



# 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. Successful performance of these fundamental procedures, 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.

The requirements are periodically updated based upon a [practice analysis](#) which is a systematic process to delineate the job responsibilities typically required of CT technologists. An advisory 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 certification and registration must document performance of at least 125 computed tomography procedures according to the criteria noted below. Procedures are documented, verified, and submitted when complete via an online tool accessible through your online account on [arrt.org](#). ARRT encourages individuals to obtain education and experience beyond these minimum requirements.

Remote scanning is not acceptable for completion of ARRT Clinical 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 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.

## Specific Procedural Requirements

The clinical experience requirements for CT consist of 62 procedures in six different categories:

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

Candidates must document the performance of complete, diagnostic quality procedures according to the following requirements:

- Choose a minimum of 25 different procedures out of the 62 procedures on the following pages.
- Complete and document a minimum of three and a maximum of five repetitions of each chosen procedure; less than three 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.
- A maximum of 9 repetitions may be logged from each day.
- No more than one procedure may be documented on one patient per day. For example, if an order requests chest, abdomen, and pelvis scans for one patient, only one of these may be documented for clinical experience documentation.
- Computed Tomography procedures performed for the purpose of a PET or SPECT attenuation correction or a radiation therapy planning cannot be used to fulfill ARRT's clinical experience requirements.
- Any non-cone beam CT scanner may be used to fulfill ARRT's clinical experience requirements (e.g., hybrid scanner, therapy planning scanner).

## General Guidelines

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

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



## Examples

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

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

\* 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.



## Procedures

### A. Head, Spine, and Musculoskeletal

1. head without contrast
2. head with contrast\*
3. trauma head
4. arteriography head (CTA)\*
5. venography head (CTV)\*
6. brain perfusion\*
7. temporal bones/IACs
8. orbits
9. sinuses
10. facial bones/mandible
11. cervical spine
12. thoracic spine
13. lumbar spine
14. spinal trauma
15. upper extremity
16. lower extremity
17. shoulder and/or scapula
18. bony pelvis and/or hips
19. musculoskeletal trauma
20. arteriography extremity/runoff (CTA)\*
21. venography extremity (CTV)\*

### B. Neck and Chest

1. soft tissue neck
2. arteriography neck (CTA)\*
3. venography neck (CTV)\*
4. chest without contrast
5. chest with contrast\*
6. HRCT
7. low dose lung screening
8. chest trauma\*
9. pulmonary angiography/PE study (CTPA)\*
10. vascular chest (CTA, CTV, aorta, SVC)\*
11. heart (e.g., coronary angiography, TAVR, PVS)\*
12. coronary artery calcium scoring

### C. Abdomen and Pelvis

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

### D. Additional Procedures

1. biopsies
2. drainages
3. aspirations
4. pediatric (12 and under)
5. arthrography
6. ablations
7. myelography

### E. Image Display and Post Processing

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

### F. Quality Assurance and Quality Control

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

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