Radiation Exposure/Decontamination

General Information:

Patients exposed to radioactive material may come from the following general sources:

- ➢ The Fermi Reactor, Monroe, MI.
- ➢ As a result of an accident during the transportation of radioactive materials.
- ➢ Laboratories, such as Industrial, Radiography, Nuclear Medicine, Radiation Therapy, etc.
- ➢ Terrorist attack involving a radioactive release from a radiation dispersal device ("dirty bomb").

There are two general categories of radiation incidents (these may occur in combination):

- ➢ External exposure: irradiation from a source distant or in close proximity to the body.
- ➢ Contamination: unwanted radioactive material in or on the body.

Discovery:

- ➢ The Emergency Center (EC) is notified by an outside agency of an incident that may result in contaminated patients. This may be from Police, Fire, EMS, Oakland County Emergency Operations Center, or others.
  - ➢ The EC should obtain as much information as possible concerning the nature of the radiation exposure or contamination, such as:
    - ➢ *Where was the accident?*
    - ➢ *How may people are involved?*
    - ➢ *How much radioactivity is involved, type, and form?*
    - ➢ *Has any bodily injury occurred as a result of the accident?*
    - ➢ ***Instruct caller to bring the radioactive contamination patient to the decontamination room in the EC.***
  - ➢ One or more contaminated patients arrive at the EC without notification.

Initial Assessment:

The EC will notify the Radiation Safety Officer and Nuclear Medicine physician.

The Radiation Safety Officer and Nuclear Medicine physician will have responsibility to monitor patients and personnel and the authority to control movement of the patients and personnel.

The EC will assess its ability to treat the expected incoming patients. Assessment criteria include:

- ➢ EC staffing levels.
- ➢ Number of current patients.
- ➢ Current patient conditions.
- ➢ Expected number of incoming patients.
- ➢ Expected condition of incoming patients.

Activation of Emergency Management Plan:

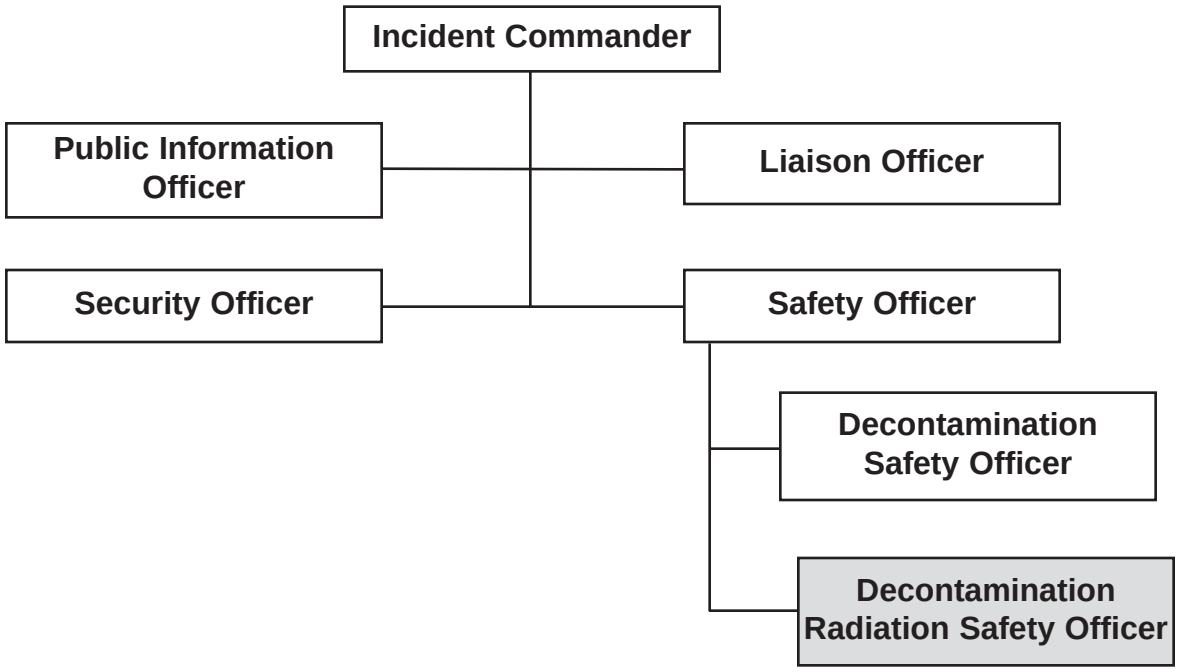
If the EC (in collaboration with the Radiation Safety Officer) determines that the incident will significantly disrupt care in the EC or hospital, they are to activate the Emergency Management Plan. The EC will evaluate patient status and discharge or admit patients as appropriate to reduce the patient load in the department.

Hospital Notification:

The EC will contact the Hospital Operator at 18888 and activate the appropriate code (Yellow or Orange).

Initial Response:

- ➢ The Senior EC Administrator or Manager on duty is in charge until the Incident Command System (ICS) is established.
- ➢ The Radiation Safety Officer may serve as the Incident Commander until ICS is established.
- ➢ Hospital personnel are to return to their departments and remain unless relieved by their supervisor.
- ➢ Representatives from EC, Hospital Administration, Public Relations, Safety, and Security will meet in the EC Control Center (suggested location: EC Conference Room, First floor) to fill the activated positions and assess the required response.
- ➢ The ICS is activated. Initial positions to be filled are:
  - ➢ Incident Commander (Command Section) **(suggested commanders: Medical or Hospital Administrator, Chief Emergency Medicine, Administrative Emergency Center Physician, Director Emergency Nursing, Administrative Manager Emergency Center, Administrative Representative)**
  - ➢ Public Information Officer (Command Section)
  - ➢ Safety Officer (Command Section) and Radiation Safety Officer (Command Section)
  - ➢ Liaison Officer (Command Section)
  - ➢ Security Officer (Command Section)
  - ➢ Decontamination Radiation Safety Officer (Radiation Safety Officer)
  - ➢ Patient Care Director (Operations Section)
  - ➢ Medical Staff Unit Leader (Operations Section)



Response Plan:

Management and Treatment:

- ➢ Treat and stabilize life-threatening injuries.
- ➢ Prevent/minimize internal contamination.
- ➢ Assess external contamination and decontamination (use survey, wash, rinse sequence).
- ➢ Contain contamination to Decontamination Room.
- ➢ Minimize external contamination to medical personnel.
- ➢ Assess internal contamination.
- ➢ Assess local radiation injuries/burns.
- ➢ Follow up patients with significant whole body irradiation or internal contamination.
- ➢ Counsel the patient and family about potential long-term risks/effects.

General Precautions:

- ➢ Pregnant employees should not treat contaminated individuals.
- ➢ Female personnel of childbearing age should not enter treatment room designated for radioactive contaminated patients.
- ➢ Persons with open cuts or sores should not treat radiation accident victims.
- ➢ Care should be exercised to avoid radioactive contamination of the mouth of the victim or those attending him/her. Eating, drinking, and gum chewing are not allowed while treating contaminated individuals.
- ➢ Where possible, use long-handled forceps to pick up contaminated materials.
- ➢ Place bags of contaminated and suspected contaminated items to be monitored, as far away as possible from patient and attendants.
- ➢ Avoid spreading contamination. Do not walk in contaminated areas unless necessary and only after suitable precautions have been taken, e.g., OR gowns and protective shoe covering.
- ➢ Emesis, urine, or stool from a contaminated patient must be covered with absorbent material and plastic and the area cordoned off to eliminate spread of contamination. Disposal of such material will be directed by the Radiation Safety Officer.

Radiation Safety Officer/Nuclear Medicine Physician

- ➢ Proceed immediately to the EC. Obtain the survey instrument from the decontamination cabinet.
- ➢ Consult EC Physician and survey the patient for radiation.
- ➢ After any life-threatening injuries are treated and the patient stabilized, the Nuclear Medicine physician may proceed to decontamination in conjunction with the Radiation Safety Officer and Nuclear Medicine Radiation Safety designate.
- ➢ If the patient has not yet arrived, wait at the ambulance entrance.
- ➢ Monitor as the situation requires, including ambulance driver, attendants, orderlies, nurses, doctors, patients, and any one who might have become contaminated. All monitoring data are to be recorded as obtained. Data relating to the patients should be added to their charts.
- ➢ Advise physicians on decontamination and indicate anatomical regions where smears should be taken from.
- ➢ Supervise:
    - Disposition of contaminated objects, clothing, and waste materials.
    - Room decontamination.
    - Clean up as required.
- ➢ Radiation Detection and Decontamination Equipment
    - Portable monitor GM survey meter
    - Radiation badges
    - Stop watch
- ➢ Protective Clothing (disposable when possible)
    - Gowns, coveralls, or surgical scrub suits
    - Rubber or plastic gloves
    - Rubber or plastic shoe covers
    - Dust respirators

Patient Flow

- ➢ Radiation exposed patients are placed in the designated room, the decontamination room.
- ➢ Following decontamination, patients are taken to Nuclear Medicine for monitoring or admitted into a private room, if necessary.
- ➢ Patients needing immediate surgery are taken to OR.
- ➢ Discharged patients are followed up by Nuclear Medicine if necessary.

Patient Care

- ➢ Outer clothing and shoes should be removed immediately, double-bagged and labeled with patient's name.
- ➢ The stretcher, sheets, clothes, etc., of the patient should be left in the Decontamination Room until surveyed by the Radiation Safety Officer or designate, or the Nuclear Medicine physician, and either released or disposed of properly.

Personnel

- ➢ Ambulance personnel, aides, etc., must remain in the Holding Room until surveyed and released. Until surveyed, EC personnel must not handle other patients.
- ➢ Personnel should wear disposable gloves, gowns, and shoe covers at all times when working with a radioactive contamination victim and discarded in the place designated by the Radiation Safety Officer.
- ➢ Personnel will be assigned radiation badges by the Radiation Safety Officer.

Medical Care

- ➢ If bodily injury has occurred, the EC physician will be responsible for these aspects of the patient's care. He/she will be advised by the Nuclear Medicine physician and Radiation Safety Officer. If admission is necessary, the patient may be admitted to Surgery or to Medicine as decided by those attending the patient.
- ➢ If there is no injury, the nuclear medicine physician will be responsible for the patient.
- ➢ In either case, it is suggested that the Nuclear Medicine physician be responsible for giving the information relating to the condition of the patient to the Hospital Information Officer. The Hospital Information Officer, the Hospital Radiation Safety Officer, and the attending physician will advise the Nuclear Medicine physician.
- ➢ The responsibility of the Nuclear Medicine physician is to advise the EC staff in case of life-threatening injury. In the case of nonlife-threatening injury, he/she will assume the responsibility for the patient's care.

Rooms and Belongings

- ➢ All rooms used in the examination and treatment of radioactive contamination cases must be surveyed by the Radiation Safety Officer or designate before release. If necessary, these rooms must be decontaminated before being used for any other purpose.
- ➢ All materials collected for radionuclide analysis (clothing, swabs, blood, urine, etc.) should be labeled and saved. These are to be sent to Nuclear Medicine.

Contamination Control and Confinement

- ➢ Plastic bags to receive contaminated clothing, etc.
- ➢ Decontamination detergents and foam.
- ➢ Plastic test tubes and magic markers.
- ➢ Forceps
- ➢ Radiation Accident Exposure Log for Clipboard
- ➢ Lead shielded container
- ➢ List of Contact numbers
- ➢ Rope and stand
- ➢ Absorbent paper
- ➢ Sponges, soap, and tissues
- ➢ Alcohol swabs and cotton swabs
- ➢ Radiation signs and tags
- ➢ Masking tape, adhesive tape, or electronic tape.

Sustained Actions:

The Incident Commander is responsible to continually assess the adequacy of the response of the hospital to the incident and to activate the necessary portions of the Incident Command System.

Termination and Recovery:

All or portion of the ICS may be terminated when no longer needed. When the Incident Commander (IC) determines that the normal resources and organization can handle the situation, they may terminate the response. When final termination is made, the IC will contact the Hospital Operator and place the hospital in Code Green.

An assessment of every incident will be performed.

Source: William Beaumont Hospital, Royal Oak, MI.