



State of California—Health and Human Services Agency
Department of Health Services



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Governor

**MINIMUM STANDARDS FOR TRAINING
X-RAY BONE DENSITOMETRY TECHNICIANS**

Revision date: 3.2011

I. Authority

The Radiologic Technology Act and the California Code of Regulations contain the established laws and regulations relative to education, training, and experience of x-ray bone densitometry technicians. The Department of Health Services (Department) has the responsibility to prescribe minimum standards of education, training, and experience and to provide for inspection and approval of x-ray bone densitometry technician course of study.

II. Definitions

“Clinical Supervision” refers to the role of a qualified instructor who provides direct supervision of the students as they perform the required scans

- 1. The committee recommends adding this definition because clinical supervision had never been defined.***
- 2. The role of the clinical supervisor is critical to the appropriate acquisition of required scans***
- 3. This definition clarifies the role of the clinical supervisor as it relates to bone densitometry.***
- 4. This definition is currently not part of the standards and this will clarify.***
- 5. No documents are affected by this change***
- 6. No additional technologies or equipment are required.***

“Direct supervision” means that the supervisor is present in the same room with the student at the time x-rays are being administered to the patient.

“Indirect supervision” means responsibility for, and control of, quality, radiation safety, and technical aspects of all x-ray examinations and procedures.

“X-ray bone densitometry” means a radiologic examination of all or part of the skeleton utilizing x-rays from an x-ray source that is mechanically ganged to a detector for scanning all or part of the skeleton under computer control.

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III. Application of Standards

These standards apply to all x-ray bone densitometry course of study.

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IV. Courses

- A. Each x-ray bone densitometry course shall offer didactic instruction and clinical training as specified in Section VIII of these standards.
- B. Approval of the application is subject to compliance with the laws and regulations.
- C. Provisional approval, not to exceed one year, may be granted based on commitments made by the training program to meet at least the standards outlined herein.
- D. Full approval, not to exceed five years, is subject to favorable evaluation of all pertinent documents and information submitted by the program. This may include the findings of a departmental report following an on-site inspection of the program.
- E. Approval is subject to periodic inspection or submission of progress reports, as specified by the Department.
- F. The Department may revoke, suspend, or place on probation any x-ray bone densitometry course of study for failure to comply with the applicable standards or for fraud, misrepresentation, or violation of any applicable state and federal law relating to the operation of an x-ray bone densitometry unit. Disciplinary action by the Department of an x-ray bone densitometry training program shall be in accordance with established procedures specified in the Government Code.

V. Facilities

- A. The training facility shall assure that the student body is provided with an area that will provide an acceptable learning atmosphere which will include a properly registered and calibrated bone density machine for completing laboratory activities

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- B. The clinical education facility shall provide sufficient procedures for students to meet the requirements pursuant to Section VIII of these standards.

VI. Organization

- A. Instructor(s) shall meet the following qualifications:

1.
 - a. The didactic instructor shall be a physician, physicist, radiology technologist, x-ray technician, or equivalent, qualified by training and experience to perform and instruct in the use of x-ray bone densitometry equipment.
 - b. The clinical instructor shall be a physician, physicist, radiology technologist, x-ray technician, or equivalent, qualified by training and experience to perform and instruct students in the use of x-ray bone densitometry equipment and shall be properly certificated or permitted by the State of California to conduct bone density testing.
2. Clinical instructors shall have at least one year of experience performing x-ray bone densitometry procedures.
 - 1 *The committee is recommending these changes because the roles of didactic and clinical had never been clearly defined.*
 - 2 *The adoption of these changes would provide the guidance needed to assure that instructors have the appropriate training and permitting while working with the students.*
 - 3 *The qualifications required to provide didactic and clinical are very different in scope and in permitting requirements. This change will delineate the differences.*
 - 4 *This area was regulated before but was not current with today's standards. Rationale will be apparent to those affected.*
 - 5 *This change is supported by today's state regulations as it relates to bone density testing.*
 - 6 *This change does not require any additional technology*

- B. Instructors shall be responsible for offering didactic and/or clinical training, and shall instruct students and oversee the proper maintenance of their clinical records pursuant to these standards.

1. This change reflects the wording appropriate to the activities of bone densitometry

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- 2. The purpose of the change is to reflect appropriate terminology in the regulations***
- 3. The change will bring regulation terminology in alignment with the actual field terminology***
- 4. This is not a new regulation merely a terminology correction***
- 5. This change is based on common knowledge***
- 6. No new technology required.***

VII. Administrative Policies, Records, and Reports

- A. Records shall be kept up-to-date and shall be readily available for inspection by an official representative of the Department. Records of attendance, diplomas or certificates issued, copies of all examinations administered and course pamphlets or advertising shall be kept for at least five years.
- B. The following records shall be kept on file:
 1. Administrative policies.
 2. Name and qualifications of instructor(s).
 3. Course outlines.
 4. Standards for grading (numerical equivalent or letter grades, and basis for deriving grades).
 5. Student attendance records, courses taken, grades received, units awarded if any.
 6. Evaluation of students' ability to perform clinical procedures.
 7. Final examinations.

Within 30 days after any of the following, the instructor or other individual associated with the x-ray bone densitometry course of study, shall inform the Department of:

1. Change in instructor.
2. The names and addresses of students who have graduated.
3. Change in course outline or course content.

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4. Change in x-ray bone densitometry course of study location or program's telephone number.
5. Change in clinical training affiliation.

VIII. Curriculum

- A. The curriculum shall provide for the acquisition of such knowledge, skills, and abilities as are required to qualify students for the State x-ray bone densitometry limited permit examination with reasonable assurance that students can pass the examination. The curriculum shall be of sufficient breadth to assure competence in the student's operation of x-ray bone densitometry equipment.
- B. The training (didactic, laboratory and clinical) shall extend over a period of at least three (3) days but not more than two (2) months.
- C. The didactic curriculum shall include at least the following:

<u>Subject</u>	<u>Hours of Instruction</u>
1. X-Ray theory:	
2. radiation physics, biology, and protection	3
2. Bone biology, bone disease and therapy,	3
3. X-ray Bone densitometry equipment	4
4. Component Hardware, Software, Computer Operation Quality Assurance	3
5. Anatomy and Positioning	4
6. Ethics and patient handling	1
<u>Total didactic hours:</u>	<u>18</u>

- D. The laboratory curriculum shall consist at least two hours of general clinical practice on phantoms, quality assurance training .including both:
 1. Experiments performed on phantoms.
 2. Acquiring and Evaluating Images.

Comment [PLS1]: Change is from 4 to 2 per 3-17-10 power point presentation.

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1. Terminology change to conform to prior changes

E. Direct supervised clinical education shall be provided **by qualified clinical instructors** and shall consist of the performance **of 20 scans by each student that** include the following:

1. *The prior standard was unclear about how many scans were required and / or allowed.*
2. *The amendment to this provision is intended to provide clarification about how many scans each student may and must perform and who may supervise that activity*
3. *This amendment defines the number of scans required and who may supervise students who are acquiring those scans*
4. *This change is needed to assure that students acquire the appropriate number of scans and are supervised appropriately since didactic instructors may not have the proper licensure or knowledge to be clinical instructors*
5. *This change is requested for clarification.*
6. *No additional technology required.*

	<u>Procedure</u>	<u>Number</u>
(1)	Posterior/Anterior spine	5
(2)	Hip	5
(3)	Extremities	10
(3)	Forearms	5
(4)	Others (whole body, VFA, hips spines)	5

1. *These changes are requested so that the students will be getting clinical experience in the areas they will be using as technicians*
2. *This amendment will allow the student to get experience conducting the type of scans they will most frequently be required to do as a technician.*
3. *The change allows for the most experience in the area of Hip and Spine which are the gold standard sites for densitometry. Additionally whole body and IVA/LVA studies are more & more frequently ordered.*
4. *The current regulation assumes a need for scanning fingers and heels. These sites are seldom used and require almost no instruction to perform. Hips & spines, the gold standard, require a very high skill level to do properly and therefore that is where the committee felt the time should be spent,*

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Allowing for IVA/LVA (lateral assessments) provides training in an area that is being ordered by physicians at the time of their DXA more and more since it is an opportunity to identify compression fractures with minimal exposure to x-ray.

Whole body composition is also more frequently ordered due to the capabilities of today's DXA equipment and the rising interest in body composition by physicians dealing with obesity and eating disorders.

5. *The collective knowledge of the experts on our committee.*
6. *This change will not require any additional equipment. Some machines may not have the IVA/LVA or whole body software (most do) but these scans are not required, only allowed by the amended provision.*

IX. Clinical Supervision

A. **The student** shall be under the direct supervision of a physician who holds a Radiology or Licentiate Supervisor and Operator certificate or permit **until such time the Supervisor and Operator deems the student is safely and competently using x-ray in the performance of the patient examination.**

1. *The provision was not clear as to whether the student was under direct supervision or the program was under direct supervision*
2. *This is a clarification of the existing regulation*
3. *The purpose of the regulation is to assure that, although there is a minimal amount of radiation involved in the performance of the scans, the student understands the concepts of radiation safety and ALARA .*

4. *This area was previously regulated but the language was not clear in terms of how this supervision should be applied to these students.*

This equipment does not require shielding or badging since the exposure is minimal, however the supervisor operator should be assured the student understands the requirements of the machine i.e. operator should be 3 meters from the x-ray source and the patient should not be exposed unnecessarily to repeated scans.

5. *The change is a point of clarification and assumptions are based on the manufacturer's radiation specifics.*
6. *No additional equipment is required.*

B. General supervision is required once the student is deemed capable of performing the assigned procedures and duties accurately and safely.

C. An evaluation of each student's ability to perform clinical procedures shall be made at least once a day. Evaluations shall be kept as part of the student's records.

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- C. The clinical instructor shall directly supervise each student as they perform each of the 20 scans to assure competency.

The current regulation regarding student evaluation is not appropriate for this program since only 20 scans are involved daily supervision is not enough.

1. The purpose of amending this provision is to ensure that the clinical procedures done by each student are properly supervised.
2. This provision will give the student the appropriate time with the clinical instructor to become proficient.
3. This area is already regulated but not appropriately for this modality.
No other standard other than direct supervision would achieve the desired results
The amended standard will be inherently obvious to those who are affected.
The consequence of being non compliant would be inaccurate scans.
4. No additional equipment required by this change

X. Inspections

Each x-ray bone densitometry course of study shall afford to the Department, at all reasonable times, the opportunity to interview the instructor, supervisor, and students and to survey or inspect:

- A. Physical facilities, including x-ray bone densitometry equipment.
- B. Educational and instructional material and instructor's notes.
- C. Records maintained pursuant to these standards.
- D. Situations where clinical supervision is required.
- E. Other items necessary to evaluate the x-ray bone densitometry course.

XI. Other Relevant Information

Each x-ray bone densitometry course of study shall provide other information that may be required by the Department.

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