



Nuclear Medicine Technology

1. Introduction

Candidates for certification and registration are required to meet the Professional Education Requirements specified in the *ARRT Rules and Regulations*. *ARRT's Nuclear Medicine Technology Didactic and Clinical Competency Requirements* are one component of the Professional Education Requirements.

The requirements are periodically updated based upon a [practice analysis](#) which is a systematic process to delineate the job responsibilities typically required of nuclear medicine technologists. The result of this process is a [task inventory](#) which is used to develop the clinical competency requirements (see section 4 below) and the content specifications which serve as the foundation for the didactic competency requirements (see section 3 below) and the examination.

2. Documentation of Compliance

To document that the *Didactic and Clinical Competency Requirements* have been satisfied by a candidate, the program director (and authorized faculty member if required) must sign the ENDORSEMENT SECTION of the *Application for Certification and Registration* included in the *Certification and Registration Handbook*.

Candidates who complete their educational program during 2017 or 2018 may use either the 2014 Didactic and Clinical Competency Requirements or the 2017 requirements. Candidates who complete their educational program after December 31, 2018 must use the 2017 requirements.

3. Didactic Competency Requirements

The purpose of the didactic competency requirements is to verify that individuals had the opportunity to develop fundamental knowledge, integrate theory into practice and hone affective and critical thinking skills required to demonstrate professional competency. Candidates must successfully complete coursework addressing the topics listed in the [ARRT Content Specifications](#) for the Nuclear Medicine Technology Examination. These topics would typically be covered in a nationally-recognized curriculum such as the SNMMI Curriculum Guide for Educational Programs in Nuclear Medicine Technology. Educational programs accredited by a mechanism acceptable to ARRT generally offer education and experience beyond the minimum requirements specified here.

4. Clinical Competency Requirements

The purpose of the clinical competency requirements is to verify that individuals certified and registered by the ARRT have demonstrated competency performing the clinical activities fundamental to a particular discipline. Competent performance of these fundamental activities, in conjunction with mastery of the cognitive knowledge and skills covered by the nuclear medicine technology examination, provides the basis for the acquisition of the full range of procedures typically required in a variety of settings. Demonstration of clinical competence means that the candidate has performed the procedure independently, consistently, and effectively during the course of his or her formal education. The following pages identify the specific procedures for the clinical competency requirements. Candidates may wish to use these pages, or their equivalent, to record completion of the requirements. The pages do NOT need to be sent to the ARRT.



4.1 General Performance Considerations

4.1.1 Patient Diversity

Demonstration of competence should include variations in patient characteristics such as age, gender, and medical condition.

4.1.2 Simulated Performance

The ARRT requirements specify that certain clinical procedures may be simulated as designated in the specific requirements below. Simulations must meet the following criteria:

- The candidate must simulate the procedure on another person with the same level of cognitive, psychomotor, and affective skills required for performing the procedure on a patient. Examples of acceptable simulation include demonstrating CPR on a mannequin, performing venipuncture by demonstrating aseptic technique on another person, but then inserting the needle into an artificial forearm or suitable device;
- The program director must be confident that the skills required to competently perform the simulated task will generalize or transfer to the clinical setting, and, if applicable, the candidate must evaluate related images.

4.1.3 Elements of Competence

Demonstration of clinical competence requires that the program director or the program director's designee has observed the candidate performing the procedure independently, consistently, and effectively during the course of the candidate's formal educational program.

4.2 Nuclear Medicine Specific Requirements

As part of the education program, candidates must demonstrate competence in the clinical activities identified below. These clinical activities are listed in more detail in the following sections.

- Six patient care activities;
- Five quality control procedures; and
- 25 diagnostic and therapeutic procedures.



4.2.1 General Patient Care

Candidates must be CPR certified and demonstrate competence in the remaining five patient care activities listed below. The activities should be performed on patients whenever possible, but simulation is acceptable.

General Patient Care Procedures	Date Completed	Competence Verified By
CPR Certified		
Vital Signs – Blood Pressure		
Vital Signs – Pulse		
Vital Signs – Respiration		
Venipuncture		
ECG (e.g., Lead Placement and Recognition of Common Dysrhythmias)		

4.2.2 Quality Control Procedures

Candidates must demonstrate competence in all five quality control activities listed below.

Quality Control Procedures	Date Completed	Competence Verified By
SPECT Gamma Camera (Uniformity, Resolution, and Center of Rotation)		
Dose Calibrator (Constancy and Linearity)		
Well Counter/Uptake Probe (Energy Calibration)		
Survey Meter (Battery Check and Constancy)		
PET or PET/CT (Reference or Blank Scan)		

4.2.3 Diagnostic and Therapeutic Specific Requirements

Candidates must demonstrate competence in 25 different nuclear medicine procedures. Candidates should demonstrate the following skills when performing the procedures:

- Patient identify verification;
- Evaluation of requisition;
- Patient instructions;
- Preparation and care;
- Selection, handling, and administration of radiopharmaceutical;
- Equipment configuration and patient positioning;
- Radiation safety; and
- Image processing and evaluation.

All procedures must be performed on patients, with the exception of therapeutic procedures which may be simulated.



4.2.3 Diagnostic and Therapeutic Specific Requirements (continued)

The 25 procedures to be performed are selected from the categories (cardiovascular, endocrine, etc.) listed in the table below. One mandatory procedure, tumor PET or PET/CT, is required. Candidates must select an additional 16 of the 24 procedures from the categories as specified in the table. The remaining 8 procedures may be chosen from any category. The table indicates the procedures in each category, and specifies the minimum number of procedures that must be performed in each category. One patient may be used for multiple procedures.

Category*	# Procedures in Category	# That Must Be Performed
Abscess and Infection (Elective)	2	0
Skeletal	3	2
Cardiovascular	4	2
Endocrine/Exocrine	4	2
Gastrointestinal	8	3
Genitourinary	3	1
Respiratory	3	2
Tumor	3	1
PET/CT	1	1
SPECT	6	2
Therapeutic Procedures	4	1
Central Nervous System (Elective)	<u>6</u>	<u>0</u>
Subtotal		17
		<u>+ 8</u> electives from any category
Total	47	25

Example: Assume a candidate demonstrates competence in 3 cardiovascular procedures (myocardial perfusion-rest, gated blood pool, and PET or PET/CT). This means that the candidate has fulfilled the cardiovascular requirement of 2 procedures, and has also completed 1 elective.

* Note: The specific nuclear medicine procedures within each category are identified on the following two pages.



4.2.3 Diagnostic and Therapeutic Specific Requirements (continued)

Candidates must demonstrate competence in 25 different nuclear medicine procedures.

Nuclear Medicine Procedures (# of Required Procedures Appears in Parentheses)	Date Completed	Patient or Simulated	Competence Verified By
Abscess and Infection (0 – Procedures are Elective)			
Gallium			
WBC Imaging			
Skeletal (2)			
Planar/Static			
Three-Phase			
Whole Body			
Cardiovascular (2)			
Gated Blood Pool Study			
Myocardial Perfusion-Stress			
Myocardial Perfusion-Rest			
PET or PET/CT			
Endocrine/Exocrine (2)			
Thyroid Uptake			
Thyroid Scan			
Thyroid Metastatic Survey			
Parathyroid			
Gastrointestinal (3)			
Hepatobiliary			
Gastroesophageal Reflux			
Gastric Emptying			
GI Bleeding			
Meckel Diverticulum			
Liver/Spleen			
Damaged RBC Spleen			
Hemangioma			
Genitourinary (1)			
Renal Function			
Renal Cortical			
Radionuclide Cystogram			
Respiratory (2)			
Perfusion			
Ventilation (Gas or Aerosol)			
Quantitative			



4.2.3 Diagnostic and Therapeutic Specific Requirements (continued)

Nuclear Medicine Procedures (# of Required Procedures Appears in Parentheses)	Date Completed	Patient or Simulated	Competence Verified By
Tumor (1)			
Gallium			
Lymphoscintigraphy			
Other (e.g., neuroendocrine, adrenal)			
PET or PET/CT (1)			
Tumor			
SPECT (2)			
Bone			
Brain			
Liver			
Tumor			
Cardiac			
Renal			
Therapeutic Procedures (1) (All may be Simulated)			
Thyroid: Ablation			
Thyroid: Hyperthyroidism			
Palliative Bone			
Non-Hodgkin Lymphoma			
Central Nervous System (0 – Procedures are Elective)			
Planar			
Dynamic			
PET or PET/CT			
Cisternography: Routine			
Cisternography: CSF Leak			
Shunt Patency			