IONIZING RADIATION (IR)

INFORMATION FOR VETERANS AND THEIR FAMILIES

WHAT IS IONIZING RADIATION?

Ionizing radiation (IR) is high-energy radiation. Exposure to high doses of IR may cause adverse health effects. Sources of IR exposure during military service include:

- Proximity to radioactive material
- Use of calibration and measurement sources
- Medical treatment using high dose radiation
- Handling and detonation of nuclear weapons
- Exposure to depleted uranium as fumes from fires or as shrapnel from an explosion

VETERANS POTENTIALLY AFFECTED

The majority of Veterans affected by IR are referred to as "Atomic Veterans." These Veterans participated in one or more above-ground nuclear tests during their military service between 1945 and 1962; or were part of the U.S. military occupation forces in and around Hiroshima or Nagasaki, Japan, before 1946.

Veterans who served in one or more of the following situations or circumstances may have been exposed to IR:

- **Radiation-risk activity (includes "Atomic Veterans")**
  Exposure to above-ground nuclear weapons testing and/or fallout radiation during the American occupation of Hiroshima and Nagasaki.
- **Fukushima nuclear accident**
  Exposure to very low doses of radiation following the nuclear accident in Japan from March 12 to May 11, 2011.
- **Military occupational exposure**
  Participation in specific military occupations, such as a nuclear weapons technician or x-ray technologist, including routine and usually safe exposure to radiation.
- **Depleted uranium**
  Proximity to an explosion where shrapnel or fumes containing depleted uranium, used in tank armor and some bullets, is embedded in the body or inhaled.
- **LORAN radiation**
  Exposure to X-ray radiation from high voltage vacuum tubes used at LORAN (Long Range Navigation) stations from 1942 to 2010 by the U.S. Coast Guard.
- **McMurdo Station, Antarctica nuclear power plant**
  Exposure to radiation due to a leak at the nuclear plant at the U.S. Navy's McMurdo Station, Antarctica, from 1964 to 1973.

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- **Nasopharyngeal (nose and throat) radium irradiation treatments**
  Radiation treatment received by certain pilots, submariners, divers, and others during service from 1940 to the mid-1960s to prevent ear damage from pressure changes.
- **Radiation therapy**
  Exposure to radiation during the treatment of disease, most commonly cancer.
- **Radiological cleanup of Enewetak Atoll**
  Radiological cleanup of the nuclear testing site at Enewetak Atoll, from January 1, 1977, through December 31, 1980
- **U.S. Air Force plutonium clean-up mission, Palomares, Spain**
  Cleanup of plutonium following an in-air refueling accident involving an Air Force B-52 bomber carrying nuclear weapons, near Palomares, Spain, from January 17, 1966, through March 31, 1967
- **Thule Air Force Base in Greenland**
  Response to the fire onboard, and crash of, an Air Force B-52 bomber carrying nuclear weapons near Thule Air Force Base in Greenland from January 21, 1968, to September 25, 1968

If you are concerned about the health effects of radiation exposure during military service, talk to your local VA Environmental Health Coordinator. Visit **www.publichealth.va.gov/exposures/coordinators.asp** to find a listing of Environmental Health Coordinators at VA medical centers.

WHAT DISEASES AND ILLNESSES ARE LINKED TO IONIZING RADIATION EXPOSURE?

For Veterans exposed as part of a "radiation risk activity," VA refers to certain cancers linked to IR exposure as presumptive diseases. For other military exposures, radiation doses are well below levels associated with adverse medical conditions. VA recognizes that the following diseases are possibly caused by exposure to IR during service, but are not considered presumptive diseases:

- All cancers
- Non-malignant thyroid nodular disease
- Posterior subcapsular cataracts
- Non-malignant tumors of the brain and central nervous system

NEXT STEPS IF YOU WERE EXPOSED

Eligibility for VA compensation depends on a number of factors, such as the amount of radiation exposure and the time elapsed between exposure and the development of disease. If you believe that you were exposed, contact your health care provider.

VA can help determine exposure during military service if you file a claim for compensation benefits for health problems associated with radiation exposure during service. VA decides benefit claims on a case-by-case basis. Even if you are not eligible for compensation benefits, you may be eligible for an Ionizing Radiation Registry health exam or VA health care. Find out more at **http://www.publichealth.va.gov/exposures/radiation/benefits/index.asp**.

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