



SEC³URE RADIATION SAFETY | Facility HCIR Monitoring Policy

Facility:

Policy Effective Date: MM/DD/YYYY

Policy Expiration Date: MM/DD/YYYY

Last Reviewed Date: MM/DD/YYYY

Next Review Date: MM/DD/YYYY

Responsible Party:

Job Title:

Contact:

PURPOSE

To provide a program for Healthcare Industry Representatives (HCIRs) for monitoring and reducing radiological exposure in the clinical support setting while performing work-related activities.

In addition, these radiation safety practices ensure compliance with the state of

State Regulation: Applicable Text

POLICY

It is the policy of this facility that:

- A. Occupational exposure to radiation will be minimized, and As Low As Reasonably Achievable (ALARA) guidelines will be enforced.
- B. HCIRs who are in proximity to radiation while performing work-related activities will wear radiation monitors (dosimeters) with monitoring in compliance with facility policy and state regulations (if in existence).
- C. HCIRs will complete an initial Radiation Safety Training designed for Health Care Industry Representatives and maintain continuous radiation safety evaluations every three years thereafter by way of training/testing or employer statement.

PROCEDURES

1. MINIMIZE EXPOSURE

ALL Healthcare Industry Representatives (HCIRs) will:

A. Minimize occupational exposure

HCIRs will minimize the amount of time spent in proximity to the radiation.

B. Shield themselves from exposure

Whenever possible, shielding will be used to provide attenuation of the radiation being delivered to the HCIR who are potentially exposed. Types of shielding available may include, but are not limited to:

- walls, windows, control booths, and doors;
- mobile rigid shields on wheels for transport to various areas;
- ceiling-suspended transparent barriers;
- flexible aprons, vests, skirts, thyroid shields, and gloves; and leaded safety eyeglasses with side shields

C. Wear wrap-around aprons when applicable:

HCIRs who may have to stand with their backs to the radiation beam will wear wrap-around aprons to decrease the risk of exposure.

D. Wear thyroid shields when applicable:

Thyroid shields will be worn by HCIRs to protect the thyroid whenever the likelihood of the procedure (such as orthopedic spinal fixation procedures) places them at higher risk because of increased exposure.

E. Keep out of the direct x-ray beam:

HCIRs will keep all body parts out of the direct x-ray beam.

2. MONITOR RADIATION EXPOSURE LEVELS (DOSIMETERS)

Radiation exposure shall be tracked via the [SEC³URE.com](https://www.sec3ure.com) process.

- A. HCIRs who are in proximity to radiation while performing work-related activities or work with radioactive material will be required to wear at least one radiation monitor approved by the [National Voluntary Laboratory Accreditation Program](https://www.nvlap.gov/) (NVLAP). If HCIR does not have dosimeter, all work will be restricted to non-radioactive tasks.
- B. When using single monitoring devices, HCIRs will wear them on the collar or chest (as indicated by the dosimeter) OUTSIDE of the lead - Personal Protective Equipment (PPE). An EDE 2 calculation will be performed for assigned dose, if applicable.
- C. The HCIR must confirm through [SEC³URE.com](https://www.sec3ure.com) that dosimetry is completed in one of the following ways:
- 1) Provided under subscription to the [SEC³URE.com](https://www.sec3ure.com) Radiation Exposure Package in which monitors should be submitted to SEC³URE after each quarterly wear period to be uploaded to individual exposure reports accumulating quarterly, yearly, and lifetime exposure information, **or**
 - 2) Either self-purchased or provided by an employer with regular, quarterly reports provided to SEC³URE from an approved National Voluntary Laboratory Accreditation Program (NVLAP) lab containing Deep Dose, Eye/Lens Dose, and Shallow Dose readings. Such reports will also be uploaded to individual exposure reports accumulating quarterly, yearly, and lifetime exposure information.

3. MONITOR RADIATION EXPOSURE DURING PREGNANCY (DOSIMETERS)

Healthcare Industry Reps (HCIRs) may voluntarily monitor fetal radiation exposure.

- A. Declaration of pregnancy is a voluntary option. HCIRs will not be required to disclose pregnancy; however, personnel are strongly encouraged to declare to your employer so that a fetal badge subscription can be established.
- B. HCIRs who have declared their pregnancy will wear additional radiation monitors or radiation dosimeters at the waist (fetal position) UNDER the lead PPE.

4. COMPLETE RADIATION SAFETY TRAINING AND EVALUATION

The use of radiation in the healthcare setting means that all those who work in this environment need to be aware of the risks and take appropriate precautions to protect themselves from exposure. Relevant training, such as, “*Radiation Safety Training for Health Care Industry Representatives*” should be completed as soon as possible. After completing an initial training, an evaluation of radiation safety knowledge will also be required every three years by way of training/testing or employer statement.

DEFINITIONS

Attenuation: Process by which a beam of radiation is reduced in intensity when passing through material.

Authorized User: A physician or someone who has received special training or is credentialed to use radioactive materials and understands radiation physics, radiobiology, and radiation safety principles.

Beam: A unidirectional flow of particle or electromagnetic radiation.

Deep-dose Equivalent (DDE): The dose equivalent at a tissue depth of 1 cm; applies to the external whole body exposure.

Distance: The physical space between a source of radiation and its target (or the distance away from a source of radiation). The greater the distance an individual or target is from the source of radiation, the lower the amount of radiation exposure. The inverse-square law applies: at a 4-ft distance from the source, the exposure received is approximately one-quarter of that received at a 2-ft distance; likewise, at a 6-ft distance, the radiation is one-sixteenth of that received at a 2-ft distance.

Dosimeter: A passive device for determining the external radiation exposure a person has received during a specific wear period.

Equipment Operator: A person with demonstrated qualifications and competency to operate a fluoroscopic system while exposing a patient to radiation. Per the American College of Radiology technical standard, only a physician is qualified to hold this title. Registered and/or licensed radiologic technologists or radiation therapists may perform fluoroscopic procedures as ordered by a physician.

Exposure: A measure of the total quantity of radiation reaching a specific point measured in the air. The unit of measure is based on the amount of ionization produced in air by a specified amount of x-ray energy. Radiation exposure is controlled in three ways: time, distance, and shielding.

Fluoroscopy: Observation of the internal features of an object by means of the fluorescence produced on a screen by x-rays transmitted through the object.

HCIR: Healthcare Industry Representative (Vendor): A person designated by an outside, third-party company who provides services to this facility or system.

Occupational dose limits:

- Total effective dose equivalent (TEDE) to radiation personnel: 5 rem (50 mSv).
- Dose equivalent to the eye: 15 rem (150 mSv).
- Shallow-dose equivalent to the skin, extremities: 50 rem (500 mSv).
- TEDE to any other individual organ: 50 rem (500 mSv).
- TEDE to an embryo or fetus of declared pregnant woman: 500 mrem (5 mSv) for the entire gestational period and 50 mrem/mo (0.5 mSv/mo)
- Minors: 10% of worker limit.

Public Dose Limits: Members of the public: 0.1 rem (1 mSv/mo).

Personal Protective Equipment (PPE): I.e. Lead apron: A material worn which provides shielding to protect personnel from scatter radiation.

Radiation Absorbed Dose (Rad): 100 Rad equals 1 Gray (gy) = 1 J/kg.

Roentgen Equivalent in Man (Rem): 100 Rems equal 1 Sievert (Sv) = 1 J/kg. A special unit of dose equivalent. The dose equivalent in rems is numerically equal to the absorbed dose in rads multiplied by the quality factor (or radiation weighting factor). Note: For x-ray/gamma-ray the quality factor is (1) one.

Scatter Radiation: Radiation is scattered when an x-ray beam strikes a patient's body, as it passes through the patient's body, and as it strikes surrounding structures (for example: walls, buckys, tables, or furniture)

Shielding: Radiation interacts with any type of material, and the amount of radiation is reduced during passage through materials. Lead will attenuate most scattered diagnostic x-rays. Gamma radiation from medically useful radionuclides is substantially attenuated by 1 to 2 inches of lead isotope energy dependent.

Time Factor: The less time a person is exposed to radiation, the less radiation one absorbs. Doubling the time one spends in a radiation area (same distance and radiation intensity) will double one's exposure.

X-ray Tube: The radiation sources for x-ray and fluoroscopic machines.

REFERENCES

"[ST-33] Statement on Health Care Industry Representatives in the Operating Room" – American College of Surgeons; September 2005

"AORN Position Statement on the Role of the Health Care Industry Representative in the Perioperative Setting" – Association of PeriOperative Registered Nurses, 2014

"IMDA Recommended Health Care Industry Representative ("HCIR") Credentialing Criteria" – 2014

"OSHA Standards -29 CFR- 1910.1096, Ionizing Radiation", Occupational Safety and Health Administration, 2014

"The Joint Commission, Standards EC.02.01.01, EC.02.02.01, EC.02.04.01, EC02.04.03, EC.02.06.05, HR.01.02.05, HR.01.05.03, PI.01.01.01, PI.02.01.01

Additional state regulatory references:

State Regulation: [Reference](#)

State Regulation: [Reference](#)

State Regulation: [Reference](#)

Do you have any questions?

🔗 [Review the SEC³URE Radiation Safety FAQs](#) | *PDF

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