initial symptoms within minutes of exposure)

High-level radiation exposure presents itself as a Cerebrovascular/CNS syndrome characterized vomiting and bloody diarrhea within minutes of exposure, disorientation, abnormally low blood pressure and high fever. These signs and symptoms are generally associated with fatal outcomes.

#### Dermal Response:

(Onset of initial symptoms from minutes to hours after exposure)

The dermal syndrome may be characterized inflammation, dry or moist desquamation, and erythema. The erythema associated with radiation burns may be transient, accompanied by itching and swelling, and may complicate the symptoms described above by increasing the risk of infection. Other dermal symptoms may include a tingling or burning sensation without erythema. Later effects can be quite severe, including ulceration and possible necrosis requiring surgery. Reddening, blistering, and ulceration may occur within a few days to several weeks following exposure. Skin damage may be present without the patient developing symptoms of radiation sickness.

Information on conditions, stages, and treatment of ARS can be found at

<http://www.bt.cdc.gov/radiation/arsphysicianfactsheet.asp>

Information related to prenatal radiation exposure can be found at

<http://www.bt.cdc.gov/radiation/prenatalphysician.asp>

and Guidelines for Hospital Response to Mass Casualties from a Radiological Incident

<http://www.bt.cdc.gov/radiation/pdf/MassCasualtiesGuidelines.pdf>

For further medical guidance, contact the Radiological Emergency Assistance Center/Training Site (REAC/TS)

· REAC/TS information can be found at <http://www.orau.gov/reacts/>

Additional medical guidance can be found at the Department of Homeland Security's Report on Medical Treatment of Radiological Casualties:

[http://www1.va.gov/emshg/docs/Radiologic\\_Medical\\_Countermeasures\\_051403.pdf](http://www1.va.gov/emshg/docs/Radiologic_Medical_Countermeasures_051403.pdf)

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**DEPARTMENT OF HEALTH AND HUMAN SERVICES**