CARE OF ACCIDENTAL RADIATION EXPOSED PATIENT

POLICY:

Ambulance Staff, Emergency Department Staff, and Radiology Staff will initially respond to notification of patients with radioactive contamination or radiation exposure.

PURPOSE:

Guide the actions of staff and protect facility, staff, and patients from radioactive exposure.

SPECIAL INFORMATION:

A. Obtain On-Site Information
   1. Number and condition of victim(s) – uncontaminated.
   2. Number and condition of victim(s) – contaminated.
   3. Type of radioactive isotopes involved.
   4. Type of radiation accident:
      a. Irradiation.
      b. Contamination.
      c. Incorporation.

B. Notification
   1. Director of Emergency Room: EDP on duty.
      a. Decides whether to implement radiation accident plan.
      b. Notifies (2-6).
      c. Takes charge of victim(s) or designates person to do so.
   2. Director of Nursing: House Supervisor
   3. Radiation Safety Officer:
   5. Director of Radiology.
   6. Director of Marking and Public Relations.
   7. Administration.

PROCEDURE:

A. Emergency Department Preparations
   1. Evacuation of Emergency Department
      a. All patients or others near the route from the ambulance entrance to decontamination room(s) to be moved to other areas.
      1. Move patients with non-critical problems to waiting rooms, or other suitable areas.
      2. Move patients with critical problems to another section of the Emergency Department with continued medical supervision and care.
      3. Remove all pregnant, or possibly pregnant, women to areas free from possible contamination.
2. Preparation For Arrival of Victim(s)
   a. Floor
      1. The route from ambulance entrance to the decontamination room(s) is to be covered with a roll of plastic, paper, or sheets. The covering must be secured to the floor with tape.
      2. The above route is to be marked off with ropes and marked with “RADIOACTIVE” signs until cleared by the Radiation Safety Officer.
   b. 1. The room(s) should have separate ventilation systems; if not, turn off ventilation – Call Maintenance Department.
      2. The floor is to be covered with plastic or paper floor covering (or sheets) and secured to the floor with tape.
      3. A strip of tape on the floor at the entrance to the decontamination room to delineate contaminated side from decontaminated side.
      4. The Radiation Safety Officer will designate a person with a survey meter to stay at the entrance of the decontamination room and monitor all personnel, equipment, and samples that leave the room.
      5. Nonessential equipment is to be removed from the room, or to be covered with plastic.
      6. Light switches and cabinet handles are to be covered with plastic or tape.
      7. Charge nurse will designate a person to stand outside of room to obtain supplies for medical and decontamination teams.
      8. Provide large containers with plastic bags to receive discarded contaminated clothes, gauze, supplies, etc.

3. Decontamination Team
   Decontamination Team must change into full surgical attire, with hood, scrub grown, and boots.
   a. Physician:
      1. Takes charge of medical problems of patient.
      2. Directs decontamination procedure.
   b. Nurse:
      1. Responsible for collecting all specimens (blood, urine, etc.)
      2. Swabs contaminated areas of patient for Radiation Safety Officer.
      3. Monitors patient’s vital signs.
   c. Radiation Safety Officer:
      1. Monitors patient and contamination team during care of patient.
      2. Responsible for analysis of all swabs of contaminated areas of patient.
      3. Records on chart the areas and levels of contamination.
   d. Circulating Nurse:
      1. Assists team as needed.
      2. Labels all specimens.
      3. Obtains all supplies from outside decontamination room from all persons stationed at door.

B. Patient Arrival
   1. Physician and Radiation Safety Officer to examine patient in ambulance on arrival.
      a. Physician determines if patient is critically injured.
         1. If critical, patient is moved directly to decontamination room.
         2. If not critical, patient’s clothes are removed in ambulance.
      b. Radiation Safety Officer determines if patient is contaminated.
         1. If patient is contaminated and not, critical, patient goes to decontamination room after clothes are removed.
         2. If patient is not contaminated, he/she goes, still dressed, to regular trauma room.
   2. Ambulance attendants stay by the ambulance until they and the ambulance are monitored for contamination.
      a. If not contaminated, they are released for duty.
      b. If contaminated, they will follow the Radiation Safety Officer’s instructions for decontamination.

C. Decontamination of Patient
   1. Airway, breathing and cardiovascular status must be attended to first.
      a. Physical examination, lab, x-rays, and IV’s done as required to stabilize patient.
   2. Patient Contamination Evaluation
      a. Remove patient’s clothes, if not done in ambulance, and place in plastic bags and seal.
      b. Radiation Safety Officer monitors entire patient, including back.
      c. Circulating nurse records areas and levels of contamination.
      d. Cotton swab samples are taken of all contaminated areas and stored for later analysis.
3. Physical Decontamination of Radioactive Areas
   a. Contaminated Open Wounds (these have first priority)
      1. Begin decontamination.
      2. Wash with normal saline for three (3) minutes.
      4. If contamination persists:
         1. Wash with 3% hydrogen peroxide.
      5. After wounds are decontaminated, cover them if other areas need to be decontaminated.
   b. Contaminated Intact Skin
      1. Wash with soap and tepid water, gently scrubbing with a soft brush for three (3) minutes.
      2. Monitor – Repeat Step 1 as needed.
      3. If contamination persists:
         1. Use Dawn Dish Soap with exfoliating sponge.
         2. If those fail, use Clorox either full strength for small areas, or diluted for large areas.
   c. Contaminated Hair
      1. Shampoo with mild soap for three (3) minutes.
      2. Monitor – Repeat Step 1 as needed.
      3. If contamination persists:
         1. Clip hair off.
         2. Do not shave scalp.

D. Removal of Patient From Decontamination Room
   1. Dry patient thoroughly.
   2. Re-swab all previously contaminated areas.
      a. Label swabs with site, time and post-decontamination.
      b. Give to Radiation Safety Officer for future analysis.
   3. Radiation Safety Officer monitors patient’s entire body.
   4. New covering is placed on floor from patient to door.
      a. Clean stretcher is brought in.
      b. Patient is transferred to new stretcher by attendants not involved with decontamination procedure.
      c. Radiation Safety Officer monitors stretcher and wheels as stretcher leaves decontamination room.

E. Decontamination Team Exit
   1. Each team member goes to clean line at door and removes protective clothing, placing all items in plastic bag(s), sealing bags and marking them “CONTAMINATED”.
      a. Remove outer gloves first, turning them inside-out as they are pulled off.
      b. Remove all tape at cuffs and sleeves.
      c. Remove outer surgical gown, turning it inside-out; avoid shaking.
      d. Remove surgical shirt.
      e. Remove head cover.
      f. Pull surgical trousers off over shoe covers.
      g. Remove shoe covers from one foot at a time and let the Radiation Safety Officer monitor the shoe; if the shoe is clean, then step over the clean line; remove the other shoe cover and have shoe monitored.
   2. Have feet and hands monitored for a final time.
   3. Take shower (if necessary).

F. Responsibilities of Radiation Safety Officer
   1. Monitoring
      a. Ambulance and attendants.
      b. Route from ambulance entrance to decontamination room.
      c. Decontamination room, patient and personnel.
   2. Decontamination of area, if found in one (1) above.
   3. Analysis of all specimens taken of potentially contaminated areas.
   4. Proper disposal of any contaminated items or water.
   5. Examination of all film badges and dosimeters, and proper follow-up, if indicated.

G. 24-Hour Assistance
   For 24-hour assistance in dealing with radiation accidents, call:
   REACTS – Oak Ridge National Laboratory
   (615)576-1004
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