AST Standards of Practice for Ionizing Radiation Exposure in the Perioperative Setting

The following Standards of Practice were researched and authored by the AST Education and Professional Standards Committee and have been approved by the AST Board of Directors. They are effective October 8, 2010.

AST developed the following Standards of Practice to support health care facilities in the reinforcement of best practices related to ionizing radiation exposure (subsequently referred to as X-rays or radiation) in the perioperative setting. The purpose of the Standards is to provide an outline that health care providers in the perioperative setting can use to develop and implement policies and procedures for minimizing radiation exposure. The Standards are presented with the understanding that it is the responsibility of the health care facility to develop, approve and establish policies and procedures for radiation safety for the surgical patient and personnel according to established health care facility protocols.

Rationale

The following are Standards of Practice related to minimizing radiation exposure. Soon after X-rays were discovered in 1895, the harmful effects were also discovered and published. The first report of harmful physical effects was initially published in the *British Medical Journal* in 1896.[23] As more individuals sustained radiation injuries, and when radiologist William Ironside Bruce died in 1921, public concern rose and lead to the development of organizations such as the US-based National Council on Radiation Protection and Measurements, and the International Commission on Radiation Protection.[22]

These agencies have developed many recommendations and guidelines that aid health care facilities in the development of policies and procedures to reduce patient and health care worker (HCW) exposure to X-rays. One of the most important principles that resulted is ALARA.[17] The general philosophy followed by most health care facilities in minimizing radiation dose is that all exposures must be justified; and, further, that they must be kept "as low as reasonably achievable" (ALARA); economic and social factors are also taken into account.[17] The ALARA concept applies to all HCWs, who may be exposed to radiation. It also represents a commitment by health care facilities to provide an environment where ALARA can be effectively implemented on a daily basis. The surgical personnel should be involved in supporting ALARA policies and procedures in the health care facility.

As previously mentioned, there are several regulatory agencies that establish the various guidelines, recommendations and mandatory policies related to the use of X-rays. These RSOPs reflect the research of the following agencies' publications: American College of Radiology (ACR); Centers for Disease Control and Prevention Radiation Safety Committee; Conference of Radiation Control Program Directors (CRCPD); International Commission on Radiological Protection (ICRP); National Council on Radiation Protection and Measurements (NCRP); and the US Nuclear Regulatory Commission (NRC).

Standard of Practice I

Surgery technologists should complete entry-level education related to radiation safety as well as annual continuing education to receive updates on health care facility policies and procedures.

1. Surgery technology students should receive entry-level education, per the requirements of the *Core Curriculum for Surgical Technology* to include:[8]
2. A. Physiological effects of radiation
   B. Radiation safety
   C. Use of radiation safety shielding devices
   D. Use of dosimeters
   E. Requirements by regulatory agencies
3. Surgical technology and surgical assisting practitioners should complete annual continuing education to remain current in their knowledge of radiation safety and practices, health care facility policies and procedures, and receive updates on new regulatory requirements.
   A. The Radiation Safety Officer (RSO) should document the continuing education as well as maintain the documentation.

Standard of Practice II

Shielding devices should be properly cared for according to guidelines provided by experts in the radiation safety community.

1. The Joint Commission requires its accredited health care facilities to inspect lead aprons. However, the commission does not provide guidelines and/or standards on how the inspections should be conducted, leaving it up to the facilities to design and schedule safety tests.[6]
   A. New leaded shielding devices should be inspected and tested for attenuation effectiveness and integrity prior to being placed into service.
   B. Leaded shielding devices should inspected and tested at least annually and upon request by a user.[16]
   C. The following are recommendations for the inspection and testing of leaded shielding devices: [14,16,]
      1) Leaded shielding devices should be physically examined for gross defects including tears, perforations and thinning creases. Devices that do not pass physical inspection should be removed from use and disposed.
      2) Devices that pass physical inspection should be examined fluoroscopically using manual settings. Automatic brightness control should not be used, because it will increase the tube current and voltage that results in unnecessary radiation exposure to medical personnel. Shielded areas will appear dark and defects, seams and stitching will appear light.
      3) If a health care facility does not have fluoroscopic equipment (eg smaller clinics), it is possible to radiographically examine devices.

4) Health care facilities should establish criteria for rejecting devices. provided the following guidelines for removing a device from service: defect is greater than 15 square mm, unless the defect is not located over a critical organ; defect is 670 square mm along a seam, overlapped area, or back of the device; thyroid lead shields with defect greater than 11 square mm.[14]
5) Devices that pass all inspections should have a unique identifier that includes an identification number, date of inspection, due date for next inspection and lead thickness of either 0.25 mm or 0.5 mm.
6) Defective devices should be immediately removed from service and disposed of properly. Under the Resource Conservation and Recovery Act, the Environmental Protection Agency has established regulations for the disposal of hazardous wastes. Leaded shielding devices meet the criteria for hazardous waste, and the health care facility should follow regulations for proper disposal.[13]
7) Health care facility should be familiar with, and have available, state radiation control regulations which can vary from the guidelines provided above.[12]

2. Proper storage of leaded shield devices is important to maintain the integrity of the lead. Lead aprons and thyroid shields should be stored on a flat surface or preferably hung vertically (commercial apron racks are available); lead aprons should be hung from the shoulders. A separate apron rack should be available to hang 0.25 mm, 0.5 mm and maternity lead aprons, and the racks labeled with the size and/or type. The devices should never be folded to avoid cracking.
3. Recommendations for cleaning devices include using cold water and a mild detergent solution, but do not use solvents, including bleach that would affect nylon fabric, urethane, polyvinyl chloride or manmade rubbers.[11,20]

Standard of Practice III

The surgical technologist and surgical assistant should practice the triad of the fundamental principles of radiation protection: time, distance, shielding. All other standards of radiation safety are based upon these three principles.

1. The amount of radiation received is controlled by time of exposure.
   A. The surgical technologist and surgical assistant should practice safety standards for limiting the time of exposure to radiation.
2. The surgical technologist and surgical assistant should be familiar with the Inverse Square Law related to radiation safety that states the exposure rate from a point source of radiation is inversely proportional to the square of the distance from the source.[7,8,17]
   A. In the operating room, the following principle applies: the distance from a point source of radiation is doubled, the exposure is quartered (eg, CST standing four meters from an X-ray source will be exposed to ¼ as much radiation as a CSFA standing two meters from the source). Therefore, the surgical technologist and surgical assistant should control the amount of radiation received by controlling the distance from the source of radiation.
   B. It is recommended all surgical personnel during X-ray procedures should stand as far

away as possible (at least two meters) from the source of the radiation.

3. The amount of radiation is reduced upon passage through materials.
   A. Leaded shield devices are efficient shields for protection against X-ray radiation.
      1) All surgical personnel during X-ray procedures in the OR should wear the appropriate device or stand behind a barrier or exit the OR.

Standard of Practice IV

Surgical technologists and surgical assistants should follow federal and state regulations and guidelines for radiation safety, as well as health care facility policies and procedures to minimize occupational exposure to radiation.

1. Warning signs should be posted in plain view at entrances to ORs where X-ray equipment will be used.
   A. Federal and state regulations should be followed for the posting of warning signs.
   B. Signs may vary in shape or wording content; however, the magenta- or black-colored radiation symbol should be printed on a yellow background.[17]
2. Radiation personnel monitors should be worn by surgical personnel, who are routinely exposed to radiation in the OR. Monitors that can be worn include, but are not limited to, film dosimeters, thermoluminescent dosimeters (TLD), and pocket ionization chambers. The RSO should confirm the type of dosimeter used at the health care facility is approved by the National Voluntary Laboratory Accreditation Program.[19]
   A. Monitoring is recommended for surgery personnel who have the reasonable probability of exceeding 25% of the occupational dose equivalent limit of 50 Sievert (Sv) (equal to 5 rem/y) per year.[17]
      1) The RSO should identify the surgery personnel to wear a monitor.
   B. The RSO should verify that surgery personnel are following federal and state regulations, as well as health care facility policies and procedures for wearing monitors.
      1) The RSO may have surgery personnel wear a monitor only during those times when potential exposure exists, eg fluoroscopy during an orthopedic procedure, implantation of radioactive sources.
      2) The monitor should be placed or worn in the region of the body that is expected to receive the highest dose of maximum permissible dose.[4]
         a. When a single monitor is worn, the individual should always wear the device in the same area of the body in order for proper radiation level measurements to be obtained.
         b. When two monitors are worn, it is recommended that one monitor is placed on the collar of the surgical gown at neck level and above the lead apron, and the second monitor is worn at the waist under the lead apron.[17]
         c. Fluoroscopy has been identified as generating a high level of radiation exposure, thus demanding particular attention to properly wearing monitors. Surgery personnel, who are regularly exposed to fluoroscopy should wear a minimum of one radiation monitor placed on the collar of the surgical gown at neck level outside the thyroid shield and above the lead apron.[4]
         d. Finger monitors should be worn by surgical personnel whose hands are directly exposed to radiation on a frequent basis.[2]

e. Pregnant surgical personnel should wear a monitor at the waist.[5,25]
f. Monitors should be read, and the results documented at least quarterly by the RSO or other qualified HCW with the exception of pregnant surgical personnel whose monitor should be read monthly.[5]
g. Surgery personnel should not take the monitoring device(s) home or to any other location. The device(s) should be stored at the health care facility prior to exiting for any reason, eg. lunch outside the facility, end-of-workday, etc. The device can collect radiation from other sources, such as the sun and other electrical devices.[24]

3. The surgical team should contribute to the flow of smooth communication with the radiation technician in the OR.
   A. Prior to activating the radiation equipment, the radiation technician should confirm surgery personnel have taken the proper precautions for avoiding the direct beam and/or maintaining optimal distance from the equipment.
   B. The radiation technician should communicate to the surgical team the activation of the equipment.
4. Surgical personnel should avoid the direct beam of radiation equipment, as well as limit the time that they are near the source of the beam.
   A. An important component of the radiation dose to surgery personnel is scattered radiation, in particular from fluoroscopy, which requires an elevated awareness of the safety precautions to be practiced.
      1) The fluoroscope should be used at its lowest settings possible that provide a satisfactory image for the surgeon in order to reduce the radiation exposure rate.[4,21]
      2) Scattered radiation depends on the direction of the C-arm fluoroscopy beam. A minimally angulated tube that is positioned under the OR table will minimize radiation exposure to the surgical personnel, in particular if the beam is vertical.[4,22]
      3) Ceiling mounted shields are an option to decrease scattered radiation as long as they do not interfere with multidirectional fluoroscopy; the proper use of shields reduces the exposure by a factor of three.[22]
      4) To further reduce exposure to scatter radiation, surgical personnel should stand on the image intensifier or receptor side of the fluoroscopy machine.[9,22]
      5) When using fluoroscopy, the patient should be positioned as close as possible to the image intensifier side of the fluoroscopic equipment, and as far away as possible from the tube side, to reduce scatter radiation.[21,22]
      6) Size of patient is a variable when using fluoroscopy and should be taken into consideration by the surgical personnel. The patient size can significantly increase the exposure rate and scatter radiation. The surgical team should make every effort to optimize the patient's position. For example, if the patient is placed in the supine position, lying him/her as flat as possible on the OR table and extending the arms on armboards is recommended. Additionally, as previously mentioned, the radiation technician should communicate to the surgical team about the activation of the radiation equipment, since this allows the anesthesia provider to briefly halt respirations to aid in reducing the patient's density when taking images of the thoracic and/or abdominal cavity (Reek, 2004).

B. To avoid exposure to the radiation direct beam, surgical personnel should not hold the patient in position or body part (eg arm, leg).[17]
    1) When performing standard X-rays using sterile technique, the surgical technologist in the first scrub role and circulator should coordinate placing the X-ray cassette inside a sterile cassette cover.[10] Cassette- holding devices, such as forceps, should be used to hold the cassette in place.
    2) Patient positioning devices (eg sandbags, traction equipment) should be used to keep the patient in the desired position during the X-ray procedure.
    3) If holding the patient in position and/or holding the X-ray cassette cannot be avoided, the individual should wear a 0.5 mm lead apron, thyroid shield, leaded eyeglasses and radiation prevention gloves (see standard below for additional information on leaded shielding devices). Female surgical personnel, who are pregnant should not hold the patient and/or X-ray cassette.[17]

Standard of Practice V
Surgical technologists and surgical assistants should follow the regulatory agencies recommended guidelines and health care facility policies and procedures for wearing leaded shielding devices.

1. Surgical personnel, who are adjacent to the main radiation beam should wear a 0.5 mm lead apron. Those on the periphery of the OR may wear a 0.25 mm lead apron [4]
2. Surgical personnel, who may have to turn and stand with their back to the radiation beam, should wear a wrap-around lead apron. However, personnel should face the radiation beam as often as possible. It is important to remember that the front of the lead apron contains a thicker layer of lead than the backside.
3. Leaded aprons of different sizes, as far as length and width, should be available to surgical personnel in order to provide the needed protection.
    A. Shielding the upper portion of the legs and upper chest, in particular the breasts of females, is critical to protecting the long bones, bone marrow and soft tissues of the chest.
    B. Surgical personnel, who are less than 70 cm (24 inches) away from the direct beam during a fluoroscopy procedure, should wear a lead thyroid shield and leaded eyeglasses.[15]
        1) The thyroid shield should be worn to protect the soft tissue structures of the neck, when the possibility exists for a high risk of radiation exposure.
        2) Leaded eyeglasses should be worn by personnel, who are adjacent to the main radiation beam, in particular during fluoroscopic procedures, to prevent injury to the eyes, including cataracts, corneal ulcerations and radiation-induced opacities.[3, 28,29] The eyeglasses should have side shields. Eyeglasses range from heavy-duty 0.5 mm leaded eyeglasses to photo-gray sunglasses. The RSO should be consulted regarding the thickness of eyeglasses that are recommended to be worn.[29]
5. Surgical personnel, whose hands will be in the direct radiation beam and/or close to the patient, should wear sterile radiation-attenuated gloves.
    A. It is important to remember that the gloves only provide partial protection – 16% to 22% attenuation.[6] The gloves are cumbersome and expensive, thus surgical personnel who are in the periphery of the OR may find the disadvantages of wearing the gloves outweigh the protective properties.

Standard of Practice VI

Female surgery personnel, who suspect or know they are pregnant, should take the appropriate precautions to limit fetal exposure to radiation in the OR. The following information and recommendations are based on NRC regulations.[25]

1. It is recommended that the individual declare the pregnancy to the RSO.
   A. Disclosure of the pregnancy is voluntary. However, the declaration of pregnancy must be in writing, or the individual and fetus will be subject to the same radiation dose as other surgical personnel.
   B. Upon declaration of pregnancy, the health care facility and RSO must take appropriate measures to ensure the occupational exposure to the fetus does not exceed 0.5 rem (5 mSv) during the entire pregnancy. Additionally, the health care facility must ensure it is a uniform monthly dose rate to avoid all of the 0.5 rem (5 mSv) occurring during a short period of time.
   C. Deep-dose equivalent should be used by the RSO as the dose to measure. As previously stated, the pregnant individual should wear the dosimeter under the apron at the waist.
   D. Maternity lead aprons are available for use by the pregnant individual. The apron contains a double thickness of lead in the front, but it should be remembered the apron is not wrap-around and therefore, does not protect the back. The pregnant individual will need to make the determination about wearing the apron, since it is heavier than the standard lead aprons and can place strain on the neck and shoulders.

Standard of Practice VII

Surgical technologists and surgical assistants should follow the regulatory agencies' recommended guidelines and health care facility policies and procedures for protection from exposure to patients, who have received or will be receiving radionuclides.

1. Surgical personnel should receive advance communication when a patient has received therapeutic radionuclides in order to take the proper precautions as recommended by the RSO.[1]
   A. There must be a label on the front of the patient chart stating "Caution – Radioactive Material" to alert all HCWs, who provide care to the patient. The label should list the radionuclide, its activity and date of determining the level of activity, exposure rate at one meter, and date of when precautions expire.[17]
   B. A wrist band should be placed on the non-operative wrist of the patient indicating "Caution –Radioactive Material," type of radionuclide, and its activity.[17]
   C. The following information should be documented in the patient chart: radionuclide used, its activity level, and any special precautions that may need to be taken as indicated by the RSO.[18]
2. The RSO should ensure compliance with NRC regulations when radionuclides will be implanted in the patient in the OR.
   A. Sealed radionuclides may require sterilization in the central sterile supply department and then transferred to the OR for use. According to NRC regulations, the RSO or designee "shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted areas and this is not in storage." [26] Surgical personnel

should perform teamwork skills in assisting the RSO in maintaining vigilance of the radioactive material in the OR and follow NRC regulations.

B. During the radionuclide implant procedure, surgical personnel should diligently apply the concepts of time, distance and shielding similar to any other procedure involving radiation exposure.
C. The RSO should provide guidance to the surgical personnel about handling of tissue and body fluids that have been removed from a patient, who previously underwent radionuclide therapy.
    1) The tissue and body fluids should be labeled "Caution – Radioactive" to alert all HCWs involved in the handling and disposal. The tissue and body fluids should be considered hazardous waste.
    2) The policies and procedures for the handling and disposal of the radioactive material should be based upon NRC safety standards.[27]
D. Based upon NCRP safety standards and to minimize HCW exposure, the RSO should establish the policies and procedures for the transfer of the patient from the OR to the receiving unit (eg post-anesthesia care unit, intensive care unit, etc.) who has just undergone radionuclide implantation.[18]
    1) The receiving personnel should have advance communication from the OR when the patient is being transported. Upon arrival, the circulator should communicate the following to the receiving personnel: type of radionuclide, location within the body, and exposure rate.

3. Surgery personnel should follow the safety guidelines for patients, who require emergency surgery and have implanted radionuclides. The following recommendations are from the West Virginia University Radiation Safety Department.[30]
    A. If a patient contains 5 millicuries (mCi) or less of any radionuclide, the exposure to radiation is minimal, and the surgical personnel do not need to take any special exposure precautions.
    B. However, no matter the amount of radionuclide that the patient contains, the RSO should be notified as soon as possible of the emergency surgery that will be taking place.
        1) The RSO should provide guidance to the surgical team about the precautions that could be taken according to the type of radionuclide that is present. Special precautions may need to be taken for emergency surgery patients with radioactive colloid that has been injected into tissues, radioactive iodine to treat thyroid diseases, and metallic radioactive implants.
        2) Radioactive colloid: The radionuclide will be spread uniformly over the serous surfaces and is absorbed by the superficial tissues of the body. Once the skin incision has been made, the sterile surgical team members' faces and hands (if it is a large incision) will be exposed to intense beta radiation. The sterile surgical team members should wear 0.5 mm leaded apron shields, 0.5 mm leaded eyeglasses with side shields that will also protect against possible splash of radioactive material into the eyes, and a double pair of sterile, surgical gloves, which will reduce the radiation exposure.
        3) Radioactive iodine: If the emergency surgery takes place 24 hours after the radionuclide treatment, and the surgery does not involve manipulation of the

thyroid gland or tissue regions of metastases, the sterile surgical team will not receive an undue exposure to radiation.

4) Metallic radioactive tissue implants: If possible, direct contact with the implanted region is not advised during the emergency surgery procedure. For high energy gamma-emitting nuclides, leaded shielding provides no protection. Time and distance are the two key factors to employ as much as possible during the procedure.

C. If a sharps accident occurs when the sterile surgery team member is cut and the possibility of radioactive material in introduced into the wound, the individual should immediately remove the gloves and wash the wound with large quantities of running water, while spreading the edges of the wound to facilitate the flushing action. The RSO should be immediately notified, appropriate documentation completed, and the individual monitored for radiation poisoning and/or sickness.

D. The RSO should provide guidance for the handling and decontamination of surgical instruments that become radiation contaminated. The RSO will be able to ensure that NRC regulations and safety standards are followed by the surgical team and central sterile supply department personnel.

E. The RSO should provide guidance according to NRC regulations and safety standards for the disposal of contaminated disposable materials, including sharps which are considered radioactive waste.

F. The surgery team should take special care to prevent the floor of the OR from being radiation contaminated.

1) The surgery team should wear shoe covers. Shoes covers will prevent the transfer of radiation contamination to shoes. If shoe covers are not worn, contamination could be spread throughout the surgery department. Shoe covers should be removed in the OR and disposed with other contaminated disposable materials.

2) The sponge bucket(s) should be placed as close to the first scrub surgical technologist as possible. The circulator should handle the sponges with sponge forceps or other device.

3) The first scrub surgical technologist should control the use of irrigating fluid and prevent spills onto the floor.

G. If a patient death occurs in the OR, it must be confirmed a radioactivity label is affixed to the outside of the patient chart and indicated in the patient history and physical document. A radioactive warning label must also be attached to the outside of the body bag.[17] Blank copies of the health care facility radioactivity form must be attached to the death certificate, patients chart, and autopsy permission slip, if one will be performed. The RSO should be notified by the surgeon so he/she can provide instructions to those who will be coming into contact with the body.

Standard of Practice VIII

The surgical team should practice safety measures to protect the patient from undue exposure to radiation in the OR.

1. The assistant circulator surgical technologist should review the patient chart for history of radiation exposure, including radionuclides

A. The assistant circulator surgical technologist should report any adverse patient history to the surgeon, such as the patient sustaining prior radiation skin injuries.

B. The assistant circulator surgical technologist should confirm with the surgeon if the patient has undergone a previous radionuclide procedure. The RSO should be consulted regarding the extent of the radiation exposure that could occur to the surgical team, and if an elective procedure should be re-scheduled.

2. The surgical team should limit to the extent possible the amount of time that a patient is exposed to radiation, in particular fluoroscopy.[21]
   A. The surgeon, first scrub surgical technologist and radiology technician should work together to ensure that the X-ray or fluoroscopy equipment is in place. In the case of C-arm fluoroscopy, the equipment is covered with a sterile drape or when a standard X-ray is employed, the cassette is placed in a sterile cover. The patient is positioned; the C-arm tube or x-ray cassette is in position, and all surgery personnel have distanced themselves from the equipment prior to activation.
   B. The surgical team should take all measures possible to keep patient body parts that do not need to be included in the radiation procedure out of the way of the radiation beam. If possible, leaded shield devices should be used to protect the patient as long as they don't interfere with obtaining a good image.
      1) The thyroid and lymph glands as well as other tissues, such as bone and bone marrow are easily affected by radiation. When possible, a lead thyroid shield should be placed on the patient when X-rays of the upper extremity are being performed.
      2) When X-ray studies are being performed on the lower extremity, when possible a leaded apron should be placed on the upper extremity of the patient that includes covering the gonads.
      3) Female patients should be questioned if they suspect being pregnant or know they are pregnant when the possibility of a radiation study exists during the performance of a surgical procedure. The surgeon should be informed of the possibility of pregnancy or pregnancy exists in order to decide if the surgical procedure should be re-scheduled. When possible, a leaded shielding device must be placed on the abdomen of the pregnant female to protect the fetus if the surgeon determines a radiation study cannot be avoided.

Standard of Practice IX

The assistant circulator surgical technologist should document in the patient's OR record the actions taken to prevent patient exposure to radiation.

1. Documentation serves as a legal record of the care provided to the patient in the OR.[7,8]
   A. Documentation includes the following: type of radiation procedure; type of patient protection and the body parts that were covered; skin assessment prior to and after the radiation procedure.

Standard of Practice X

The surgery department policies and procedures for radiation exposure safety should be annually reviewed and updated as necessary to reflect current federal and state regulatory requirements.

1. Development, review and updating of radiation safety policies and procedures should be a teamwork activity that involves the RSO, director of the radiology department, health

care facility safety committee, surgical technologist and surgical assistant representative, director of the surgery department and director of nursing. The completed policies and procedures should be reviewed by a medical health physicist, who has a background in radiation physics prior to being published by the health care facility.

Competency Statements

Competency Statements	Measurable Criteria
1. Surgical technologists and surgical assistants are knowledgeable of the risks and hazards associated with radiation exposure in the perioperative environment. 2. Surgical technologists and surgical assistants are aware of the need for protection against all types of radiation exposure. 3. Surgical technologists and surgical assistants implement strategies for exposure prevention during standard x-ray, fluoroscopy and radionuclide procedures including proper utilization of monitoring devices and implementation of the concepts of time, distance and shielding. 4. Surgical technologists and surgical assistants are knowledgeable of the safety guidelines and standards as published by state and federal regulatory agencies.	1. Educational standards as established by the *Core Curriculum for Surgical Technology* and *Core Curriculum for Surgical Assisting.*[7,8] 2. The subject of radiation exposure safety is included in the didactic studies as a surgical technology and surgical assistant student. 3. Students demonstrate knowledge of the principles of radiation exposure safety during clinical rotation. 4. As practitioners, CSTs and CSFAs apply the principles of radiation exposure safety. Health care facilities whose protocols and policies allow, assistant circulator CSTs document the radiation procedure in the patient's OR record. 5. CSTs and CSFAs complete continuing education to remain current in their knowledge of radiation exposure safety, including annual review of the policies of the facility.

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