



The Practice Standards for Medical Imaging and Radiation Therapy

Computed Tomography Practice Standards

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Introduction to Computed Tomography Practice Standards

The practice of computed tomography is performed by a segment of health care professionals responsible for the administration of ionizing radiation to humans for diagnostic, therapeutic, or research purposes. A computed tomography (CT) technologist performs computed tomography procedures and related techniques, producing sectional and three-dimensional images for the interpretation by, or at the request of, a licensed practitioner; assists with interventional and therapeutic procedures; and may perform fusion procedures.

The complex nature of disease processes involves multiple imaging modalities. Although an interdisciplinary team of radiologists, CT technologists, and support staff plays a critical role in the delivery of health services, it is the CT technologist who performs and reformats the CT examination that creates the images needed for diagnosis and the performance of interventional and therapeutic procedures. CT integrates scientific knowledge, technical skills, patient interaction, and care resulting in diagnostic information. A CT technologist recognizes patient conditions, assesses and monitors patient vital signs, and takes appropriate action in emergency situations essential for successful completion of the procedure and to maintain quality patient care. A CT technologist exercises independent professional and ethical judgment.

Computed Tomography Technologist – General Requirements

CT technologists must demonstrate an understanding of human anatomy, human physiology, pathology, pharmacology, computer technology, basic patient care and assessment techniques, radiation physics, radiation biology, radiation protection, and medical terminology.

CT technologists must maintain a high degree of accuracy in positioning and exposure technique. They must maintain knowledge about radiation protection, safety and current scanning protocols. CT technologists independently perform or assist the licensed practitioner in the completion of diagnostic, therapeutic, interventional, and fusion CT procedures. CT technologists prepare, administer, and document activities related to contrast media, medications, and radiation exposure in accordance with federal and state laws or institutional policy.

CT technologists are the primary liaison between patients, licensed practitioners, and other members of the support team. CT technologists must remain sensitive to the physical and emotional needs of the patient through good communication, patient assessment, patient monitoring, and patient care skills. CT technologists use independent, professional, ethical judgment and critical thinking. Quality improvement and customer service allow the CT technologist to be a responsible member of the health care team by continually assessing professional performance. CT technologists engage in continuing education to enhance patient care, public education, knowledge, and technical competence while embracing lifelong learning.

Education and Certification

CT technologists prepare for their role on the interdisciplinary team by successfully completing an accredited educational program in radiography, radiation therapy, or nuclear medicine technology. Two-year certificate, associate degree, and four-year baccalaureate degree programs

exist throughout the United States. Accredited programs must meet specific curricular and educational standards.

Upon completion of a course of study in radiography, radiation therapy, or nuclear medicine technology from an accredited program recognized by the American Registry of Radiologic Technologists (ARRT), individuals may apply to take the national certification examination. Those who successfully complete the certification examination in radiography may use the credential R.T.(R) following their name; the R.T. signifies registered technologist and the (R) indicates radiography. Those who successfully complete the certification examination in radiation therapy may use the credential R.T.(T) following their name; R.T. signifies registered technologist and the (T) indicates radiation therapy. Those who successfully complete the certification examination in nuclear medicine technology may use the credential R.T.(N) following their name; the R.T signifies registered technologist and the (N) indicates nuclear medicine technology.

The Nuclear Medicine Technology Certification Board (NMTCB) also is a certifying agency. Once the NMTCB determines an applicant is eligible for the examination, the applicant must take the board within the prescribed time period established by the NMTCB. Those who successfully complete this certification examination may use the credential CNMT, indicating certified nuclear medicine technologist.

Eligibility to take the advanced-level examination in CT requires registration in radiography, nuclear medicine technology, or radiation therapy at the time of examination and documentation of clinical experience and any necessary competencies in specific procedures. Certificates issued by the NMTCB are recognized as meeting the eligibility requirements for CT certification and continued CT registration through the ARRT. After successfully completing the computed tomography advanced-level exam, the credentials R.T.(R)(CT), R.T.(T)(CT), or R.T.(N)(CT) may be used if registered by the ARRT and CNMT, R.T.(CT) ARRT if certified by the NMTCB.

To maintain ARRT certification, CT technologists must complete appropriate continuing education requirements to sustain a level of expertise and awareness of changes and advances in practice.

Practice Standards

The practice standards define the practice and establish general criteria to determine compliance. Practice standards are authoritative statements established by the profession for judging the quality of practice, service, and education.

Professional practice constantly changes as a result of a number of factors including technological advances, market and economic forces and statutory and regulatory mandates. While a minimum standard of acceptable performance is appropriate and should be followed by all practitioners, it is inappropriate to assume that professional practice is the same in all regions of the United States.¹ Community custom, state statute, or regulation may dictate practice

¹ The terms “practice” and “practitioner” are used in all areas of the standards in place of the various names used in medical imaging and radiation therapy, such as radiologic technologist, sonographer, or radiation therapist. Practitioner is defined as any individual practicing in a specific area or discipline. The profession believes that any

parameters. *Wherever there is a conflict between these standards and state or local statutes and regulations, the state or local statutes and regulations supersede these standards.* Recognizing this, the profession has adopted standards that are general in nature.

Format

The standards are divided into five sections: scope of practice, clinical performance, quality performance, professional performance, and advisory opinion.

Scope of Practice. The scope of practice delineates the parameters of the computed tomography practice.

Clinical Performance Standards. The clinical performance standards define the activities of the practitioner in the care of patients and delivery of diagnostic or therapeutic procedures. The section incorporates patient assessment and management with procedural analysis, performance, and evaluation.

Quality Performance Standards. The quality performance standards define the activities of the practitioner in the technical areas of performance including equipment and material assessment, safety standards, and total quality management.

Professional Performance Standards. The professional performance standards define the activities of the practitioner in the areas of education, interpersonal relationships, self-assessment, and ethical behavior.

Advisory Opinion Statements. The advisory opinions are interpretations of the standards intended for clarification and guidance for specific practice issues.

A profession's practice standards serve as a guide for appropriate practice. Standards provide role definition for practitioners that can be used by individual facilities to develop job descriptions and practice parameters. Those outside the imaging, therapeutic, and radiation science community can use the standards as an overview of the role and responsibilities of the practitioner as defined by the profession.

Each section is subdivided into individual standards. The standards are numbered and followed by a term or set of terms that identify the standards, such as "assessment" or "analysis/determination." The next statement is the expected performance of the practitioner when performing the procedure or treatment. A rationale statement follows and explains why a practitioner should adhere to the particular standard of performance.

Criteria. Criteria are used in evaluating a practitioner's performance. Each set of criteria is divided into two parts: the general criteria and the specific criteria. Both general and specific criteria should be used when evaluating performance.

individual practicing in one of the defined disciplines or specialties should be held to a minimum standard of performance to protect the patients who receive professional services.

General Criteria. General criteria are written in a style that applies to imaging and radiation science practitioners. These criteria are the same in all sections of the standards and should be used for the appropriate area of practice.

Specific Criteria. Specific criteria meet the needs of the practitioners in the various areas of professional performance. While many areas of performance within imaging and radiation sciences are similar, others are not. The specific criteria are drafted with these differences in mind.

Computed Tomography Scope of Practice

The scope of practice of the computed tomography technologist includes:

1. Introducing oneself appropriately to the patient and putting the patient at ease.
2. Corroborating patient's clinical history with procedure, ensuring information is documented and available for use by a licensed practitioner.
3. Preparing patient for procedures.
4. Providing instructions to obtain desired results, gain cooperation, and minimize anxiety.
5. Operating computed tomographic equipment and accessories.
6. Selecting appropriate program for the desired protocol.
7. Positioning patient to best demonstrate anatomic area of interest, respecting patient ability and comfort.
8. Immobilizing patient as required for appropriate examination.
9. Applying principles of radiation protection, when appropriate, to minimize exposure to patient, self, and others.
10. Assuming responsibility for provision of physical and psychological needs of patient during procedures.
11. Performing computed tomography procedures.
12. Verifying informed consent as needed.
13. Following the direction of a licensed practitioner, the CT technologist assists with interventional CT procedures, and applies appropriate aseptic surgical technique as needed.
14. Performing venipuncture where state statutes and/or institutional policy permits and with the appropriate clinical and didactic education where state and/or institutional policy permits.
15. Preparing, identifying, and/or administering contrast media and/or medications as prescribed by a licensed practitioner, where state statute and/or institutional policy permit.
16. Evaluating images for technical quality, manipulating display parameters, and providing hard copy records, ensuring proper identification is recorded.

17. Maintaining archival storage of digitized data as appropriate and documenting patient dose exposures.
18. Initiating basic life support actions when necessary.
19. Providing patient education.
20. Assisting in maintaining patient records, respecting confidentiality and established policy.
21. Assuming responsibility for assigned area and reporting equipment malfunction.
22. Providing practical instruction for students and/or other health care professionals.
23. Participating in the department's quality assessment and improvement plan.
24. Assuming responsibility for the control of inventory and purchase of supplies for the assigned area.
25. Observing universal precautions.
26. Administering medications at the physician's request according to policy.
27. Starting and maintaining intravenous (IV) access per orders when applicable.

Comprehensive Practice

Computed tomography procedures are performed on any or all body organs, systems, or structures. Individuals demonstrate competency to meet state licensure, permit, or certification requirements defined by law and institutional policy for computed tomography and maintain appropriate medical imaging credentials.

Computed Tomography Clinical Performance Standards

Standard One – Assessment

The practitioner collects pertinent data about the patient and the procedure.

Rationale

Information about the patient's health status is essential in providing appropriate imaging and therapeutic services.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Uses consistent and appropriate techniques to gather relevant information from the patient, medical record, significant others, and health care providers.
2. Reconfirms patient identification and verifies the procedure requested or prescribed.
3. Reviews the patient's medical record to verify the appropriateness of a specific exam or procedure.
4. Verifies the patient's pregnancy status.
5. Determines whether the patient has been prepared for the procedure.
6. Corroborates patient's clinical history with procedure.
7. Assesses factors that may contraindicate the procedure, such as medications, patient history, insufficient patient preparation, or artifacts.
8. Recognizes signs and symptoms of an emergency.

Specific Criteria

The practitioner:

1. Assesses patient risk for allergic reaction to contrast media prior to administration.
2. Locates and reviews previous examinations for comparison.
3. Receives, relays, and documents verbal and/or telephone orders in the patient's chart.
4. Identifies and removes artifact-producing objects such as dentures, telemetry units, chest leads, jewelry, and hearing aids.

Standard Two – Analysis/Determination

The practitioner analyzes the information obtained during the assessment phase and develops an action plan for completing the procedure.

Rationale

Determining the most appropriate action plan enhances patient safety and comfort, optimizes diagnostic and therapeutic quality, and improves efficiency.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Selects the most appropriate and efficient action plan after reviewing all pertinent data and assessing the patient's abilities and condition.
2. Uses professional judgment to adapt imaging and therapeutic procedures to improve diagnostic quality and therapeutic outcome.
3. Consults appropriate medical personnel to determine a modified action plan.
4. Determines the need for and selects supplies, accessory equipment, shielding, and immobilization devices.
5. Determines the course of action for an emergency or problem situation.
6. Determines that all procedural requirements are in place to achieve a quality diagnostic or therapeutic procedure.

Specific Criteria

The practitioner:

1. Selects various power-up techniques, including routine, nonroutine and fast activation.
2. Determines optimum placement of electrocardiogram (ECG) electrodes.
3. Evaluates lab values prior to administering contrast media, beginning interventional procedures, or fusion imaging.
4. Determines patient compliance with pre-examination preparation instructions (e.g., diet, medications).
5. Reviews the patient's medical record and the licensed independent practitioner's request to determine optimal scanning parameters for clinical indication.

6. Determines the appropriate type and dose of contrast media to be administered, based on the patient's age, weight, and medical or physical status.

Standard Three – Patient Education

The practitioner provides information about the procedure and related health issues according to protocol.

Rationale

Communication and education are necessary to establish a positive relationship.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Verifies that the patient has consented to the procedure and fully understands its risks, benefits, alternatives, and follow-up. When appropriate, the practitioner verifies that written or informed consent has been obtained.
2. Provides accurate explanations and instructions at an appropriate time and at a level the patients and their care providers can understand. Addresses patient questions and concerns regarding the procedure.
3. Refers questions about diagnosis, treatment, or prognosis to a licensed independent practitioner.
4. Provides related patient education.

Specific Criteria

The practitioner:

1. Instructs patients regarding examination preparation prior to imaging procedures.
2. Instructs patients regarding contrast considerations.
3. Provides information about risks and benefits of radiation.
4. Consults with other departments, such as patient transportation and anesthesia, for patient services.
5. Explains precautions regarding administration of pharmaceuticals.

Standard Four – Performance

The practitioner performs the action plan.

Rationale

Quality patient services are provided through the safe and accurate performance of a deliberate plan of action.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Performs procedural time-out.
2. Implements an action plan.
3. Explains each step of the action plan to the patient as it occurs and elicits the cooperation of the patient.
4. Uses an integrated team approach.
5. Modifies the action plan according to changes in the clinical situation.
6. Administers first aid or provides basic life support in emergency situations.
7. Uses accessory equipment.
8. Assesses and monitors the patient's physical, emotional, and mental status.
9. Administers oxygen as prescribed.
10. Uses principles of sterile technique.
11. Positions patient for anatomic area of interest, respecting patient ability and comfort.
12. Immobilizes patient for examination.

Specific Criteria

The practitioner:

1. Performs venipuncture, verifies IV patency, and maintains IV access.
2. Administers pharmaceuticals.

3. Monitors the patient for reactions to pharmaceuticals.
4. Utilizes radiation shielding devices.
5. Utilizes technical factors according to equipment specifications to minimize radiation exposure to the patient.
6. Identifies positive cardiac R-wave trigger.
7. Collects and documents tissue samples.

Standard Five – Evaluation

The practitioner determines whether the goals of the action plan have been achieved.

Rationale

Careful examination of the procedure is important to determine that expected outcomes have been met.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Evaluates the patient and the procedure to identify variances that may affect the expected outcome.
2. Completes the evaluation process in a timely, accurate, and comprehensive manner.
3. Measures the procedure against established policies, protocols, and benchmarks.
4. Identifies exceptions to the expected outcome.
5. Documents exceptions in a timely, accurate, and comprehensive manner.
6. Develops a revised action plan if necessary to achieve the intended outcome.
7. Communicates revised action plan to appropriate team members.

Specific Criteria

The practitioner:

1. Reviews images to determine if additional scans will enhance the diagnostic value of the procedure.

Standard Six – Implementation

The practitioner implements the revised action plan.

Rationale

It may be necessary to make changes to the action plan to achieve the expected outcome.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Bases the revised plan on the patient's condition and the most appropriate means of achieving the expected outcome.
2. Takes action based on patient and procedural variances.
3. Measures and evaluates the results of the revised action plan.
4. Notifies appropriate health care provider when immediate clinical response is necessary based on procedural findings and patient condition.

Specific Criteria

The practitioner:

1. Performs retrospective reconstruction on raw data.
2. Performs routine and specialized postprocessing.
3. Adjusts imaging parameters, patient procedure, or computer-generated information to improve the outcome.

Standard Seven – Outcomes Measurement

The practitioner reviews and evaluates the outcome of the procedure.

Rationale

To evaluate the quality of care, the practitioner compares the actual outcome with the expected outcome.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Reviews all diagnostic or therapeutic data for completeness and accuracy.
2. Determines whether the actual outcome is within established criteria.
3. Evaluates the process and recognizes opportunities for future changes.
4. Assesses the patient's physical, emotional, and mental status prior to discharge from the practitioner's care.

Specific Criteria

None added.

Standard Eight – Documentation

The practitioner documents information about patient care, the procedure, and the final outcome.

Rationale

Clear and precise documentation is essential for continuity of care, accuracy of care, and quality assurance.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Documents diagnostic, treatment, and patient data in the record in a timely, accurate, and comprehensive manner.
2. Documents exceptions from the established criteria or procedures.
3. Provides appropriate information to authorized individual(s) involved in the patient's care.
4. Participates in billing and coding procedures.
5. Archives images or data.

Specific Criteria

The practitioner:

1. Archives images to data storage devices.
2. Documents radiation exposure parameters.
3. Documents administered radionuclide activity and volume.
4. Documents procedural time-out.

Computed Tomography Quality Performance Standards

Standard One – Assessment

The practitioner collects pertinent information regarding equipment, procedures, and the work environment.

Rationale

The planning and provision of safe and effective medical services relies on the collection of pertinent information about equipment, procedures, and the work environment.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Determines that services are performed in a safe environment, free from any potential hazards.
2. Confirms that equipment performance, maintenance, and operation comply with manufacturer's specifications.
3. Verifies that protocol and procedure manuals include recommended criteria and are reviewed and revised.

Specific Criteria

The practitioner:

1. Participates in radiation protection, patient safety, risk management, and quality management activities.
2. Performs area monitoring and surveys to assess radiation exposure levels and contamination sites.
3. Complies with federal and state laws to minimize radiation exposure levels.
4. Maintains controlled access to restricted area during radiation exposure.
5. Maintains and performs quality control on radiation safety equipment such as aprons, thyroid shields, etc.

Standard Two – Analysis/Determination

The practitioner analyzes information collected during the assessment phase to determine the need for changes to equipment, procedures, or the work environment.

Rationale

Determination of acceptable performance is necessary to provide safe and effective services.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Assesses services, procedures, and environment and adjusts the action plan.
2. Monitors equipment to meet or exceed established standards and adjusts the action plan.
3. Assesses and maintains the integrity of medical supplies such as a lot/expiration, sterility, etc.

Specific Criteria

The practitioner:

1. Evaluates results of quality control testing on radioactive material for compliance.

Standard Three – Education

The practitioner informs the patient, public, and other health care providers about procedures, equipment, and facilities.

Rationale

Open communication promotes safe practices.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Elicits confidence and cooperation from the patient, the public, and other health care providers by providing timely communication and effective instruction.
2. Presents explanations and instructions at the learner's level of understanding.
3. Educates the patient, public, and other health care providers about procedures along with the biological effects of radiation, sound wave, or magnetic field, and protection.
4. Provides information to patients, health care providers, students, and the public concerning the role and responsibilities of individuals in the profession.

Specific Criteria

None added.

Standard Four – Performance

The practitioner performs quality assurance activities.

Rationale

Quality assurance activities provide valid and reliable information regarding the performance of equipment, materials, and processes.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Acquires information on equipment, materials, and processes.
2. Performs quality assurance activities.
3. Provides evidence of ongoing quality assurance activities.
4. Verifies performance and results of quality control of imaging and support equipment.

Specific Criteria

The practitioner:

1. Monitors image production to determine technical acceptability.
2. Performs routine archiving status checks.
3. Performs quality testing on radioactive materials prior to administration.
4. Complies with radiation protection rules and standards.
5. Utilizes radiation detecting equipment.
6. Demonstrates safe handling, storage, and disposal of radioactive materials.
7. Monitors shielding effectiveness.
8. Consults with medical physicist in performing and documenting the quality assurance tests.

Standard Five – Evaluation

The practitioner evaluates quality assurance results and establishes an appropriate action plan.

Rationale

Equipment, materials, and processes depend on ongoing quality assurance activities that evaluate performance based on established guidelines.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Verifies quality assurance testing conditions and results.
2. Compares quality assurance results to accepted values.
3. Formulates an action plan following the comparison of results.
4. Participates in the institution's quality assessment and improvement plan.

Specific Criteria

None added.

Standard Six – Implementation

The practitioner implements the quality assurance action plan for equipment, materials, and processes.

Rationale

Implementation of a quality assurance action plan promotes safe and effective services.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Obtains assistance from qualified personnel to support the quality assurance action plan.
2. Implements the quality assurance action plan.

Specific Criteria

The practitioner:

1. Employs devices to minimize radiation levels.
2. Uses decontamination procedures.

Standard Seven – Outcomes Measurement

The practitioner assesses the outcome of the quality management action plan for equipment, materials, and processes.

Rationale

Outcomes assessment is an integral part of the ongoing quality management action plan to enhance diagnostic and therapeutic services.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Reviews the implementation process for accuracy and validity.
2. Determines that actual outcomes are in compliance with the action plan.
3. Develops and implements a modified action plan.

Specific Criteria

None added.

Standard Eight – Documentation

The practitioner documents quality assurance activities and results.

Rationale

Documentation provides evidence of quality assurance activities designed to enhance safety.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Maintains documentation of quality assurance activities, procedures, and results.
2. Provides timely, accurate, and comprehensive documentation.
3. Provides documentation that adheres to protocol, policy, and procedures.
4. Reports the need for equipment maintenance and repair.

Specific Criteria

The practitioner:

1. Documents radioactive materials quality testing procedures and maintains results for inspection.
2. Documents instrumentation quality testing procedures and maintains results for review.

Computed Tomography Professional Performance Standards

Standard One – Quality

The practitioner strives to provide optimal patient care.

Rationale

Patients expect and deserve optimal care during diagnosis and treatment.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Collaborates with others to elevate the quality of care.
2. Participates in quality assurance programs.
3. Adheres to standards, policies, and procedures adopted by the profession and regulated by law.
4. Applies professional judgment and discretion while performing diagnostic study or treatment.
5. Anticipates and responds to patient needs.
6. Respects cultural variations and addresses misconceptions.

Specific Criteria

The practitioner:

1. Performs procedures in accordance with the Nuclear Regulatory Commission (NRC) or in agreement with state's regulations.

Standard Two – Self-Assessment

The practitioner evaluates personal performance.

Rationale

Self-assessment is necessary for personal growth and professional development.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Monitors personal work ethics, behaviors, and attitudes.
2. Evaluates performance and recognizes opportunities for self-improvement.
3. Recognizes and applies personal and professional strengths.
4. Performs procedures only when educationally prepared and clinically competent.
5. Recognizes opportunities for educational growth and improvement in technical and problem-solving skills.
6. Actively participates in professional societies and organizations.

Specific Criteria

None added.

Standard Three – Education

The practitioner acquires and maintains current knowledge in clinical practice.

Rationale

Advancements in the profession require additional knowledge and skills through education.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Demonstrates completion of education related to clinical practice.
2. Maintains credentials and certification related to clinical practice.
3. Participates in continuing education and case review to maintain and enhance competency and performance.
4. Shares knowledge and expertise with others.
5. Demonstrates understanding of and continued competency in the functions and operations of equipment, accessories, treatment and imaging methods, and protocols.

Specific Criteria

None added.

Standard Four – Collaboration and Collegiality

The practitioner promotes a positive, collaborative practice atmosphere with other members of the health care team.

Rationale

To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Shares knowledge and expertise with members of the health care team.
2. Develops collaborative partnerships to enhance diagnostic and therapeutic quality and efficiency.
3. Promotes understanding of the profession.

Specific Criteria

The practitioner:

1. Instructs others in postprocedural radiation safety.

Standard Five – Ethics

The practitioner adheres to the profession's accepted ethical standards.

Rationale

Decisions made and actions taken on behalf of the patient are based on a sound ethical foundation.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Provides health care services with respect for the patient's dignity, age-specific needs, and culture.
2. Acts as a patient advocate to support patients' rights.
3. Takes responsibility for professional decisions made and actions taken.
4. Delivers patient care and service free from bias or discrimination.
5. Respects the patient's right to privacy and confidentiality.
6. Adheres to the established practice standards of the profession.

Specific Criteria

None added.

Standard Six – Research and Innovation

The practitioner participates in the acquisition and dissemination of knowledge and the advancement of the profession.

Rationale

Scholarly activities such as research, scientific investigation, presentation, and publication advance the profession.

General Stipulation

Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

General Criteria

The practitioner:

1. Reads and critically evaluates research in diagnostic and therapeutic services.
2. Participates in data collection.
3. Investigates innovative methods for application in practice.
4. Shares information with colleagues through publication, presentation, and collaboration.
5. Adopts new best practices.
6. Pursues a life of learning.

Specific Criteria

None added.

Computed Tomography Advisory Opinion Statements

Medical Imaging and Radiation Therapy Glossary

Action Plan – A program or method developed prior to the performance of the examination or treatment.

Advanced-practice radiologic technologist – A registered technologist who has gained additional knowledge and skills through successful completion of an organized program or radiologic technology education that prepares radiologic technologists for advanced practice roles and has been recognized by the national certification organization to engage in the practice of advanced-practice radiologic technology.

Arthrogram – Visualization of a joint by radiographic study after injection of a contrast medium into joint space.

Artifact – A structure or feature produced by the technique used and not occurring naturally.

Assess – To determine the significance, importance, or value.

Assessment – The process by which a patient's condition is appraised or evaluated.

Clinical – Pertaining to or founded on actual observation and treatment of patients.

Competency – Performance in a manner that satisfies the demands of a situation.

Contrast medium – Substance administered to a patient undergoing an imaging procedure that provides a difference in density (contrast) so that the tissue, organ, or pathology can be better visualized.

Contraindicate – To warrant an otherwise advisable procedure or treatment inappropriate.

Cholangiogram – A radiograph of the bile duct(s).

Cystogram – A radiograph of the bladder.

Disease – A pathological condition of the body that presents a group of clinical signs, symptoms, and laboratory findings peculiar to it and setting the condition apart as an abnormal entity differing from other normal or pathological conditions.

Ductogram – A radiograph of the breast duct after injection of a contrast medium.

Electrocardiogram (ECG) – A record of the electrical activity of the heart.

Esophagram – A series of x-rays of the esophagus. The x-ray images are captured after the patient drinks a solution that coats and outlines the walls of the esophagus. Also called a barium swallow.

Ethical – Conforming to the norms or standards of professional conduct.

Examination preparation – The act of helping to ready a patient for a diagnostic imaging procedure.

Fistulogram – A radiograph of a sinus tract filled with radiopaque contrast medium to determine the range and course of the tract.

Galactogram – A radiograph of the breast duct after injection of a contrast medium.

Hysterosalpingogram – A radiograph of the uterus and oviducts after injection of a contrast medium.

Initial observation – Assessment of technical image quality with pathophysiology correlation communicated to a radiologist.

Interpretation – The process of examining and analyzing all images within a given procedure and integration of the imaging data with appropriate clinical data in order to render an impression or conclusion set forth in a formal written report composed and signed by the radiologist.

Interventional procedures – Percutaneous catheterization for diagnostic and therapeutic purposes.

Licensed independent practitioner – An individual permitted by law to provide care and services, without direction or supervision, within the scope of the individual's license and consistent with individually granted privileges (e. g., physician, nurse practitioner, physician assistant).

Loopogram – A radiograph of the ileal conduit following the injection of a contrast medium.

Myelogram – A radiograph of the spinal cord and associated nerves.

Paracentesis – Puncture of a cavity with removal of fluid.

Pathophysiology – The study of how normal physiological processes are altered by disease.

Pharmaceutical – Contrast media, radiopharmaceuticals or other medications. Note: the ASRT House of Delegates has indicated that administration of contrast media or other medications is within the scope of practice for radiologic technologists (see also ASRT Position Statements titled "Drug Administration by Radiologic Technologists).

Protocol – The plan for carrying out a scientific study or a patient's treatment regimen.

Qualified Supervisor – Individual who is educationally prepared, clinically competent, and credentialed in the medical imaging and radiation therapy sciences who provides clinical supervision to the individual.

Quality assurance – Activities and programs designed to achieve a desired degree or grade of care in a defined medical, nursing, or health care setting or program.

Radiation protection – Prophylaxis against injury from ionizing radiation. The only effective preventive measures are shielding the operator, handlers, and patients from the radiation source; maintaining appropriate distance from the source; and limiting the time and amount of exposure.

Radiography – The process of obtaining an image for diagnostic examination using x-rays.

Sinogram – A radiograph of a sinus tract filled with radiopaque contrast medium to determine the range and course of the tract.

T-tube – A device inserted into the biliary duct after removal of the gallbladder.

Thoracentesis – Puncture of the chest wall for removal of fluids, usually done by using a large-bore needle.

Time-out – Immediate preprocedural pause to review procedure and determine the correct procedure is conducted upon the correct patient in the correct manner.

Urethrogram – A radiograph of the urethra after it has been filled with a contrast medium.

Upper GI series – A series of x-rays of the esophagus, stomach, and small intestine (upper gastrointestinal, or GI, tract) that are taken after the patient drinks a barium solution.

Venipuncture – The puncture of a vein.