Radiation Emergency

Source: Centers for Disease Control and Prevention (CDC), "Frequently Asked Questions About a Radiation Emergency," www.bt.cdc.gov

- Radiation is a form of energy. People are exposed to small amounts of radiation every day from naturally occurring sources (such as elements in the soil or cosmic rays from the sun) and man-made sources such as x- rays and certain diagnostic tests, and treatments.

- There are different types of radiation. Radiation that is used in nuclear power has enough energy to break atomic bonds and is referred as ionizing radiation. The most common forms of ionizing radiation are alpha particles, beta particles and gamma rays. Gamma rays are used in x-rays.

- Any living tissue in the human body can be damaged by ionizing radiation. Children tend to be most affected by ionizing radiation because they are growing more rapidly, and there is greater risk of radiation disrupting the process.

- Amounts of radiation released into the environment are measured in units called curies. Doses of radiation people receive are measured in units called rem or sievert. (One sievert is equal to 100 rem.) Americans receive an average dose of 360 milirems per year of radiation from natural and manmade sources.

- Radiation can affect the body in a number of ways, and the adverse health consequences of exposure may not be seen for

many years. Heath effects can range from mild effects, such as skin reddening, to serious effects such as cancer or death, depending on the amount of radiation absorbed (the dose), the type of radiation, the route of exposure and the length of time a person is exposed.

- There are three basic ways to limit exposure to radiation:
  - ✓ Time: Decrease the amount of time you spend near the source of radiation.
  - ✓ Distance: increase your distance from the radiation source by leaving the area.
  - ✓ Shielding: Increase the shielding between you and the radiation source. Shielding is anything that creates a barrier between people and the radiation source. Depending on the type of radiation, the shielding can range from something as thin as a plate of window glass or as thick as several feet of concrete. If a plume (or radioactive cloud) is of concern, the decision on whether to recommend sheltering or evacuation depends on several factors, including the direction the cloud is moving and the level of threat posed by being outdoors in a particular area.

What is Radiation Sickness and What Are the Symptoms?

- Radiation sickness. known as Acute Radiation Syndrome {ARS)1 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. The symptoms include: nausea. loss of appetite, diarrhea, reddened skin, skin bums, and reduced blood cell counts.

- Any symptoms would depend on the dose of exposure received. The ctoser you are to the incident site, the more possibility there is of experiencing radiation sickness symptoms.
- Low levels of radiation exposure do not cause any symptoms. Higher levels of radiation exposure may produce symptoms.
- 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 recetved in a short time, usually within minutes.
  - ✓ Should I Seek Medical Attention for Radiation Exposure During a Radiation Emergency?

- Only those with life-threatening injuries or those experiencing symptoms of radiation sickness should seek medical attention because being outdoors increases your risk of radiation exposure.
- Calling 9-1-1 is the preferred means of getting help/internal evaluation from medical professionals - instead of going directly to a hospital. This will help limit the transfer of radiation particles to others.
- Hospital protocol is to treat life threatening injuries first, followed by radiation exposure and treatment.

- If you are in a safe place and have minor injuries, stay inside until you receive additional information or instructions from authorities or local emergency responders on the scene.