Guideline at a Glance: Radiation Safety

The AORN Guideline at a Glance is a key component of the Guideline *Essentials*, a suite of online implementation tools designed to help the perioperative team translate AORN's evidence-based guidelines into practice. Each Guideline at a Glance highlights important elements of the full guideline and includes images, implementation steps, and the rationale for why these steps are important to promote safety and optimal outcomes for patients undergoing operative and other invasive procedures. Facilities can provide team access to the entire set of Guideline *Essentials* through a subscription to the multiuser, online edition (eSubscription) of the AORN *Guidelines for Perioperative Practice.* Individuals can obtain the same access through a subscription to the AORN Guideline eBook Mobile App. For more information about the complete set of implementation tools included in the Guideline *Essentials,* visit *https://www.aorn.org/guidelines/purchase-guidelines/guideline-essentials.*

RADIATION SAFETY OFFICER DUTIES

- Oversee the facility's radiation safety program.
- Monitor compliance with regulatory requirements.
- Assist in creating and enforcing organizational policies and procedures.
- Determine methods for monitoring and recording occupational exposure.
- Identify radiation safety problems and initiate, recommend, and verify corrective actions.
- Be present or designate an authorized user before and during radionuclide therapy.
- Control and maintain the surveillance program for radionuclides.

A radiation safety officer must be appointed in all facilities in which radiation by-products (eg, brachytherapy, stereotactic radiosurgery) are administered.

PATIENT EXPOSURE

- Establish the pregnancy status of all premenopausal patients.
- Notify the surgeon and anesthesia professional when a patient has declared she could be pregnant.
- If the patient is pregnant, place lead shielding between the fetus and the source of radiation when possible.
- Move the patient's extraneous body parts out of the path of the radiation beam.
- Place lead or lead-equivalent shielding over the patient's thyroid, gonads, and breasts when these body parts are near the radiation source.
- Place shielding between the patient and the radiation source but not within the path of the x-ray tube beam.
- Place the patient as close as possible to the image intensifier side of the fluoroscopic unit and away from the tube side of the unit.
- Monitor the radiation dose received by the patient and inform the operator when the peak value for notification is reached.

Patients should be protected from unsafe levels of ionizing radiation.

http://dx.doi.org/10.1016/S0001-2092(16)30936-X

DOCUMENTATION

Document the following in the patient's health record:

- Radiation dose (diagnostic and therapeutic)
- Type and location of radiation protection
- Pre-radiation and post-radiation skin assessment

Documentation of the radiation dose provides the information needed to calculate the lifetime patient dose. A high lifetime dose has been associated with cancer and other adverse effects that may occur after a prolonged time.

PATIENT EDUCATION

- Consult with the physician regarding the need for post-procedure patient education and the timing of follow-up care for a patient who has had an image-guided procedure.
- Educate the patient about the signs and symptoms of overexposure to radiation (eg, gastrointestinal symptoms, radiation burns, potential hair loss).
- Inform the patient of the potential time frame for the appearance of signs and symptoms.
- Explain the importance of receiving follow-up care from the physician who performed the procedure.

Post-procedure education informs the patient of the potential cause of a skin reaction if one occurs. Follow-up care is to assess and, if necessary, treat the patient for acute radiation syndrome.

OCCUPATIONAL EXPOSURE

- Maintain the greatest distance possible from the radiation sources.
- Limit the amount of time spent close to the source.
- If you are the equipment operator, alert personnel in the treatment room before activating the equipment.
- Stand on the image intensifier side of the fluoroscopy unit whenever possible.
- Use slings, traction devices, and sandbags to maintain the patient's position during radiation exposure.

The radiation dose to personnel decreases proportionally as the distance between the radiation source and the person increases. Alerting personnel before equipment activation allows them to maintain as great a distance as possible from the source.

SHIELDING DEVICES

- Use shielding devices with all sources of radiation.
- Use equipment-mounted and mobile shields in addition to personal shields when required to remain near the patient or the sterile field.
- Wear a protective cap if required by the radiation safety program.
- Wear a protective apron that covers the body from the area below the thyroid collar to the knee.
- Wear a wraparound apron if your back will be exposed to the radiation beam.
- Wear a thyroid shield during fluoroscopic procedures.
- Wear lead eye protection if you are near the source of the radiation beam.
- Use sterile radiation shield drapes as an alternative to or in addition to equipment-mounted and mobile shields when permitted by the requirements of the invasive procedure.
- Wear protective gloves when your hands are near but not in the primary x-ray beam.

Use of equipment-mounted and mobile shields allow staff members to stay close to the patient and provide coverage to parts of the body not otherwise covered by personal protective equipment intended for radiation protection.