



Centers for Disease Control and Prevention
Your Online Source for Credible Health Information

Emergency Preparedness and Response

Acute Radiation Syndrome (ARS): A Fact Sheet for the Public

Radiation sickness, known as acute radiation syndrome (ARS), is a serious illness that occurs when the entire body (or most of it) receives a high dose of radiation, usually over a short period of time. Many survivors of the Hiroshima and Nagasaki atomic bombs in the 1940s and many of the firefighters who first responded after the Chernobyl Nuclear Power Plant accident in 1986 became ill with ARS.

People exposed to radiation will get ARS only if:

- The radiation dose was high (doses from medical procedures such as chest X-rays are too low to cause ARS; however, doses from radiation therapy to treat cancer may be high enough to cause some ARS symptoms),
- The radiation was penetrating (that is, able to reach internal organs),
- The person's entire body, or most of it, received the dose, **and**
- The radiation was received in a short time, usually within minutes.

The first symptoms of ARS typically are nausea, vomiting, and diarrhea. These symptoms will start within minutes to days after the exposure, will last for minutes up to several days, and may come and go. Then the person usually looks and feels healthy for a short time, after which he or she will become sick again with loss of appetite, fatigue, fever, nausea, vomiting, diarrhea, and possibly even seizures and coma. This seriously ill stage may last from a few hours up to several months.

People with ARS typically also have some skin damage. This damage can start to show within a few hours after exposure and can include swelling, itching, and redness of the skin (like a bad sunburn). There also can be hair loss. As with the other symptoms, the skin may heal for a short time, followed by the return of swelling, itching, and redness days or weeks later. Complete healing of the skin may take from several weeks up to a few years depending on the radiation dose the person's skin received.

The chance of survival for people with ARS decreases with increasing radiation dose. Most people who do not recover from ARS will die within several months of exposure. The cause of death in most cases is the destruction of the person's bone marrow, which results in infections and internal bleeding. For the survivors, the recovery process may last from several weeks up to 2 years.

If a radiation emergency occurs that exposes people to high doses of radiation in a short period of time, they should immediately seek medical care from their doctor or local hospital.

More Information

For more information about radiation and emergency response, see the Centers for Disease Control and Prevention's [Emergency Preparedness and Response website \(/\)](#) or contact the following organizations:

- **The CDC Public Response Source** at 1-888-246-2675
- **Conference of Radiation Control Program Directors (CRCPD)** at 502-227-4543 (<http://www.crcpd.org/>)
- **U.S. Environmental Protection Agency (EPA)** (<http://www.epa.gov/radiation/rert/>)
- **Nuclear Regulatory Commission (NRC)** at 301-415-8200 (<http://www.nrc.gov/>)
- **Federal Emergency Management Agency (FEMA)** at 202-646-4600 (<http://www.fema.gov/>)
- **Radiation Emergency Assistance Center/Training Site (REAC/TS)** at 865-576-3131 (<http://www.ornl.gov/reacts/>)
- **U.S. National Response Team (NRT)** (<http://www.nrt.org/>)
- **U.S. Department of Energy (DOE)** at 1-800-dial-DOE (<http://www.energy.gov/>)
- Page last updated May 20, 2005
- Page last reviewed May 10, 2006
- Content source: Radiation Studies Branch (RSB) (<http://www.cdc.gov/nceh/radiation/>), Division of Environmental Hazards and Health Effects (EHHE) (<http://www.cdc.gov/nceh/ehhe/about.htm>), National Center for Environmental Health (NCEH) (<http://www.cdc.gov/nceh/>), Coordinating Center for Environmental Health and Injury Prevention (CCEHIP) (<http://www.cdc.gov/about/organization/ccehip.htm>)

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348, 24 Hours/Every Day - cdcinfo@cdc.gov

