



Procedures for Medical Emergencies Involving Radiation *

RADIATION EMERGENCY ALERT

If there is a call that radiation accident victims will be sent to the hospital, immediately notify the nuclear medicine department, health physicist, radiation safety officer and others who will be concerned with patient treatment.

In order to determine if a patient is contaminated, the ambulance and the patient should be monitored before being brought into the emergency room. If the patient is contaminated, take the patient to a designated room in the emergency department. If the patient has received external radiation exposure only and is not contaminated, normal trauma procedures can be used.

Place any floor covering used to control contamination.

Persons doing the monitoring, as well as the triage officer, should wear surgical scrub suits with gloves, shoe covers, and film badges and/or pocket dosimeters.

EMERGENCY SUPPLIES

In the event of a radiation emergency involving contamination, bring the following supplies to the corridor outside the emergency room or to an adjacent room:

1. Surgical caps
2. Surgical scrub suits
3. Surgical masks
4. Plastic gloves
5. Film badges and/or pocket dosimeters
6. Respirators (if necessary)
7. Adhesive tape
8. Plastic sheets and bags
9. Surgical gowns
10. Shoe covers
11. Geiger counters
12. Filter paper for smears
13. Signs and labels stating "radioactive material" and/or "radiation area"
14. Cotton-tipped applicators
15. Large barrels, marked with radiation signs, in which all contaminated liquids and clothing may be placed.

HANDLING OF CONTAMINATED CASUALTIES

Priority for treatment or decontamination generally will be determined by the seriousness of non-radiation injury, the levels of skin or clothing contamination, and the possibility of radionuclides entering the body through contaminated wounds. In general, trauma is more serious than contamination and must be treated first if it is life-threatening. All bleeding must be stopped and other life-support procedures instituted prior to decontamination. Collect all urine for at least 24 hours in appropriately marked containers.

DETECTION OF CONTAMINATION OF WOUNDS

1. Survey wound areas with a Geiger-Mueller (G-M) Survey Meter. If the surrounding area is contaminated, the wound is considered to be contaminated.
2. Wipe separate sterile, moistened cotton-tipped applicators over the wound and area around the wound prior to treatment. Place the applicators in individual envelopes which list the patient's name, date, time and location wiped.

DETECTION OF RADIONUCLIDE CONTAMINATION OF THE SKIN

1. Make a G-M survey quickly over the entire body with the clothes on.
2. If radioactivity is found, remove the clothing and re-survey.

3. If contamination is found or suspected, wipe a cotton-tipped applicator over the area and place it in a labeled envelope for counting.
4. If contamination is found on the face, a sterile, moistened cotton-tipped applicator should be wiped gently about the anterior nares (not deep in the nose) and placed in a labeled envelope for counting.

DECONTAMINATION PROCEDURES

Gross Whole Body Contamination

1. Remove patient's clothing.
2. If areas of high levels of radioactivity are found, localize and mark.
3. Seal open wounds with plastic and/or waterproof adhesive tape to prevent contamination being washed into the wounds.
4. Shower or wash with warm water and soap, taking care that the contamination from high level areas is washed off rather than spread over the rest of the body. Do not abrade the skin. All contaminated water should be kept in appropriately marked containers.
5. As soon as body contamination is lowered, begin wound treatment or, if no wounds are present, shift to localized skin decontamination.

Localized Skin Contamination

1. Mark the area of skin contamination.
2. Begin treatment of area of highest contamination.
3. **Do not injure or abrade skin.**
4. Do not spread contamination to other areas of the skin.
5. Wash with water and soap using a gauze pad. Save all contaminated water in specially marked containers.
6. Put gauze pads used for decontamination in a plastic bag and label.
7. Re-survey, using a G-M counter and record results.
8. Repeat steps 5 and 7 as necessary.

Contaminated Wounds

1. Encourage bleeding when possible.
2. Irrigate with copious amounts of saline. Save contaminated saline in specially marked containers.
3. **Do not wash skin contamination into the wound.**
4. Re-survey wound at periodic intervals using a G-M counter or wipe with sterile cotton-tipped applicator. Record findings.
5. Decontaminate skin around the wound.
6. When wound and surrounding skin are decontaminated, seal area with plastic or waterproof adhesive tape.

Eye Contamination

1. The only treatment for cornea contamination is copious irrigation.
2. Sample irrigation fluid at frequent intervals, label samples and save for counting. Save irrigation fluids in specially marked containers.
3. After decontamination, treat irrigation-induced conjunctivitis.

Contamination of Body Entrance Cavities

1. Survey and record results.
2. Make sure the cavity is actually contaminated and not the surrounding area.
3. Evaluate and decontaminate surrounding area.

4. Irrigate with copious amounts of water or normal saline. Save all contaminated fluids in appropriately marked containers.
5. Gently swab with moistened cotton-tipped applicator.
6. Re-survey.
7. If necessary, and not irritating, use cotton-tipped applicator moistened with soap.

Contaminated Hairy Areas

1. Survey and record results.
2. Wrap or position patient to avoid spread of contamination.
3. Wash with soap and save all contaminated fluids in appropriately marked barrels.
4. Dry with clean uncontaminated towel. Do not shave hair. If necessary hair may be cut, but do not injure skin.
5. Re-survey and record.
6. If contamination persists, repeat above steps.

Disposition of Patient

Once the patient has been treated for both trauma and contamination, transfer can be made to an appropriate area within the hospital. Collect all urine for 24 hours. Repeat monitoring of all contaminated areas.

NOTIFICATION OF APPROPRIATE AUTHORITIES

1. Notify Nuclear Regulatory Commission.
2. Notify your state's department of radiological control and health services.
3. Do not notify the newspapers or make any public statements relative to the situation until they have been cleared by the Radiation Safety Officer, Administration and Public Relations.

WASTE DISPOSAL

1. Collect contaminated water and put in plastic containers for sampling and appropriate disposal.
2. Put contaminated disposable supplies in plastic bags for disposal.
3. Keep contaminated equipment in the controlled area until decontaminated.

PERSONNEL DISPOSITION

1. All persons entering the control area will be dressed and equipped as the situation warrants.
2. Survey all persons when they leave the control area.
3. Personnel contamination will be handled in the same manner as described above.
4. When dressed in their street clothes, all personnel will again report to a control point for a final recorded survey.
5. Request all personnel to collect successive urine samples for analysis of radioactivity, if the situation warrants.
6. The ambulance and ambulance personnel will remain at the hospital until surveyed and declared free of contamination.

LIMITS OF PERSONNEL EXTERNAL RADIATION EXPOSURE

1. All practical efforts will be made to keep personnel exposure to less than one (1) rem.**
2. The allowance of greater personnel exposures will be at the discretion of the health physicist.

** Higher levels can be chosen for life-threatening situations.

EMERGENCY TELEPHONE NUMBERS

Health Physicist _____ Nuclear Medicine Physician _____
 Radiation Safety Officer _____ Nuclear Medicine Technologist _____
 Hospital Administrator _____ Public Relations _____
 Nursing Supervisor _____ Others _____

* Adapted from the Medical Radiation Emergency Plan of the Penn State Hershey Medical Center, Hershey, PA.