Steps You Can Take to Limit Your Exposure to Radiation

SafetyNet #: 10

EXTERNAL RADIATION EXPOSURE CONTROL

X-rays and Gamma Rays: Your exposure to x-rays and gamma rays can be decreased using the following methods:

- **Time:** Keep your time of exposure to a minimum. Design your experiment to minimize time in the radiation field. Be familiar with your experimental protocol so you can work quickly and efficiently.
- **Distance:** Radiation intensity falls off quickly with distance (inverse square law), so maintain the maximum possible distance from the source at all times.
- **Shielding:** Use lead shielding.

**Diagnostic X-ray Machines:** When you use an x-ray producing machine or assist a patient during a radiograph, follow the above listed general guidelines for time, distance, shielding, and the safety techniques listed below.

- Wear a lead apron.
- Wear lead gloves and leaded glasses.
- Use a lead drape during fluoroscopy.
- Do not routinely hold or support a patient. Rotate your duties with co-workers.

**Beta Particles:** Beta particles exhibit minimal penetration but can produce a skin exposure. The time and distance methods of exposure reduction for x-rays and gamma rays listed above also apply to beta particles. When shielding beta particles, use Plexiglas, not lead. Beta particles that strike lead produce x-rays. Plexiglas approximately one quarter inch thick will effectively stop beta particles.

INTERNAL RADIATION EXPOSURE CONTROL

Radioactive material can be deposited within the body by absorption, inhalation, or ingestion. Follow the precautions below to minimize exposure by each route:

- **Absorption:** Wear a lab coat, disposable gloves, pants or a long skirt, and covered shoes (no sandals) while working with open sources of radioactivity. Change your gloves frequently. Avoid touching your eyes, nose or mouth while conducting experiments. Monitor your work area, wash your hands, and remove your lab coat when leaving the laboratory. Do not assume your co-workers have not contaminated the laboratory. Routinely check yourself with a survey meter.

- **Inhalation:** Work in a fume hood when millicurie amounts of open sources of radioactivity are used.
Ingestion:  Do not smoke, eat, or drink in the laboratory. Do not store food in refrigerators or freezers or other areas designated for chemical or radioactive material storage.

Contact

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Source URL (modified on 01/06/16 11:47am): http://safetyservices.ucdavis.edu/safetynet/steps-you-can-take-limit-your-exposure-radiation

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