### Policy Statement

As prescribed by the Ohio Administrative Code, radiation safety procedures shall be in place for all types of radiation-generating equipment at the University of Toledo Medical Center.

### Purpose of Policy

To provide procedures for the safe operation of radiation-generating equipment.

### Procedure

1. Diagnostic x-ray equipment is located in the Department of Radiology on the first floor of The University of Toledo Medical Center, as well as in the Emergency Department and the Outpatient Imaging Center. Cardiovascular-interventional rooms and an electrophysiology lab are also located on the first floor. Two computed tomography units are located on the first floor and a third CT is housed in Radiation Therapy on the ground floor. One mammography room is in the Department of Radiology. A diagnostic mammography machine, a breast biopsy unit, and general radiographic unit are located in the Dana Cancer Center. A bone densitometry machine and general radiography unit are housed in the Ruppert Health Center. There is also a cystoscopy room and a hybrid room in the Department of Surgery. In addition, portable radiographic machines and mobile fluoroscopic units are used in patient rooms and in surgery. Dental radiographic machines are located in the Department of Dentistry.

2. All x-ray rooms, including computed tomography and mammography are restricted areas. In addition, any surgical area or patient room in which a portable radiographic or fluoroscopic unit is being used is considered a restricted area.

#### Radiation Safety Rules for Radiography

1. The radiographer shall stand behind a protective barrier when a radiographic exposure is made. Exposure switches have been mounted so that it is not possible to make an exposure from outside the operator’s barrier.

2. No employee shall hold a patient during an x-ray exposure unless absolutely necessary for the completion of the examination. All other means of patient restraint should be used before consideration of an employee holding a patient. If holding is necessary, the individual shall wear a lead apron for protection, as well as gloves if the holder’s hands are in the primary beam.

3. The patient must always be observed from the control area when any exposure is made.

4. Accurate technique is essential to reducing retakes. When manual technique factors are used, reference should be made to charts available for each room and patients should be measured.

5. The radiation should always be restricted to the area of clinical interest using collimation or cones.
RADIATION SAFETY RULES FOR PORTABLE RADIOGRAPHY

1. The radiographer shall wear personal radiation protection (lead apron) when performing portable radiography.

2. All non-essential persons should vacate the room. Any individual remaining in the room must be provided with protective shielding or must be at least six feet from the x-ray tube and patient.

3. The primary x-ray beam should be pointed away from any other person in the room, preferably toward an outside wall.

RADIATION SAFETY RULES FOR FLUOROSCOPY

1. All persons present in the room during the procedure shall wear protective lead aprons or be positioned behind a portable protective shield.

2. When practical, protective lead drapes or pull-down shields should also be used during fluoroscopy.

3. The patient should always be positioned as close to the image intensifier as possible.

4. Technical features such as last image hold and pulsed fluoroscopy should be used to minimize both patient and personnel exposure. High level fluoroscopy should be used only when all other techniques have failed to produce adequate imaging.

5. Care should be taken to minimize the time of exposure, consistent with achieving the goals of the study.

RADIATION SAFETY RULES FOR MOBILE FLUOROSCOPY

1. All persons present in the room during the procedure shall wear protective lead aprons or be positioned behind a portable protective shield.

2. A spacer cone must be attached to the c-arm at all times. If a lateral beam orientation is to be used or, potential contamination of the sterile field the cone may be removed during the procedure. If at any other time the physician determines that the cone inhibits performance of the procedure it may be removed at that time.

RADIATION SAFETY RULES FOR COMPUTED TOMOGRAPHY

1. The patient must always be observed from the control area during the scanning procedure.

2. The operator must be prepared to terminate the scanning sequence if the patient’s condition would cause the scan to be unusable.

3. Any person whose presence is required in the room during the procedure shall wear protective lead apron.

RADIATION SAFETY RULES FOR MAMMOGRAPHY

1. The mammographer shall stand behind the protective barrier when an exposure is made.

2. The patient must always be observed during the radiation exposure.

3. Special attention must be paid to positioning of the patient, which is critical to obtaining optimal imaging and avoiding retakes.
RADIATION SAFETY RULES FOR BONE DENSITOMETRY

1. The operator shall be at least 1 meter from the primary beam or shall be behind a shield.

2. The patient must always be observed during the radiation exposure.

3. The operator shall advise the patient that the bone densitometry examination is a type of x-ray procedure.