



Bone Densitometry

Certification and registration requirements for bone densitometry are based on the results of a comprehensive practice analysis conducted by The American Registry of Radiologic Technologists (ARRT) staff and the Bone Densitometry Practice Analysis and Continuing Qualifications Requirements (CQR) Advisory Committee. The purpose of the practice analysis is to identify job responsibilities typically required of bone densitometrists at entry into the profession. The results of the practice analysis are reflected in this document. The purpose of the task inventory is to list or delineate those responsibilities. The task inventory is the foundation for both the clinical experience requirements and the content specifications.

Basis of Task Inventory

In 2016, the ARRT surveyed a large national sample of bone densitometrists to identify their responsibilities. When evaluating survey results, the advisory committee applied a 40% guideline. That is, to be included on the task inventory an activity must have been the responsibility of at least 40% of bone densitometrists. The advisory committee could include an activity that did not meet the 40% criterion if there was a compelling rationale to do so (e.g., a task that falls below the 40% guideline but is expected to rise above the 40% guideline in the near future).

Application to Clinical Experience Requirements

The purpose of the clinical experience requirements is to verify that candidates have completed a subset of the clinical procedures within bone densitometry. Successful performance of these fundamental procedures, in combination with mastery of the cognitive knowledge and skills covered by the bone densitometry examination, provides the basis for acquisition of the full range of clinical skills required in a variety of settings. An activity must appear on the task inventory to be considered for inclusion in the clinical experience requirements. For an activity to be designated as a mandatory requirement, survey results had to indicate the vast majority of technologists performed that activity. The advisory committee designated clinical activities performed by fewer technologists or which are carried out only in selected settings, as elective. The clinical experience requirements are available from ARRT's website (www.arrt.org) and appear in the *Bone Densitometry Certification and Registration Handbook* also located on the ARRT website.

Application to Content Specifications

The purpose of the ARRT Bone Densitometry Examination is to assess the knowledge and cognitive skills underlying the intelligent performance of the tasks typically required of bone densitometrists at entry into the profession. The content specifications identify the knowledge areas underlying performance of the tasks on the task inventory. Every content category can be linked to one or more activities on the task inventory. Note that each activity on the task inventory is followed by a content category that identifies the section of the content specifications corresponding to that activity. The content specifications are available from ARRT's website (www.arrt.org) and appear in the *Bone Densitometry Certification and Registration Handbook*.



Content Categories

Legend: PC = Patient Care,
IP = Image Production,
P = Procedures

Activity

1. Perform routine QC tests on scanning equipment according to manufacturer guidelines.	IP.1.G.
2. Inspect and interpret results of routine QC tests and determine need for corrective action.	IP.1.G.4.
3. Arrange for corrective action or repairs based on the results of QC tests.	IP.1.G.4.
4. Record results of QC tests in binder, chart, or database.	IP.1.G.
5. Inspect equipment to make sure it is operable and safe (*e.g., cables, cords, table pads).	IP.1.H.2.
6. Troubleshoot mechanical problems for scanning equipment.	IP.1.H.
7. Perform an in vivo precision study.	IP.1.F.3.E.
8. Ensure that cross-calibration between new/existing machines is performed as needed.	IP.1.H.3.
9. Clean and disinfect work area.	PC.1.B.1.
10. Direct patients to where they can find more information about low bone density.	PC.1.A.
11. Educate patients about drug therapies related to bone health.	PC.1.A.5.C.
12. Educate new residents, staff technologists, ancillary staff, or students regarding bone densitometry.	PC.1.A.
13. Answer basic questions put forth by patient or family member (or refer them to appropriate resources) concerning bone health, fall prevention, exercise, and nutrition.	PC.1.A.
14. Explain procedure of DXA exam including positioning, duration, and notification policy of results.	PC.1.B.1.B.
15. Record patient history relevant to bone densitometry.	PC.1.B.1.C.
16. Verify current clinical indications meet specifications of CMS billing and coding guidelines if appropriate.	PC.1.A.4.
17. Determine if patient has recently received a radiopaque contrast agent or radionuclide.	PC.1.B.1.C.3.
18. Determine if patient has recently ingested contraindicated medications or supplements (e.g., calcium).	PC.1.B.1.C.
19. Question female patients of childbearing age about the possibility of pregnancy.	PC.1.B.1.C.4.
20. Measure and record patient's current height and weight.	PC.1.B.1.C.
21. Ask patients about their peak height.	PC.1.B.1.C.1.
22. Determine if patient anatomy, pathology, or other limitations require special consideration in patient positioning.	PC.1.B.1.E., P.1.A.2., P.1.B.2., P.1.C.2.
23. Ensure that artifact-producing objects (e.g., zippers, buttons, jewelry) within scan area have been removed from the patient.	PC.1.B.1.D.2.

*e.g., This is used here and in the remainder of this document to indicate examples of the topics covered, but not a complete list.



Activity	Content Categories
24. Prevent unnecessary persons from remaining in the area during x-ray exposure.	PC.1.B.2.
25. Take appropriate precautions to minimize occupational x-ray exposure.	PC.1.B.2.
26. Take appropriate precautions to minimize x-ray exposure to patient.	PC.1.B.2.
27. Provide mobility assistance to patients with disabilities or limited mobility.	PC.1.B.1.A.
28. Assist patient onto and off the scanning table.	PC.1.B.1.A.
29. Review patient records and provider's request to determine appropriate anatomical sites to scan.	PC.1.B.1.C.
30. Review prior scans and reproduce patient positioning during follow-up scan appointments.	P.1.A.2., P.1.B.2., P.1.C.2.
31. Select appropriate immobilization devices or positioning aids.	P.1.A.2.B., P.1.B.2.C., P.1.C.2.C.
32. Record positioning details in patient records to ensure consistency.	PC.1.B.1.E.
33. Enter accurate patient data necessary to initiate scan to utilize correct reference data.	PC.1.B.1.D.1., IP.1.E.
34. Select appropriate scan mode and perform necessary scans.	IP.1.
35. Position patient to scan desired region of interest (ROI) using bony landmarks and surface anatomical features.	P.1.A.1., P.1.B.1., P.1.C.1.
36. Evaluate accuracy of vertebral labels and intervertebral markers for scan of lumbar spine and modify if necessary.	P.1.A.4.
37. Evaluate automatic placement of region of interest (ROI) and modify if necessary.	P.1.A.3., P.1.B.3., P.1.C.3.
38. Enhance or modify image appearance.	P.1.A.4., P.1.B.4., P.1.C.4.
39. Compare bone density measurements from two different occasions (for same patient) to assess changes over time.	IP.1.F.4.
40. Evaluate scan results for technical problems (e.g., incorrect scan mode or site) and take corrective action.	IP.1.F.
41. Review scan results to identify bone density measurements that may be inaccurate due to artifacts, unusual anatomy, pathology, or positioning problems and rescan if necessary.	P.1.A.4., P.1.B.4., P.1.C.4.
42. Review scan results to determine if scanning an additional site is required in order to obtain more precise bone density measurements.	P.1.A.3., P.1.B.3., P.1.C.3.
43. Identify bone density measurements that require interpreting provider's attention (e.g., low T-score, unreliable results).	IP.1.E.
44. Utilize FRAX [®] tool to assess 10-year fracture risk.	IP.1.E.4.
45. Maintain patient records to include the archiving, deleting, and retrieving functions.	IP.1.I.



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Activity

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| 46. Perform bone densitometry scans using a fan beam system. | IP.1.C. |
| 47. Perform and analyze bone densitometry scans of the forearm utilizing DXA equipment. | P.1.C. |
| 48. Perform and analyze bone densitometry scans of the proximal femur utilizing DXA equipment. | P.1.B. |
| 49. Perform and analyze bone densitometry scans of the lumbar spine – PA utilizing DXA equipment. | P.1.A. |
| 50. Perform and analyze bone densitometry scans of the spine – VFA (vertebral fracture assessment) utilizing DXA equipment. | IP.1.E.5. |
| 51. Perform and analyze bone densitometry scans on pediatric patients (ages 5–19) utilizing DXA equipment. | IP.1.E.6. |