



Computed Tomography

Candidates for certification and registration are required to meet the Professional Requirements specified in the *ARRT Rules and Regulations*. ARRT's *Computed Tomography Clinical Experience Requirements* describe the specific eligibility requirements that must be documented as part of the application for certification and registration process.

The purpose of the clinical experience requirements is to document that candidates have performed a subset of the clinical procedures within a **modality discipline**. Successful performance of these fundamental procedures/**examinations** in combination with mastery of the cognitive knowledge and skills as documented by the examination requirement, provides the basis for the acquisition of the full range of clinical skills required in a variety of settings.

ARRT periodically updates ~~the requirements are periodically updated~~ based upon a **practice analysis**, which is a systematic process to delineate the job responsibilities typically required of **computed tomography (CT)** technologists. ~~The result of this process is a task inventory. An advisory practice analysis~~ committee then determines the number of clinical procedures required to demonstrate adequate candidate experience in performing the tasks on the inventory.

Candidates for ~~computed tomography~~**CT** certification and registration must document performance of at least 125 ~~computed tomography~~ **CT examinations**/procedures according to the ~~criteria requirements~~ noted below. Procedures/**examinations** are documented, verified, and submitted when complete via an online ~~tool~~ **worksheet** accessible through your online account on arrt.org. ARRT encourages ~~individuals-technologists~~ to obtain education and experience beyond these minimum requirements.

Remote scanning is not acceptable for completion of ARRT Clinical Experience Requirements. The candidate must complete the examination or procedure at the facility where the patient and equipment are located. The candidate must be physically present during the examination or procedure.

Completion of each procedure/**examination** must be verified by an ARRT certified and registered technologist (postprimary certification not required) or an interpreting physician. The verification process is described within the online ~~tool~~**worksheet**. **A maximum of 9 examinations may be logged each day in the online worksheet.**

Specific ~~Procedural~~ Requirements for CT Procedures/Examinations

The clinical experience requirements for CT consist of **672** procedures in ~~six-6~~ different categories:

- A. Head, Spine, and Musculoskeletal
- B. Neck and Chest
- C. Abdomen and Pelvis
- D. Additional Procedures/**Examinations**
- E. Image Display and Post~~p~~-Processing
- F. Quality Assurance

Candidates must document the performance of complete, diagnostic quality procedures/**examinations** according to the following ~~requirements~~**rules**:

- Choose a minimum of 25 different procedures/**examinations** out of the **672** procedures/**examinations** on the following pages.



- Complete and document a minimum of ~~three-3~~ and a maximum of ~~five-5~~ repetitions of each chosen procedure/examination; less than ~~three-3~~ will not ~~be counted~~ toward the total.
- A minimum ~~total~~ of 125 repetitions is required.
- A minimum ~~number~~ of 30 repetitions must be done with iodinated IV contrast.
- No more than ~~one-1~~ procedure/examination may be documented ~~on-one~~ per patient per day. For example, if an order requests CT chest, abdomen, and pelvis scans for ~~one-a~~ patient, only ~~one-1~~ of these may be ~~documented-used~~ for clinical experience documentation.
- ~~Computed Tomography~~ CT examinations/procedures performed for the purpose of a PET/~~or~~ SPECT attenuation correction or a radiation therapy planning ~~cannot be used to fulfill ARRT's~~ are not eligible for CT clinical experience requirements documentation.
- ~~Any non-cone beam CT scanner may be used to fulfill ARRT's clinical experience requirements~~ (*e.g., hybrid scanner, therapy planning scanner).

Examples

Candidate A: -This ~~person-technologist~~ works in a specialized setting and completes 25 different procedures/examinations (the minimum). To complete 125-repetitions, each of the 25 different procedures/examinations was performed ~~five-5~~ times.

Candidate B: -This ~~person-technologist~~ works in a facility that does most types of CT scans, so completing a wide variety of procedures/examinations ~~was is~~ quite feasible. A total of 35 different procedures/examinations were completed and documented. Although most of these procedures/examinations were performed ~~three-3~~ times (the minimum), some ~~of them~~ were performed ~~four-4~~ or ~~five-5~~ times ~~each-(the maximum)~~ until the candidate reached at least 125 ~~procedures~~ repetitions.

General Guidelines

To qualify as a complete, diagnostic quality CT ~~imaging~~ procedure/examination, the candidate must independently demonstrate appropriate:

- evaluation of ~~the~~ requisition and/or medical record
- preparation of ~~the~~ examination room
- ~~patient~~ identification ~~of patient~~
- patient assessment and education concerning the procedure/examination
- documentation of ~~the~~ patient's history, including allergies
- preparation and/or administration of contrast media, when indicated
- patient positioning
- protocol selection
- parameter selection
- ~~scan~~ initiation ~~scan~~
- image display and archiving
- documentation of ~~the~~ procedure/examination, ~~treatment~~, and patient data in appropriate record

*e.g., is used to indicate examples of the topics covered, but not a complete list

*The abbreviation "e.g.," is used to indicate that examples are listed in parentheses, but that it is not a complete list of all possibilities.



- patient discharge with postprocedure instructions
- CDC Standard Precautions
- radiation safety

and evaluate the resulting images for:

- technical image quality (*e.g., motion, artifacts, noise)
- optimal demonstration of anatomic region (e.g., delayed imaging, reconstruction algorithm, slice thickness)
- recognition of relevant pathology
- [procedure/examination](#) completeness

Attention: Your certification and registration process has requirements to complete clinical procedures including activating actual CT scans, known as “initiating the scan” or “making the exposure.” You are responsible for ensuring state laws allow you to complete this requirement.

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Procedures/Examinations

A. Head, Spine, and Musculoskeletal

1. head without contrast
2. head with contrast**
3. ~~head~~ trauma ~~head~~
4. ~~arteriography~~ head ~~arteriography~~ (CTA)**
5. ~~venography~~ head ~~venography~~ (CTV)**
6. brain perfusion**
7. temporal bones/IACs
8. orbits
9. sinuses
10. ~~maxillofacial bones/~~
11. ~~dedicated~~ mandible
12. cervical spine
13. thoracic spine
14. ~~lumbosacral~~ spine
15. ~~post~~-myelography
16. spine~~al~~ trauma
17. upper extremity
18. lower extremity
19. arthrography
20. shoulder ~~and/or scapula-~~
21. bony pelvis ~~and/or-~~
22. hips
23. ~~musculoskeletal~~ ~~extremity~~ trauma
24. ~~arteriography~~ extremity ~~arteriography~~/runoff (CTA)**
25. ~~venography~~ extremity ~~venography~~ (CTV)**

B. Neck and Chest

1. ~~larynx/airway~~ without contrast
2. soft tissue neck**
3. ~~arteriography~~ neck ~~arteriography~~ (CTA)**
4. ~~venography~~ neck ~~venography~~ (CTV)**
5. chest without contrast
6. chest with contrast**
7. chest trauma**
8. vascular chest (CTA, CTV, aorta, SVC)**
9. pulmonary angiography/PE study (CTPA)**
10. cardiac** (e.g., coronary angiography, gating, TAVR)
11. coronary artery calcium scoring
12. lungs (e.g., HRCT, ILD, nodule)
13. low-dose lung screening
14. ~~esophagram~~ with oral contrast

C. Abdomen and Pelvis

1. abdomen/pelvis without contrast
2. abdomen/pelvis with contrast**
3. ~~abdomen~~ ~~inal~~ trauma**
4. ~~liver~~ (multi-phase) ~~liver~~**
5. multiphase pancreas**
6. ~~multiphase~~ adrenals**
7. multi-phase) ~~kidneys~~**
8. urogram/IVU**
9. renal stone ~~protocol (without IV contrast)~~
10. enterography ~~study~~
11. appendicitis** ~~study~~
12. ~~abdomen/pelvis~~ arteriography ~~abdomen/pelvis~~ (CTA)**
13. ~~abdomen/pelvis~~ venography ~~abdomen/pelvis~~ (CTV)**
14. pelvis trauma**
15. retrograde cystogram
16. colorectal ~~studies~~ (rectal contrast)
17. ~~colonography~~ (virtual)

D. Additional Procedures/Examinations

1. biops~~y~~ies
2. drainages
3. aspirations
4. pediatric (6-12 and under)
6. ~~ablations~~
5. surgical planning

E. Image Display and Postp-Processing

1. ~~geometric~~, distance ~~measurement~~, or region of interest (ROI) ~~measurements~~
2. multiplanar reconstruction (MPR)
3. 3D rendering (e.g., MIP, SSD, VR)
4. retrospective reconstruction with different parameters (e.g., DFOV, algorithm, slice thickness)

F. Quality Assurance and Quality Control

1. ~~tube~~ warmup and calibration checks
2. CT number and standard deviation (water phantom)

** The use of iodinated IV contrast is mandatory to document this ~~procedure~~ examination.