

CHAPTER 42  
MINIMUM CERTIFICATION STANDARDS FOR DIAGNOSTIC RADIOGRAPHERS,  
NUCLEAR MEDICINE TECHNOLOGISTS, AND RADIATION THERAPISTS

[Prior to 12/2/87, Health Department[470] Ch 42]

**641—42.1(136C) Purpose and scope.**

**42.1(1) *Applicability.*** Except as otherwise specifically provided, these rules apply to all individuals who operate as a diagnostic radiographer, nuclear medicine technologist, radiologist assistant, podiatric radiographer, or radiation therapist as defined below.

The provisions of this chapter are in addition to, and not in substitution for, any other applicable portions of 641—Chapters 38 to 41.

**42.1(2) *Definitions.*** For the purpose of this chapter, the definitions of 641—Chapter 38 may also apply.

“*Approved course of study*” means a curriculum and associated training and testing materials which the department has determined are adequate to train students to meet the requirements of this chapter.

“*ARRT*” means the American Registry of Radiologic Technologists.

“*Chest*” is defined as the lung fields including the cardiac shadow, as taught in the approved limited radiography curriculum. Radiography of the shoulder, clavicle, scapula, ribs, thoracic spine and sternum for diagnostic evaluation of these body structures or chest radiography using anything other than a vertical cassette holder is not allowed under this body part classification for limited diagnostic radiographers. Limited diagnostic radiographers already approved in chest radiography may perform oblique, apical lordotic, and decubitus chest views under this definition upon completion of additional training approved by this agency.

“*Clinical education*” means the direct participation of the student in radiographic exposures as part of the approved course of study.

“*Clinical podiatric sponsor*” means a person who is licensed under Iowa Code chapter 149 and who is supervising a podiatric radiography student.

“*Continuing education course*” means a planned program of continuing education having sufficient scope and depth of a given subject area directly related to the field of diagnostic radiography, nuclear medicine, or radiation therapy to form an educational unit that is planned, coordinated, administered, and evaluated in terms of educational objectives and that provides a defined level of knowledge or specific performance skill. This concept involves the organized presentation of a body of knowledge so that the subject matter is comprehensively covered in sufficient detail to meet the educational objectives of the course.

“*Contrast media*” means material intentionally administered to the human body to define a part(s) which is not normally visualized radiographically.

“*Diagnostic radiographer*” means an individual, other than a licensed practitioner, podiatric radiographer, or dental assistant with radiography qualification, who applies X-radiation to the human body for diagnostic purposes while under the supervision of a licensed practitioner or registered nurse under 641—subparagraph 41.1(3)“a”(7). The types are as follows:

1. “General diagnostic radiographer” applies X-radiation to any part of the human body.
2. “Limited diagnostic radiographer” applies X-radiation to only the following body parts: chest, extremities (upper and lower), spine, or sinus. This individual is restricted to performing radiography in that area of the facility specifically designed for X-ray. This individual may not perform pediatric radiography (children under three years of age) without additional training in pediatric radiography taken as a part of the basic limited training or a specifically approved training program (see 42.2(6)).
3. “Limited in-hospital radiographer” applies X-radiation as permitted in 42.3(1)“c.”

“*Diagnostic radiography*” means the science and art of applying X-radiation to human beings for diagnostic purposes other than in dental radiography. It shall include adjustment or manipulation of X-ray equipment and appurtenances including image receptors, positioning of patients and processing of films so as to materially affect the radiation exposure of patients.

“*Directly related*” means covering a subject listed in the training requirements for a specific certification.

“*Formally educated*” means completion of a formal course of training and testing approved by the agency.

“*In vitro*” means a procedure in which the radioactive material is not administered to a human being.

“*In vivo*” means a procedure in which the radioactive material is administered to a human being.

“*Lower extremities*” refers to those body parts from the distal phalanges of the foot to the head of the femur and its articulation with the pelvic girdle as taught in the approved limited radiographer curriculum. True hip radiographs are prohibited under this category for limited diagnostic radiographers. This definition applies to 641—Chapter 42 only.

“*Nuclear medicine procedure*” means any procedure utilizing radiopharmaceuticals for diagnosis or treatment of disease in human beings and any duties performed by the technologist during sealed source procedures and includes, but is not limited to:

1. Administration of any radiopharmaceutical to human beings for diagnostic purposes.
2. Administration of radioactive material to human beings for therapeutic purposes.
3. Use of radioactive material for diagnostic purposes involving transmission or excitation.
4. Quality control and quality assurance.

“*Nuclear medicine technologist*” means an individual, other than a licensed physician, who performs nuclear medicine procedures while under the supervision of a physician who is authorized by NRC or Iowa to possess and use radioactive materials.

“*Podiatric radiographer*” means an individual employed in a podiatry office who performs podiatric radiography but not CT or fluoroscopy.

“*Podiatric radiography*” means the application of X-radiation to the human foot and ankle for diagnostic purposes only.

“*Quality assurance*” means all aspects of a nuclear medicine program that ensure the quality of imaging and therapy procedures.

“*Quality control*” means specific tests and measurements that ensure the purity, quantity, product identity, and biologic safety of radiopharmaceuticals.

“*Radiation therapist*” means a person, other than a licensed physician, who performs radiation therapy technology under the supervision of a radiation oncologist.

“*Radiation therapy technology*” means the science and art of performing simulation radiography or applying ionizing radiation emitted from X-ray machines, particle accelerators, or radioactive materials in the form of sealed sources to human beings for therapeutic purposes.

“*Radiologist assistant*” means an advanced-level radiographer, other than a licensed practitioner, who works under the supervision of a radiologist to enhance patient care by assisting the radiologist in the diagnostic imaging environment.

“*Simulation radiography*” means the science and art of applying radiation to human beings for the purpose of localizing treatment fields and for treatment planning.

“*Simulation therapist*” means an individual, other than a physician, who applies radiation to human beings for the purpose of localizing treatment fields and for treatment planning.

“*Sinus*” as used in the limited radiographer curriculum refers to the paranasal sinuses only.

“*Special category course*” means those programs still related to health care but indirectly related to diagnostic radiography, nuclear medicine technology, or radiation therapy. Such programs are: advanced CPR, educator’s programs, management programs, personal improvement, for example.

“*Spine*” refers to the cervical, thoracic (dorsal), lumbar vertebrae and their articulations. It may also include the sacrum or coccyx and the sacral articulation with the pelvic girdle. True pelvis radiographs performed with the image receptor positioned perpendicular to the long axis of the torso are prohibited under this limited category. Lumbo-pelvic or full spine radiography may be performed if the long axis of the image receptor is positioned parallel with the long axis of the spine as taught in the approved limited radiographer curriculum.

“*Student*” means an individual enrolled in and participating in an approved course of study.

“*Supervision*” means responsibility for and control of quality, radiation safety and protection, and technical aspects of the application of ionizing radiation to human beings for diagnostic or therapeutic purposes. Indirect supervision is being physically present in the immediate vicinity and able to assist if needed. Direct supervision is physically observing and critiquing the actual procedure and giving immediate assistance if required.

“*Upper extremities*” refers to those body parts from the distal phalanges of the hand to the head of the humerus. These projections may include the acromioclavicular or glenoid-humeral areas as taught in the approved limited radiographer curriculum. True shoulder radiography that includes both distal and proximal ends of the clavicle is prohibited under this category for limited diagnostic radiographers. This definition applies to 641—Chapter 42 only.

#### **641—42.2(136C) General requirements.**

**42.2(1) Application process.** Any individual seeking certification under 641—Chapter 42 shall:

- a. Meet minimum eligibility requirements:
  - (1) Graduation from high school or its equivalent.
  - (2) Attainment of 18 years of age.
  - (3) Ability to adequately perform necessary duties without constituting a hazard to the health or safety of patients or operators.
- b. Satisfactorily complete an agency-approved training program.
- c. Satisfactorily complete an agency-approved examination.
- d. Upon completion of “b” and “c,” apply to the agency for a permit to practice, and pay the fees as specified in 641—subrule 38.8(6).
- e. Submit an annual renewal application which includes the fees specified in 641—subrule 38.8(6).
- f. Report continuing education as required in 42.2(3).
- g. Post the permit at the individual’s place of employment.
- h. As a diagnostic radiographer, work only under the supervision of a licensed practitioner as defined in 641—38.2(136C); as a nuclear medicine technologist, work only under the supervision of an authorized user as defined in 641—41.2(136C); or as a radiation therapist, work only under the supervision of a licensed physician or authorized user as defined in 641—41.2(136C).
- i. Submit a written report of any misdemeanor or felony, any disciplinary action brought against the individual in connection with a certificate or license issued from a certifying or licensing entity, or any disciplinary action brought against the individual by an employer or patient.
- j. For podiatric radiographers only, follow the application process in 42.7(4).

**42.2(2) Disciplinary grounds and actions.** The procedures for administrative enforcement actions are found in 641—38.9(136C) and 38.10(136C). The following shall be grounds for disciplinary action involving possible probation, suspension, revocation, or denial of certification, levying of fines or other sanctions:

- a. Operating as a diagnostic radiographer, podiatric radiographer, radiologist assistant, nuclear medicine technologist, or radiation therapist without meeting the requirements of this chapter.

b. Allowing any individual excluding a licensed practitioner as defined in 641—38.2(136C) to operate as a diagnostic radiographer, podiatric radiographer, radiologist assistant, nuclear medicine technologist, or radiation therapist if that individual cannot provide proof of certification by the agency.

c. Failing to report to the agency any individual whom the certificate holder knows is in violation of this rule.

d. Submitting false information in order to obtain certification or renewal certification as a diagnostic radiographer, podiatric radiographer, radiologist assistant, nuclear medicine technologist, or radiation therapist.

e. Any action that the department determines may jeopardize the public, other staff, or certificate holder's health and safety. These actions shall include but not be limited to:

(1) Any medical condition which may impair or limit the individual's ability to perform diagnostic radiography, nuclear medicine procedures, or radiation therapy;

(2) Activity related to illegal or improper use of drugs or other chemical substances;

(3) A misdemeanor or felony which may impair or limit the individual's ability to perform diagnostic radiography, nuclear medicine procedures, or radiation therapy;

(4) Any disciplinary action brought against the individual in connection with a certificate or license issued from a certifying or licensing entity;

(5) Being found guilty of incompetence or negligence during the certificate holder's performance as a certificate holder;

(6) Performing diagnostic radiography, radiation therapy, or nuclear medicine procedures without either supervision or a written order of a licensed practitioner;

(7) Interpreting and rendering a diagnosis based on a diagnostic image for a physician, a patient, the patient's family, or the public.

f. Performing procedures not allowed under the individual's current certification.

g. Failing to pay fees or costs required to meet the requirements of this chapter. Penalties for working without a current permit will be considered on a case-by-case basis.

h. Failure to respond to an audit request or failure to provide proper documentation.

i. Submitting false information to a facility that might place the facility in noncompliance with 641—Chapters 38 to 41.

j. Violating any of the rules of 641—Chapters 38 to 42.

**42.2(3) Continuing education.**

a. Each individual who is certified under these rules shall, during a two-year period, obtain continuing education credit as follows:

(1) General diagnostic radiographer: 24 clock hours, 1.0 hour must be in radiation protection. Subjects must be directly related to general diagnostic radiography as defined in 42.1(2) and approved by the agency.

1. Individuals holding an additional category in CT, as specified in 42.2(9), must complete 6.0 of the 24.0 hours in CT-related courses.

2. Individuals not holding the additional category in CT may not submit continuing education hours in CT.

(2) Limited in-hospital diagnostic radiographer: 24 clock hours, 1.0 hour must be in radiation protection.

(3) Limited diagnostic radiographer: 12 clock hours, 1.0 hour must be in radiation protection.

(4) General nuclear medicine technologist: 24 hours total.

1. One clock hour in principles of radiation protection and exposure each year, a total of two hours each two-year period.

2. One clock hour in quality assurance each year, a total of two hours each two-year period.

3. The remaining 20 clock hours of continuing education in each two-year period must be in subjects directly related to nuclear medicine procedures as defined in 42.1(2) and approved by the agency.

- Individuals holding an additional category in CT, as specified in 42.2(9), must complete 6.0 of the 24.0 hours in CT-related courses.

- Individuals not holding the additional category in CT may not submit continuing education hours in CT.

(5) Limited nuclear medicine technologists: 12 hours total, 1.0 hour must be radiation protection and 1.0 hour must be in quality assurance.

(6) Radiation therapist, dosimetrist, simulation therapist: 24.0 clock hours, 1.0 hour must be in radiation protection. Continuing education courses must be directly related to radiation therapy as defined in 42.1(2) and approved by the agency.

1. Individuals holding an additional category in CT, as specified in 42.2(9), must complete 6.0 of the 24.0 hours in CT-related courses.

2. Individuals not holding an additional category in CT may not submit continuing education hours in CT.

(7) Rescinded IAB 8/1/07, effective 9/5/07.

(8) Radiologist assistant: See 641—42.6(136C).

(9) Podiatric radiographer: See 42.7(5).

b. Continuing education course approval.

(1) Information must be submitted in writing and must provide sufficient detail to show that the course meets the relevancy requirements of these rules and the agency guidelines.

(2) Following its review, the agency will, in consultation with or under predetermined guidance of the technical advisory committee, approve, disapprove, or request additional information on the proposed course.

(3) The agency may audit any continuing education course to verify the adequacy of program content and delivery.

(4) Courses must be at least one clock hour in length and if lasting more than one hour, will be assigned credit in half-hour increments to the closest half-hour.

(5) No continuing education credit is approved for passing an initial certification examination or for basic CPR, hands-on practice, mandatory abuse reporting, or ultrasound or MRI courses that are less than 50 percent directly related to radiography, nuclear medicine, or radiation therapy.

(6) One-half hour of credit will be granted for each hour of formal demonstration of equipment by the application specialist. Content must be company-specific but not site-specific. Credit is limited to 50 percent of the total hours required.

(7) Courses will be approved for a three-year period and may be given anytime within the three-year period.

c. Continuing education credit will be awarded under provisions of 42.2(3) by the department to individuals:

(1) Who have successfully completed a continuing education course which has been approved by the department.

(2) Who present a department-approved continuing education course to individuals certified in the presenter's field. Credit granted shall be at a rate of two times the amount of time it takes to present the course up to a maximum of 50 percent of the total hours required.

(3) Only once during a two-year period for the same continuing education course.

(4) Who complete 12.0 hours of tumor boards each two-year reporting period. Tumor board credit is limited to general radiographers, nuclear medicine technologists, and radiation therapists.

(5) Who complete all credit hours in self-studies. A self-study may not be repeated in subsequent reporting periods.

(6) Who pass an advanced ARRT certification examination in a permit-related area. Twenty-four hours will be granted.

*d.* Continuing education must be directly related to the area of practice of the operator attending the program. Twenty-five percent of the total hours required may be in “special category.”

*e.* Proof of continuing education must be maintained for at least three years. Proof of continuing education may be a sign-in sheet, certificate, or answer sheet. It must be signed and dated by the presenter, program representative, or the individual’s supervisor. Individuals authorized for mammography must meet the records requirements in 641—41.6(136C) and 641—41.7(136C).

*f.* All continuing education requirements shall be completed during the two-year period prior to the certification continuing education due date.

*g.* Late submission of continuing education requirements.

(1) For any individual who completes the required continuing education before the continuing education due date but fails to submit the required proof within 30 days after the continuing education due date, the certification shall be terminated and the renewal fee will not be refunded.

(2) Any individual who fails to complete the required continuing education before the continuing education due date but submits a written plan of correction to obtain the required hours and the fee required in 641—paragraph 38.8(6) “c” shall be allowed no more than 60 days after the original continuing education due date to complete the plan of correction and submit the documentation of completion of continuing education requirements. After 60 days, the certification shall be terminated and the individual shall not function as a diagnostic radiographer, radiation therapist, nuclear medicine technologist, radiologist assistant, or podiatric radiographer in Iowa.

(3) Once certification has been terminated, any individual who requests permission to reestablish certification within six months of the initial continuing education due date must submit proof of continuing education hours and shall submit a late fee as set forth in 641—paragraph 38.8(6) “c” in addition to the annual fee set forth in 641—paragraph 38.8(6) “a” in order to obtain reinstatement of certification.

#### **42.2(4) Recertification.**

*a.* If an individual allows the certification to expire for any reason or if any individual voluntarily terminates certification, the following will apply:

(1) Any individual who wishes to regain certification and makes application within six months of the termination date will be allowed to do so with no additional training or testing required but must complete any delinquent continuing education.

(2) Any individual who wishes to regain certification after the six-month period will need to meet the current educational and testing requirements for that particular certification. Proof of possession of a previous certification may satisfy the training portion of this requirement.

(3) Any individual who has not renewed certification for at least two years and wants to regain certification, or who has not applied for certification within two years of the completion date of the original training course, will need to complete a recertification program approved by the department of not less than 24 contact hours for general certifications and 12 contact hours for limited certifications which specifically applies to the area of certification.

(4) Podiatric radiographers must meet the requirements of 42.7(6).

*b.* Recertification programs.

(1) The recertification program must review those basic principles necessary to ensure minimum competency in the certification area and must also include the satisfactory completion of a written examination. Both the program and the examination must acquire prior approval from the department. Courses designed for use in the recertification program will not qualify for continuing education credit for those individuals required to attend in order to recertify.

(2) If no approved programs are available, the department may require attendance for a minimum of 24 contact hours for general certifications and 12 hours for limited certifications at specific continuing education programs. The continuing education must be confined to subjects which apply to the area of certification limitation, if any, and would have to be completed within a specified time period.

c. Exemptions. Any or all of the above-mentioned requirements may be waived for an individual who has been actively employed in the certification area in another state, country, or federal institution or who can prove circumstances above and beyond the norm. These cases will be reviewed on an individual basis and the decision of the department shall be final.

d. Training programs. Rescinded IAB 4/3/02, effective 5/8/02.

e. Upon the completion of the recertification training, the following must be submitted:

(1) A statement of competency from the trainer.

(2) A statement of permission to allow a representative of the department to comprehensively evaluate whether the individual meets the training standard.

**42.2(5) Fees.** Rescinded IAB 4/11/07, effective 5/16/07.

**42.2(6) Training programs.**

a. Any individual wishing to train an individual as a diagnostic radiographer, nuclear medicine technologist, or radiation therapist must submit a training program to the agency for approval. This provision includes individuals providing clinical training for out-of-state students. For radiologist assistants, see 641—42.6(136C). For podiatric radiographers, see 641—42.7(136C). No training may be started until written approval from the agency is received. The training request must provide, at a minimum, the following:

(1) An outline of the didactic and clinical studies to meet the requirements of 42.3(1), 42.4(2), or 42.5(2), as applicable.

(2) Listed body parts to be taught if this is a limited radiography training program. Procedures are limited to chest, extremities, spinal, or sinus radiography.

(3) Proof that:

1. The instructor of a general training program meets the requirements of this chapter as a two-year educated diagnostic radiographer, nuclear medicine technologist, or radiation therapist holding a current Iowa general permit to practice and having at least two years of current experience or is a licensed physician trained in the specific area of the training program.

2. The instructor of a limited training program meets the following:

- The principal instructor of a limited training program is a general radiographer holding a current Iowa permit to practice and having at least two years of current experience or is a licensed physician trained in the specific area of the training program.

- The on-site clinical instructor is a general radiographer holding a current Iowa permit to practice and having at least two year of current experience or is a limited radiographer holding a current Iowa permit to practice in the area of instruction and having at least two years of current experience. On-site clinical instructors shall be supervised by the principal instructor.

(4) A time schedule of the training program. The projected completion date of the clinical portion of the program or course of study shall be within a time period equal to or less than twice that required for the original program or course of study.

(5) A description of the testing to be used to determine proficiency of the didactic portion and the mechanism to be used to determine clinical competency. All clinical competency testing shall be conducted by the principal instructor.

(6) A statement of permission to allow a representative of the agency to periodically evaluate the progress of the student. The agency will evaluate all non-school students.

(7) A statement that the student will be directly supervised until the student's competency is documented and indirectly supervised after the student's competency is documented.

b. Upon the completion of the training program, the following must be submitted to the agency:

(1) A statement of competency from the trainer for each area completed.

(2) A statement of permission to allow a representative of the agency to comprehensively evaluate whether the individual meets the training standard.

c. Additional training for limited radiographers wishing to perform pediatric radiography. Training requires a general radiographer to submit to the agency a training program that includes the additional anatomy and physiology, positioning, radiation protection, technique, and film critique necessary for pediatrics. The training must include both chest and extremities but no spinal radiography. The program must include didactic instruction plus film critique time. Upon completion of training, the general radiographer must submit a letter of competency to the agency. No additional testing will be required.

**42.2(7) Requirements for operators of dual imaging devices.**

a. When a unit is operated as a stand-alone nuclear medicine imaging device, the operator must have a permit to practice as a nuclear medicine technologist and meet the requirements of 641—42.4(136C).

b. When the unit is operated as a stand-alone CT imaging device, the operator must have a permit to practice as a general diagnostic radiographer, nuclear medicine technologist, or radiation therapist and meet the requirements of 42.2(9).

c. When a unit is operated in dual mode as a SPECT/CT or PET/CT device, the operator must have a permit to practice as a nuclear medicine technologist and meet the requirements of 42.2(9).

**42.2(8) Examinations.** All individuals seeking certification under 641—Chapter 42 must pass a written examination before the permit can be issued. The individual is allowed to practice under the direct supervision of a licensed practitioner, an authorized user listed on a radioactive materials license, or a permitted individual with the permit in the same or higher category until the permit is issued provided the test is pending. Individuals who fail the examination three times will be required to satisfactorily complete the training course again.

**42.2(9) Specific requirements for CT certification.**

a. Operators of CT units must meet the following requirements:

(1) Hold certification as a general diagnostic radiographer, radiation therapist, or nuclear medicine technologist;

(2) Complete the manufacturer's training or an agency-approved equivalent training course. Training must include equipment operation, contrast media, sectional anatomy, and CT radiation protection and be at least 15.0 hours in length. Initial training may be used as continuing education in the reporting period taken if approved by the agency. Passing the ARRT certification examination in CT will meet the training requirement; and

(3) Complete 6.0 hours of continuing education in CT-related subjects each two-year reporting period. These hours may be a part of the 24.0 hours of continuing education required in 42.2(3)“a”(1), (4), and (6).

b. Proof of initial training shall be forwarded to the agency for review.

c. “CT” must be on the individual's permit in order for the individual to perform CT scans.

**641—42.3(136C) Specific requirements for diagnostic radiographers.**

**42.3(1) Training requirements.**

a. General diagnostic radiographer. Successful completion of a Joint Review Committee on Education in Radiologic Technology approved course of study, certification by the American Registry of Radiologic Technologists or the American Registry of Clinical Radiography Technologists, or equivalent agency-approved training courses designed to prepare the student to demonstrate competency in the following areas:

(1) Radiation protection of patients and workers, including monitoring, shielding, units of measurement and permissible levels, biological effects of radiation, and technical consideration in reducing radiation exposure and frequency of retakes;



(2) Technique and quality control to achieve diagnostic objectives with minimum patient exposure, including X-ray examinations, X-ray production, films, screens, holders and grids, technique conversions, film processing, artifacts, image quality, film systems and control of secondary radiation for the specified category;

(3) Patient care including, but not limited to, aseptic techniques, emergency procedures and first aid, and contrast media;

(4) Positioning, including normal and abnormal anatomy and projections;

(5) Radiographic equipment and operator maintenance to include X-ray tubes, grids, standardization of equipment, generators, preventive maintenance, basic electricity, film processors and maintenance, collimators, X-ray control consoles, tilt tables, ancillary equipment, fluoroscopes and electrical and mechanical safety;

(6) Special techniques, including stereo, body section radiography, pelvimetry, image intensification, photo timing and mobile units; and

(7) Clinical experience sufficient to demonstrate competency in the application of the above as specified in the "Standards for an Accredited Education Program in Radiologic Sciences" as adopted by the Joint Review Committee on Education on Radiologic Technology. Clinical experience for each area must be directly supervised by a formally educated general radiographer until competency for the area is completed. After competency is completed, indirect supervision is permitted. All retakes and portable radiography must be directly supervised.

b. Limited diagnostic radiographer.

(1) Completion of an approved course of study to prepare the student to demonstrate competency in the following areas:

1. Radiation protection of patients and workers including monitoring, shielding, units of measurement and permissible levels, biological effects of radiation, and technical considerations in reducing radiation exposure and frequency of retakes;

2. Technique and quality control to achieve diagnostic objectives with minimum patient exposure to include X-ray examination, X-ray production, films, screens, holders and grids, technique conversions, film processing, artifacts, image quality, film systems and control of secondary radiation for the specified category;

3. Patient care including, but not limited to, aseptic techniques, emergency procedures and first aid;

4. Positioning, including normal and abnormal anatomy and projections for the specific category;

5. Radiographic equipment and operator maintenance to include X-ray tubes, grids, standardization of equipment, generators, preventive maintenance, basic electricity, film processors and maintenance, collimators, X-ray control consoles, tilt tables, ancillary equipment, and electrical and mechanical safety;

6. Special techniques limited to those required by the specific category; and

7. Clinical experience sufficient to demonstrate competency in the application of the above as specified by the department. Clinical experience must be directly supervised by a two-year educated general radiographer, licensed physician, chiropractor, or podiatrist who physically observes and critiques the actual X-ray procedures.

8. Rescinded IAB 8/1/07, effective 9/5/07.

(2) Training required for limited radiographers who wish to perform pediatric radiography. The training program must:

1. Be submitted to the agency for approval before training starts.

2. Be taught by a general radiographer.

3. Include 4.0 hours of additional anatomy and physiology, positioning, radiation protection, and technique that are specific to pediatric radiography.

4. Include clinical and film critiques in pediatric chest and extremities radiography, but not spinal radiography.

5. Upon completion, verify each participant's competency, in writing, to the agency.

c. Limited in-hospital diagnostic radiographer. An individual employed in a diagnostic radiography facility which has a workload of less than 5000 examinations per year and which provides 24-hour service in a hospital will be permitted to apply X-radiation to any part of the human body at that facility if the individual completes a training program recognized by the department, as outlined in 42.1(4) "b"(1) and submits a letter from a board-certified or board-eligible radiologist who verifies in writing the specific procedures the individual is competent to perform. The training program must cover the areas outlined in 42.1(4) "b," the anatomy and physiology of the entire body, positioning and techniques relative to the procedures to be performed, and appropriate clinical training which includes all parts of the human body. Training received under this subrule is specific to the facility and must be reevaluated by the department before an individual may transfer to another facility.

d. Graduates of programs recognized by the Iowa department of public health in consultation with the professional societies and boards of examiners for appropriate courses of study in diagnostic radiography will be considered to meet the requirements of this rule.

**42.3(2) School accreditation.** Rescinded IAB 4/11/07, effective 5/16/07.

**42.3(3) Examinations.**

a. All individuals seeking to perform diagnostic radiography must, in addition to meeting the requirements in subrule 42.3(1), take and satisfactorily pass a written examination. Examination must include the following subject matter for each category of radiographer:

(1) General diagnostic radiographer and limited in-hospital radiographer: radiation protection, radiation physics, radiographic and fluoroscopic techniques, special procedures, patient care, positioning, equipment maintenance, anatomy, contrast media, physiology, quality control, radiographic processing and clinical experience.

(2) Limited diagnostic radiographer: radiation protection, radiation physics, radiographic techniques, patient care, positioning, equipment maintenance, anatomy, physiology, quality control, and radiographic processing and clinical experience for the specific permit to practice requested.

(3) Contents of the examinations will be established and periodically revised by the department in consultation with the technical advisory committee.

b. Examinations will be given by the department at least annually, or as necessary, at course of study location or other location determined by the department.

c. The agency may accept, in lieu of its own examination, evidence of satisfactory performance in an examination given by an appropriate organization or testing service provided that the agency finds the organization or service to be competent to examine applicants in the discipline of radiography. For purposes of this subrule, individuals who have passed the general radiography examination with the American Registry of Radiologic Technologists or American Registry of Clinical Radiography Technologists meet the testing requirements of 42.3(3). Individuals who have passed the limited radiography examination with the American Registry of Chiropractic Radiography Technologists meet the testing requirements of 42.3(3) for limited radiography in spines and extremities.

d. Any individual certified under these rules and exempted from examination is exempted from examination requirements as long as the initial certification remains in effect.

**42.3(4) Exemptions.**

a. Students enrolled in and participating in an approved program or approved course of study for diagnostic radiography, or an approved school of medicine, osteopathy, podiatry, and chiropractic who, as a part of their course of study, apply ionizing radiation to a human being while under the supervision of a licensed practitioner.

b. Licensed practitioners as defined in 641—Chapter 38.

c. Individuals who operate processors only.

**641—42.4(136C) Specific requirements for nuclear medicine technologists.****42.4(1) Specific eligibility requirements.**

*a.* Any individual who is registered in nuclear medicine technology with the American Registry of Radiologic Technologists meets the education and testing requirements of this rule.

*b.* Rescinded IAB 3/30/05, effective 5/4/05.

**42.4(2) Training requirements.**

*a.* General nuclear medicine technologist. Successful completion of a Joint Review Committee on Educational Programs in Nuclear Medicine approved course of study or equivalent agency-approved training courses designed to prepare the student to demonstrate competency in the following:

- (1) Basic anatomy, physiology, and pathology.
- (2) Intravenous injections and radiopharmaceutical chemistry.
- (3) Radiation physics and mathematics.
- (4) Nuclear instrumentation.
- (5) Radiation biology.
- (6) Radiation protection and radiation protection standards and codes.
- (7) Laboratory procedures and techniques (in vivo and in vitro).
- (8) Clinical application of radiopharmaceuticals used for diagnostic and therapeutic uses and duties performed by the technologist during sealed source procedures.
- (9) Records and administrative procedures.
- (10) Medical ethics.
- (11) Patient care.

*b.* Limited nuclear medicine technologist. Successful completion of a department-approved training program that prepares the student to demonstrate competency in a specified area. Each program shall include the items in 42.4(2)“*a*” that are specific to the limited area. Included are laboratory technologists who perform nuclear medicine procedures unless the material handled is regulated under 641—paragraph 39.4(22)“*i*.”

*c.* Graduates of programs recognized by the department in consultation with the professional societies and others as being adequate and appropriate courses of study in nuclear medicine technology may be considered to meet the requirements of this subrule.

*d.* Clinical experience must be directly supervised by a certified nuclear medicine technologist or by a physician who appears as an authorized user on an Iowa, agreement state, or U.S. Nuclear Regulatory Commission radioactive materials license. Quality assurance and quality control experience may be directly supervised by a pharmacist who appears as an authorized nuclear pharmacist on an Iowa, U.S. Nuclear Regulatory Commission, or agreement state radioactive materials license.

**42.4(3) Examinations.**

*a.* Any individual, other than a licensed physician, seeking certification as a general nuclear medicine technologist shall, in addition to the requirements of 42.4(2) successfully complete a written examination including the subject matter specified in 42.4(2)“*a*.” The following organizations offer approved general examinations:

- (1) American Registry of Radiologic Technologists.
- (2) Nuclear Medicine Technology Certification Board.

*b.* Any individual certified under these rules shall be exempt from the examination requirements as long as the original certification remains in effect.

*c.* Any individual, other than a licensed physician, seeking certification as a limited nuclear medicine technologist shall, in addition to the requirements of 42.4(2)“*b*,” successfully complete a written examination approved by the department which includes the subject matter specified in 42.4(2)“*b*.”

*d.* Any individual holding a temporary certification must successfully complete an approved examination within six months of the issuance date of the temporary certification.

**42.4(4) Exemptions.**

a. Students enrolled in and participating in an approved program or approved course of study for nuclear medicine technology or an approved school of medicine, osteopathy, podiatry, or chiropractic who, as a part of their course of study, administer radioactive material to a human being while under the supervision of a licensed physician who appears as an authorized user on an Iowa, agreement state, or NRC radioactive materials license.

b. A licensed physician who appears as an authorized user on an Iowa or NRC radioactive materials license.

**641—42.5(136C) Specific requirements for radiation therapists.****42.5(1) Specific eligibility requirements.** Each individual shall meet one of the following:

a. Any individual who is registered in radiation therapy with the American Registry of Radiologic Technologists in radiation therapy meets the education and testing requirements of this rule.

b. Rescinded IAB 3/30/05, effective 5/4/05.

**42.5(2) Training requirements.**

a. General radiation therapist. Successful completion of a Joint Committee on Education in Radiologic Technology approved course of study or equivalent agency-approved training courses designed to prepare the student to demonstrate didactic and clinical competency in radiation therapy including, but not limited to, anatomy, physiology, radiation physics, radiation protection and exposure, quality assurance, radiation oncology treatment techniques, dosimetry, radiation oncology and pathology, radiology, oncologic patient care and management.

b. Limited radiation therapist. Successful completion of a training program approved by the department to prepare the student to demonstrate competency in a specified area only. This includes the simulation therapist. Each program shall include the items in 42.5(2)“a” that are specific to the limited area.

c. Graduates of programs recognized by the department in consultation with the professional societies and others as being adequate and appropriate courses of study in radiation therapy technology may be considered to meet the requirements of this subrule.

d. Clinical experience must be directly supervised by a radiation therapist or radiation oncologist.

**42.5(3) Examinations.**

a. Any individual, other than licensed physicians, seeking certification as a radiation therapist shall, in addition to the requirements of 42.5(2), satisfactorily complete a written examination in radiation therapy technology approved by the department. An approved examination is offered by the American Registry of Radiologic Technologists.

b. Any individual certified under these rules and exempted from examination is exempt from examination requirements as long as the initial certification remains in effect.

c. Any individual seeking to perform simulation radiography only must successfully complete an approved examination in either diagnostic radiography or radiation therapy.

d. Any individual holding a temporary certification must successfully complete an approved examination within six months of the issuance date of the temporary certification.

**42.5(4) Exemptions.**

a. Students enrolled in and participating in an approved program or approved course of study for radiation therapy technology or an approved school of medicine, osteopathy, podiatry, or chiropractic who, as a part of their course of study, administer radiation therapy to a human being while under the supervision of a licensed physician in the state of Iowa.

b. A licensed physician in the state of Iowa.

**641—42.6(136C) Specific eligibility requirements for radiologist assistant.**

**42.6(1)** Any person seeking a permit to practice as a radiologist assistant shall:

- a.* Hold a current permit to practice as a general radiographer in Iowa under 641—42.3(136C).
- b.* Have three years of experience as a general diagnostic radiographer. Experience in ultrasound, MRI, or nuclear medicine does not qualify.
- c.* Satisfactorily complete an advanced academic program approved by this agency and encompassing a nationally recognized radiologist assistant curriculum which has a radiologist-directed clinical preceptorship.
- d.* Satisfactorily complete a proficiency examination for radiologist assistants that is recognized by this agency.
- e.* Upon completion of the above, apply for a permit to practice as a radiologist assistant.
- f.* Work only under the supervision of a board-certified or board-eligible radiologist in medicine or osteopathy.

**42.6(2)** Performance standards.

- a.* A radiologist assistant may not interpret images, make diagnoses, or prescribe medications or therapies.
- b.* A radiologist assistant is limited to the clinical activities in Appendix A of this chapter.

**42.6(3)** Continuing education. A radiologist assistant must complete 12.0 hours of continuing education each year that must be specific to the discipline or speciality of the radiologist assistant's area of practice. Hours earned to meet this requirement shall not be used to satisfy the continuing education requirement for a general permit to practice.

**641—42.7(136C) Specific requirements for podiatric radiographers.**

**42.7(1)** Training requirements. Any person wishing to operate radiation-emitting equipment for purposes of podiatric radiography shall:

- a.* Complete an approved program or course of study that includes the following:
  - (1) Didactic training in podiatric radiological practices including radiation health, safety, and physics, lower extremity anatomy and physiology, positioning techniques, infection control, and equipment maintenance with efficiencies to minimize radiation exposure and frequency of retakes. The didactic training shall be at least 15 hours in length; and
  - (2) A radiographic clinical program sufficient to demonstrate proficiency to a podiatric sponsor. Training shall:
    1. Include equipment maintenance, exposures and positioning, image processing, image evaluation for quality, and display and storage of radiographic images;
    2. Include at least 50 total exposures. Exposures must be taken in at least 20 working days in a podiatric office or clinic;
    3. Be directly supervised by a podiatrist, general radiographer, or certified podiatric radiographer; and
    4. Not be started until notification of the desire to conduct a clinical training program has been submitted to this agency and verification of approval has been received by the podiatric sponsor; and
  - (3) Upon completion of the training in 42.7(1)"a," submit a form signed by the clinical podiatric sponsor certifying completion of and competency of 42.7(1)"a"(2); and
- b.* Pass a written examination approved by this agency; or
- c.* Meet the requirements of this rule after submission of proof that the individual holds a current certificate in podiatric radiography issued by another state, jurisdiction, agency or recognized professional registry provided that the agency finds that the standards, procedures, and examinations are equivalent to 641—42.7(136C).

**42.7(2) Examination.**

- a. The examination shall be given by an agency-approved entity and proctored by appropriate personnel.
- b. The passing score shall be 70 percent or greater.
- c. Any individual who fails the examination in three tries must successfully repeat the didactic portion of the training program before testing again.

**42.7(3) Exemptions.**

a. Students enrolled and participating in an approved course of clinical study for podiatric radiographers or an approved school of medicine, osteopathy, or podiatry who, as part of their course of study, may apply ionizing radiation to a human being while under the supervision of a licensed practitioner.

b. Licensed practitioners as defined in 641—Chapter 38.

**42.7(4) Application for certification.** Any individual seeking certification under rule 641—42.7(136C) shall:

- a. Graduate from high school or its equivalent;
- b. Be at least 18 years of age;
- c. Be able to adequately perform necessary duties without constituting a hazard to the health and safety of patients or operators;
- d. Satisfactorily complete the agency-approved didactic and clinical training;
- e. Satisfactorily complete the agency-approved examination;
- f. Upon completion of “d” and “e,” apply to the agency for a permit to practice and pay a fee of \$25;
- g. Submit an annual renewal application that includes the \$25 fee;
- h. Submit copies of proof of completion of continuing education required in subrule 42.7(5);
- i. Post the permit at the individual’s place of employment;
- j. Work only under the supervision of a licensed practitioner as defined in 641—Chapter 38;
- k. Submit a written report of any misdemeanor or felony, any disciplinary action brought against the individual in connection with a certificate or license issued from a certifying or licensing entity, or any disciplinary action brought against the individual by an employer or patient.

**42.7(5) Continuing education requirements.**

- a. Each individual certified under rule 641—42.7(136C) shall, during a two-year period, obtain two clock hours of continuing education.
- b. Hours may be satisfied by attending courses in podiatric radiography approved by this agency or given by the American Podiatric Medical Association (APMA) or the Iowa Podiatric Medical Society (IPMS).
- c. Proofs of completion shall be retained by the podiatric radiographer for four years.
- d. For late submission of continuing education, the requirements in 42.2(3)“g” shall apply.

**42.7(6) Recertification.**

a. If an individual allows the certification to expire for any reason or if any individual voluntarily terminates certification, the following shall apply:

- (1) Any individual who wishes to regain certification and makes application within six months of the termination date will be allowed to do so with no additional training or testing required but must complete any delinquent continuing education.

- (2) Any individual who wishes to regain certification after two years must complete an approved training program and pass the required examination as required in 42.7(1) and 42.7(2).

b. Reserved.

**42.7(7)** Any licensed podiatrist who permits an individual to perform podiatric radiography contrary to this chapter shall be subject to discipline by the board of podiatric examiners pursuant to 645—Chapter 224.

## Appendix A

In order for the radiologist assistant to perform the following procedures, the radiologist must be immediately available to communicate with the radiologist assistant. The radiologist is ultimately responsible for the care provided by the radiologist assistant.

## Clinical Activities

Perform the following fluoroscopic examinations and procedures including contrast media administration and operation of the fluoroscopic unit. Examinations and procedures must follow written procedures established by the supervising radiologist.

- a. Upper GI.
- b. Esophagus.
- c. Small bowel studies.
- d. Barium enema.
- e. Cystogram.
- f. T-tube cholangiogram.
- g. Nasoenteric and oroenteric feeding tube placement.
- h. Port injection.
- i. Swallowing study.
- j. Hysterosalpingogram (imaging only).
- k. Fistulogram/sonogram.
- l. Loopogram.
- m. Shoulder or knee joint injection/aspiration (under fluoroscopy).

In order to approve other procedures, the radiologist must submit a request in writing that specifies the scope of the procedure and verifies the competency of the radiologist assistant who will perform the procedure. The approval will be limited to the radiologist assistant named in the request.

These rules are intended to implement Iowa Code chapter 136C.

[Filed 8/28/81, Notice 3/18/81—published 9/16/81, effective 7/1/82]\*

[Filed 11/19/82, Notice 10/13/82—published 12/8/82, effective 1/12/83]\*\*

[Filed 11/24/86, Notice 10/8/86—published 12/17/86, effective 1/21/87]

[Filed 11/6/87, Notice 9/23/87—published 12/2/87, effective 1/6/88]

[Filed 5/8/92, Notice 4/1/92—published 5/27/92, effective 7/1/92]∅

[Filed 9/14/92, Notice 8/5/92—published 9/30/92, effective 11/4/92]

[Filed 5/15/95, Notice 3/29/95—published 6/7/95, effective 7/12/95]

[Filed 1/11/96, Notice 10/11/95—published 1/31/96, effective 3/6/96]

[Filed 9/16/96, Notice 7/17/96—published 10/9/96, effective 11/16/96]

[Filed 3/18/98, Notice 1/14/98—published 4/8/98, effective 7/1/98]

[Filed 4/2/99, Notice 1/13/99—published 4/21/99, effective 7/1/99]

[Filed 6/25/99, Notice 5/5/99—published 7/14/99, effective 9/15/99]

[Filed 3/15/00, Notice 1/26/00—published 4/5/00, effective 5/10/00]

[Filed 3/16/01, Notice 2/7/01—published 4/4/01, effective 5/9/01]

[Filed 5/10/01, Notice 4/4/01—published 5/30/01, effective 7/4/01]

[Filed 3/14/02, Notice 2/6/02—published 4/3/02, effective 5/8/02]

[Filed 3/14/03, Notice 2/5/03—published 4/2/03, effective 5/7/03]

[Filed 3/12/04, Notice 2/4/04—published 3/31/04, effective 5/5/04]

[Filed 3/11/05, Notice 2/2/05—published 3/30/05, effective 5/4/05]

\*Effective date of Ch 42 delayed 70 days by the administrative rules review committee. [Published IAC 6/23/82]

Effective date of Ch 42 delayed by the Administrative Rules Review Committee forty-five days after convening of the next General Assembly pursuant to §17A.8(9). [IAB 9/29/82]

\*\*Subrule 42.1(4)"b"(4) is rescinded two years subsequent to the effective date of rule 42.1(136C).

∅Two or more ARCs.

[Filed 3/9/06, Notice 2/1/06—published 3/29/06, effective 5/3/06]

[Filed 5/12/06, Notice 3/29/06—published 6/7/06, effective 7/12/06]

[Filed 3/16/07, Notice 1/31/07—published 4/11/07, effective 5/16/07]

[Filed 7/13/07, Notice 6/6/07—published 8/1/07, effective 9/5/07]

[Filed 5/14/08, Notice 4/9/08—published 6/4/08, effective 7/9/08]