2.8 Oncologic Imaging

A variety of imaging modalities are employed in the care of oncologic patients not only in diagnosis but also in staging, treatment and follow up care. As such, imaging modalities are a cornerstone of oncologic care. These imaging modalities can be categorized as follows:

A. Plain film radiographs  
B. Mammography  
C. Ultrasound  
D. Computerized Tomography (CT)  
E. Magnetic Resonance Imaging (MRI)  
F. Positron Emission Tomography (PET and PET/CT)

2.8.1 Facility: Those Practices that provide oncologic imaging should have adequate facilities to safely care for patients including:

2.8.1.1 The Practice facility should comply with sections 2.3.1 – 6 with regard to parking, accessibility, waiting room, business area and restrooms. Similarly, the Practice should demonstrate compliance with the applicable rules of the Americans with Disabilities Act (ADA) and local fire codes.

2.8.1.2 The practice facility should have satisfactory areas for the particular imaging modality to be performed.

2.8.1.3 Treatment areas should be within immediate nurse or physician access.

2.8.2 Personnel: Those Practices that provide oncologic imaging should have adequate trained personnel as follows:

2.8.2.1 Radiologist: A Radiologist must have (1) satisfactorily completed a radiology residency in an ACGME (American Council of Graduate Medical Education) approved program, or (2) be certified in diagnostic radiology by the American Board of Radiology, the
American Osteopathic Board of Radiology, or the Royal College of Physicians and Surgeons of Canada.

2.8.2.2 Medical Physicist in Diagnostic Radiology: A Medical Physicist should be (1) board certified in the appropriate medical physics subfield and must be (2) licensed in those states where licensure exists. The following board certifications meet criterion (1) above: the American Board of Medical Physics, the American Board of Radiology, and the Canadian College of Physicists in Medicine.

The Medical Physicist shall be available when necessary for consultation with the Radiologist, to provide advice or direction to technical staff, perform calibration and oversee quality assurance and radiation safety aspect of the oncologic imaging equipment.

2.8.2.3 Radiology Technologist (RT): Radiology Technologists must fulfill state licensing requirements, if they exist, and should have American Registry of Radiologic Technology (ARRT) certification in Diagnostic Radiology.

2.8.2.4 Radiology Support Staff: Included in these personnel are Nurses, Physician Assistants, Nurse Practitioners and Radiology Treatment Aides. Individuals involved in the treatment of patients should have training and experience in the care of radiology patients as well as in radiation safety and certain aspects of emergency care of patients under treatment. They should work under the supervision of the Radiologist.

2.8.2.5 Clerical Staff: The practice should demonstrate a sufficient number and type of Clerical Staff sufficient for the needs of the practice.

2.8.2.6 Basic cardiopulmonary resuscitation training: Physicians and staff should have basic cardiopulmonary resuscitation training.

2.8.3 Process of Oncologic Imaging: The Practice shall demonstrate the following:

2.8.3.1 Patient Education: The practice should have policies for educating patients about the imaging procedure prior to
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the procedure, preparation for the procedure and aftercare. Included in patient education should be notices to pregnant and potentially pregnant patients.

2.8.3.2 Informed Consent: Prior to oncologic imaging, informed consent must be obtained and documented.

2.8.3.3 Physician Supervision: There should be appropriate physician supervision of all professional staff that provide patient care.

2.8.3.4 Imaging Methods: The methods of oncologic imaging should be in accordance with the equipment manufacturer recommendations and in accordance with established policies and procedures.

2.8.3.5 Interpretation of Imaging Results: The results of oncologic imaging should be interpreted by a physician who is trained in the specific imaging modality. See Section 2.8.2.1

2.8.3.6 Results of Imaging: The results of oncologic imaging should be communicated to the ordering physician in a timely manner consistent with the needs of the patient. This may be verbal, electronic or by hard copy report but in all cases either an electronic or hard copy of the imaging results should be provided to the ordering physician. The practice shall have policies regarding the following:

2.8.3.6.1 Report turn around time.

2.8.3.6.2 Notification of the ordering physician of unexpected findings.

2.8.3.6.3 Notification of the ordering physician of results in emergency situations.

2.8.3.6.4 Compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

2.8.3.7 Film/Data Management: Each practice should have the following policies regarding:

2.8.3.7.1 Storage/retention of imaging results in any
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2.8.3.7.2 Back up of digital image data.

2.8.3.8 Pharmacologic agents, including contrast agents, used in oncologic imaging should be stored and prepared in adherence with the manufactures directions and Federal OSHA requirements.

2.8.3.9 Pharmacologic agents, including contrast agents, should only be handled and administer by qualified individuals.

2.8.3.10 The practice should have an infection control policy.

2.8.3.11 The practice should have policies and procedures to prevent mechanical injury or falls of patients and staff.

2.8.3.12 The practice should have policies and procedures for:
   2.8.3.12.1 Administration of intravenous sedatives, narcotics and contrast agents.
   2.8.3.12.2 Management of cardiac or pulmonary emergencies and allergic reactions.
   2.8.3.12.3 Management of seriously ill or unconscious patients.
   2.8.3.12.4 Management of pregnant or potentially pregnant or breast feeding patients.

2.8.3.13 A “crash cart”, oxygen and other materials for management of cardiopulmonary resuscitation and anaphylactic reaction should be readily available.

2.8.3.14 The practice shall post notices to pregnant or potentially pregnant patients.

2.8.4 **Oncology Imaging Medical Physics:** the Practice shall demonstrate the following:

2.8.4.1 Radiation room surveys: Each facility should have documentation of radiation exposure shielding calculations, surveys and licensure from the appropriate regulatory agency for operation.

2.8.4.2 Visual and auditory warning devices as required by the Nuclear Regulatory Commission (NRC) and/or the appropriate state regulatory agencies.
2.8.4.3 Systems for visual monitoring and communication with patients during oncologic imaging

2.8.4.4 Program(s) to ensure systematic inspection of interlock systems where applicable.

2.8.4.5 Radiologic equipment licensure/registration: The practice should have documentation of licensure/registration for all radiologic equipment used for oncologic imaging purposes.

2.8.4.2.1 Licensure or registration.
2.8.4.2.2 Individuals authorized to use the equipment.

2.8.4.6 Major equipment operating procedures: The practice should have documentation of major equipment operating procedures including:

2.8.4.6.1 Operating procedures for all major equipment should be readily accessible.
2.8.4.6.2 Procedures for preventive maintenance and repair.
2.8.4.6.3 Emergency procedures.
2.8.4.6.4 Radiation safety procedures.

2.8.4.7 Major equipment records: The practice should have documentation of the following:

2.8.4.8 Initial acceptance testing and commissioning documents.
2.8.4.9 Calibration records.
2.8.4.10 Maintenance records including preventive maintenance and repairs.
2.8.4.11 Machine fault log book

2.8.4.8 Radionuclides: The practice should have written policies and procedures for the handling and administration of diagnostic radionuclides including:

2.8.4.8.1 The practice should demonstrate appropriate licensure by the NRC or state for the handling and administration of radionuclides including those individuals authorized to administer radionuclides.
2.8.4.8.2 Radiopharmaceuticals should only be handled
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and administer by qualified individuals.

2.8.4.8.3 There should be written policies for the receipt, storage, compounding, dispensing and disposal of all radioactive material.

2.8.4.8.4 There should be policies for periodic radiation surveys and wipe tests of the radioisotope laboratory and administration areas consistent with NRC or state regulations. Records of these surveys should be recorded, reviewed by an authorized user or their designee and corrective actions taken if needed.

2.8.4.8.5 There should be written policies and procedures for decontamination in the case of spilled radioisotope.

2.8.4.8.6 There should be written policies and procedures for reference calibration of survey and calibration equipment and repair.

2.8.5 Radiation safety and quality assurance procedures:  The Practice shall demonstrate the following:

2.8.5.1 Each practice shall have a Radiation Safety Program including a Radiation Safety Committee and a Radiation Safety Officer. This committee may be combined with the Continuous Quality Improvement Committee.

2.8.5.2 Each practice shall have a policy for keeping radiation exposure to as low as reasonably achievable (ALARA).

2.8.5.3 Each practice shall have a policy on pregnant or potentially pregnant or breast feeding patients and personnel.

2.8.5.4 Each practice shall have a policy for documentation of personnel exposure to ionizing radiation as required by the Nuclear Regulatory Commission (NRC) and/or the appropriate state regulatory agencies.

2.8.5.5 Each practice shall have a policy for posting the following:

2.8.5.5.1 Radiation safety officer and other contacts incase of a radiation related emergency.

2.8.5.5.2 Any state or other regulatory agency signage such as “Notice to Employees”.
2.8.5.5.3 Personnel radiation exposure readings or where they are located.

2.8.5.6 Each practice shall have a policy for documentation of radiation exposure measurement in areas in proximity to imaging devices (Also see Section 2.8.4.1).

2.8.5.7 Each practice shall have documentation of policies and procedures for the operation of the imaging device(s).

2.8.5.8 Each practice shall have a policy for posting of areas of potential high radiation exposure.

2.8.5.9 Each Practice must demonstrate a dosimetric reference for physics calibration purposes.

2.8.5.10 Each Practice must show access to adequate physics calibration equipment including ionization chambers and phantoms appropriate for the equipment and procedures within the Practice.

2.8.6 **Treatment Quality Assurance:** The Practice shall demonstrate the following:

2.8.6.1 A Quality Assurance Program for review of all imaging processes and policies and procedures.

2.8.6.2 The quality assurance review should be conducted at least annually and the results, including findings and actions should be recorded.

2.8.6.3 The results of the QA Program should be reviewed by an authorized user and corrective action should be taken if needed.

2.8.7 **Physician Peer Review:** The Practice shall have an established program for physician peer review.

2.8.7.1 The Practice shall have written policies and procedures for physician peer review.

2.8.7.2 The peer review program shall include random selection of cases representative of the procedures performed by the Practice.

2.8.7.3 Peer review shall include review and interpretation of the imaging study by a second qualified physician.

2.8.7.4 Peer review ideally should be performed quarterly and the results, including findings and actions should be recorded.
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2.8.7.5 Results of the peer review should be reviewed by the QA Committee and the Practice should have policies and procedures for corrective action if needed.

2.8.7.6 Ten percent of cases should be reviewed based on annual or quarterly procedure numbers for each imaging modality.