



# MANAGEMENT OF OUTPATIENTS CONTAINING RADIOACTIVE MATERIAL

Patients who have been administered radioactive material and then released from a medical facility as an outpatient may arrive in the Emergency Department (ED) for a medical emergency. While these patients do not pose a health and safety risk to ED personnel, it is important for ED personnel to minimize their radiation exposure as low as reasonably achievable (ALARA) while caring for these patients.

## PATIENT CARE IS THE PRIORITY

The amount of radiation exposure medical personnel might receive from a patient who has been administered radioactive material will be minimal **and should not be** considered a reason to delay life-saving care.

## BACKGROUND

Medical facilities regularly treat patients with radioactive material for diagnostic imaging or treatment. The radioactive material may be administered such that it circulates in the body and is excreted, or it may be administered as a sealed source which decays away or is later removed. In either case, the patients are often released from the medical facility as long as they are not a health and safety risk to others. However, in some instances there may be requirements the patients must follow to keep the radiation exposure to other individuals as low as reasonably achievable (ALARA).

Occasionally, a patient will develop complications that require emergency medical care while they still contain the radioactive material. Standard personnel protective equipment (PPE) and practices used to protect ED personnel from bloodborne pathogens (BBP) will also provide protection from any radioactive material excreted from the patient. However, there are additional precautions ED personnel can take to keep their radiation dose ALARA.

**If the patient does not meet the criteria to be safely released from the medical facility, they are treated as an inpatient.**

## PATIENT RELEASE REQUIREMENTS

Patients who have been administered radioactive material may not be released from a medical facility unless the radiation exposure from the patient is below a level that is not a health and safety risk to other individuals. However, to keep radiation exposures ALARA, the release may be contingent upon the patient meeting certain criteria, such as maintaining specific distances from others and isolating from others for a specified amount of time.

### Considerations for releasing a patient administered radioactive material:

- > Amount of radioactive material administered
- > Type of radioactive material administered
- > Dose rate emitted from the patient
- > Patient's living situation (household members)
- > Patient's health (physical or mental)
- > Patient's willingness to follow isolation instructions

## PATIENT IDENTIFICATION

It may be difficult to identify if a patient has been administered radioactive material, especially if the patient is unresponsive or was treated at a medical facility not associated with UW Medicine. However, there may be some useful indicators.

- Patient's chart may contain information on the type of material, date of administration, patient isolation recommendations.
- Patient refers to a radioactive drug or a required isolation period.
- Discussion with family members indicate an isolation period for radiation protection purposes.
- Survey meter responds to patient (Geiger counter located in ED).

Radioactive materials commonly administered to patients are summarized in the table below.

| Radioisotope                | Drug name or form         | Typical out-patient isolation period |
|-----------------------------|---------------------------|--------------------------------------|
| Iodine-131                  | Sodium Iodide             | 4 days                               |
| Iodine-125                  | Sealed Seed               | None                                 |
| Lu-177                      | Lutathera, Pluvicto       | 4 days                               |
| Ra-226                      | Xofigo                    | None                                 |
| At-211                      | Anti CD38                 | None                                 |
| Tc-99m, F-18, TI-201, I-123 | Diagnostic imaging agents | None                                 |
| Y-90                        | Microspheres              | None                                 |

## REFERENCES

- [EH&S Focus Sheet: Radiation and Relative Risk](#)
- [EH&S Focus Sheet: Occupational Radiation Exposure During Pregnancy](#)
- [NRC Regulatory Guide 8.39, rev 1 – Release of Patients Administered Radioactive Material](#)
- [WAC 246-240-122 - Release of individuals containing unsealed radioactive material or implants containing radioactive material](#)

Contact EH&S, Radiation Safety at 206.543.0463 or [radsaf@uw.edu](mailto:radsaf@uw.edu) for more information.

## PATIENT MANAGEMENT

The amount of radiation exposure medical personnel might receive from a patient administered radioactive material will be minimal and should not be considered a reason to delay life-saving care.

Proper PPE and patient handling will minimize any radiation exposure to others associated with these patients. Patients are not released if they would be a significant hazard to the public or medical personnel.

- If the patient does not require isolation, do not delay any assessment/triage, or treatment.
- Laboratory samples can be sent to the lab in specially labeled containers – call the lab to obtain containers as needed.
- If the patient is within the isolation period, you may call Environmental Health & Safety (EH&S) Radiation Safety for advice, but do not delay any life-saving treatment.

**Normal working hours:** Call 206.543.0463

**After hours:** Call 206.685.8973 (UW Police) and ask for the EH&S Staff-on-Call (SOC)

- Use methods to minimize staff exposure.

### EXPOSURE REDUCTION TECHNIQUES

- > Minimize time spent very near to the patient, (< 1 meter) unless necessary for medical care.
- > Ensure PPE (gloves, gown, mask, eye protection) is sufficient for body fluid protection.
- > Utilize shielding, if provided and appropriate.
- > Avoid having pregnant staff attend to these patients until EH&S Radiation Safety confirms the risks are negligible.