Student Handbook

School of Radiologic Technology

Effective July 10, 2023

HANCOCK HEALTH

SCHOOL OF RADIOLOGIC TECHNOLOGY

HANDBOOK OF POLICIES AND PROCEDURES

FOR

STUDENT RADIOGRAPHERS

EFFECTIVE July 10, 2023

Handbook accessible at:
https://www.hancockregionalhospital.org/RADIOLOGY-SCHOOL/

OR through the student's Moodle account

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rev. 5/20/10, 6/11,6/12, 8/12, 6/13,4/14,6/14,12/14,6/15,6/17,5/18,6/19, 6/20,6/21, 5/23,6/23

I.
GENERAL INFORMATION

Hancock Health School of Radiologic Technology Our Vision is to To Instill

Professionalism

Responsibility

Independence

Diligence

Excellence

in our students through quality instruction and by example.

Hancock Health™

HANCOCK HEALTH RADIOGRAPHY

WELCOME TO THE SCHOOL OF RADIOLOGIC TECHNOLOGY

Hancock Health, and its affiliates Community Hospital East, Community Hospital Anderson, and Major Hospital, would like to extend to you a warm welcome to the School of Radiologic Technology. We trust your time here with us will provide the knowledge and skills required to perform competently in your chosen profession of Radiologic Technology.

The Radiologic Technologist, also called a Radiographer, is a skilled technical assistant to the Radiologist. A Radiologist is a physician who specializes in the use of x-rays for diagnosing in the treatment of injuries and disease. A Radiologic Technologist is qualified to work in any type of hospital, doctor's office, medical or chiropractic clinic, industrial or military installation anywhere in the United States and many foreign countries. As a skilled Radiologic Technologist, you will assist the Radiologist in making a diagnosis through the performance of many different types of examinations.

Your education will include instruction in x-ray equipment operation, selection of correct technical factors, positioning the patient, and analyzing the resultant image. You will also learn to be responsible for the mental and physical comfort of the patient while in your care, as well as being responsible for the adequate radiation protection for the patient, colleagues, and yourself.

The school is accredited by the *Joint Review Committee on Education in Radiologic Technology* (JRCERT), 20 N. Wacker Dr., Suite 2850, Chicago, IL 60606-3182, (312) 704-5300. www.jrcert.org The JRCERT is recognized by the U.S. Department of Education and is nationally certified by the *American Registry of Radiologic Technologists* (ARRT). The **Standards for an Accredited Educational Program in Radiologic Sciences** are available to students at www.JRCERT.org .
The ARRT's **Standard of Ethics** is included in the Handbook appendix .
Hancock Health and its affiliated clinical sites are accredited either by the *Healthcare Facilities Accreditation Program* (HFAP), The *Joint Commission on Accreditation of Healthcare Organizations* (JCAHO), &/or *Indiana State Department of Health* (ISDH).

ADMISSION REQUIREMENTS: Applicants accepted to this program must fulfill 1 of the following 2 requirements:

1. enter the program with a degree from an accredited secondary educational institution; have completed the prerequisite courses with a minimum grade of C-; have no violations of ARRT, state, or federal laws or codes OR be declared registry eligible by the ARRT at the time of application; successfully complete pre-program Occupational Health requirements; successfully meet all Technical Performance Standards for the duration of the program; provide proof of health insurance.

OR

2. enter the program having completed all prerequisite courses with a minimum grade of C- and be eligible for graduation upon completion of the program as required Ivy Tech Community College; have no violations of ARRT, state, or federal laws or codes OR be declared registry eligible by the ARRT at the time of application; ; successfully complete pre-program Occupational Health requirements; successfully meet all Technical Performance Standards for the duration of the program; provide proof of health insurance.

ADMISSION PROCESS:

Applicant must be 18 years of age by July 1 in the year of matriculation.
Fulfill all application requirements as indicated on the program website and application materials.
Applicants who successfully complete the application and meet the application requirements will receive an informational letter from the program director that identifies the next steps in the acceptance process:

- Complete clinical observation(s) as required.
- Attend the Information Session.

Participate in the Applicant Interview process conducted by the Advisory Board:

During the interview applicants are evaluated on academic achievement, written and oral communication, character qualities, and previous healthcare experience.

Applicants will be placed in rank order by average interview score and, within the one week, will be offered a position in the program, offered an alternate status, or may not be accepted to the program. Number of applicants accepted is determined by number of clinical positions available and may vary by cohort.

The school awards a certificate of graduation to each student who satisfactorily completes the required course of study. Upon graduation, the student is "registry eligible". This means the student is employable and may sit for the exam administered by the ARRT. This exam will determine if the student will be credentialed as a Radiologic Technologist in Radiography. Upon passing said exam, the graduate will have the right to display the credentials R.T.(R)(ARRT) behind his/her name.

Hancock Health and program officials shall not discriminate against any individual of legally protected status, such as race, color, religion, gender, age, disability, national or ethnic origin, sexual orientation, veteran status, or on the basis of a person's gender identity or expression, or any other characteristic protected by federal, state, or local laws. Student concerns regarding equitable treatment or discrimination should be brought to the attention of program faculty immediately.

Students are regarded as mature, responsible adults seeking education in the field of Radiologic Technology. However, all institutions of learning have established policies and procedures defining the regulations of the school and of the student's personal conduct to expedite the maximum function of the learning institution.

The Handbook for Student Radiographers details the policies of the School of Radiologic Technology that have been defined for the benefit of students. Students are not considered employees of the hospital but may be governed by the same policies as hospital personnel.

In order to assure student safety and timely program completion, the School of Radiologic Technology reserves the right to temporarily, or permanently, modify &/or supersede published Student Handbook polices in extreme circumstances, such as a national health emergency. Regardless of circumstances, ARRT program completion requirements will always be met prior to student program completion. See Contingency Policy, p. III. 30

The school's **VISION** is to instill **PRIDE**: **P**rofessionalism
Responsibility
Independence
Diligence
Excellence
in our students through quality instruction and by example.

Our **MISSION**: To produce caring, compassionate, and competent graduates who demonstrate the cognitive, affective, and psychomotor skills needed to advance the wellness of patients in partnership with all health care providers.

GOALS and STUDENT LEARNING OUTCOMES OF THE SCHOOL

THE PROGRAM WILL GRADUATE STUDENTS WHO**:**

- *Utilize effective communication skills*

  Student Learning Outcomes:
  - Students will demonstrate essential verbal communication skills
  - Students will demonstrate effective nonverbal communication skills

- *Demonstrate clinical competence*

  Student Learning Outcomes:
  - Students will employ appropriate radiation protection
  - Students will utilize radiographic markers appropriately

- *Employ critical thinking skills*

  Student Learning Outcomes:
  - Students will modify exams based on patient abilities
  - Students will evaluate image quality

For Program Effectiveness go to:
https://portal.jrcertaccreditation.org/summary/programannualreportlist.aspx

ADVISORY BOARD MEMBERS

Peggy Welage, M.S., R.T.(R)(M)	Program Director School of Radiologic Technology
Nicole Roland, R.T.(R)	Clinical Instructor Hancock Health
Ashley Combs, R.T.(R)(CT)	Clinical Instructor Major Hospital
Christina Herwehe, R.T. (R)	Clinical Instructor Community Hospital East
Caitlin Moorman, R.T.(R)	Clinical Instructor Community Hospital Anderson
Rob Matt	Sr. Vice President (ret) Hancock Health
Lisa Wood, R.T.(R)(MR)(CT)(QM)CRA	Director of Imaging Services Hancock Health
Aaron O'Connor, R.T.(R)(MR)	Imaging Supervisor Hancock Health
Amber Kuhn, R.T.(R)(CT)	Director of Imaging Services Major Health Partners
Alison Fischer, R.T. (R)(CT)	Radiology Team Leader Major Health Partners
Jeff Lawson, R.T. (R)	Director of Imaging Services Community Hospital Anderson
Tom Jessie, MBA, CNMT, R.T. (N)(CT)	Director of Imaging Services Community Hospital East
Jenn Lightcap	Director of Guidance Eastern Hancock High School
Sarah Knecht	Guidance Counselor Greenfield Central High School
Kacie Grimm	Director of Counseling Mt Vernon High School

FUNCTIONS of the ADVISORY BOARD

1. Assist in the determination of student capacity initially and at periodic intervals.
2. Assist in disciplinary/dismissal actions.
3. Assist in the initial technical input to curriculum content and reevaluation at periodic intervals.
4. Assist in the initial formation of the program's goals and mission statement and reevaluation at periodic intervals.
5. Assist in the determination of graduation requirements.
6. Assist in the evaluation of the performance of graduates and enrolled students.
7. Assist in the determination of admission criteria.
8. Assist in the recruitment of students.
9. Assist in student selection.
10. Assist in the placement of graduates.

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Curriculum

Didactic Curriculum ~ 430 contact hours
64 credit hours

Core Courses	**Credit Hrs**	**Trimester**
Introduction to Radiologic Sciences and Healthcare	2	1
Patient Care in Radiologic Sciences I	3	1,2,3
Patient Care in Radiologic Sciences II	3	4,5
Principles of Imaging I	2	1
Principles of Imaging II	2	2
Principles of Imaging III	2	3
Radiographic Procedures I	3	1
Radiographic Procedures II	3	2
Radiographic Procedures III	3	3
Radiographic Physics	3	4,5
Radiographic Pathology	1	6
Radiation Biology and Radiation Protection	3	5
Intro to CT and Sectional Anatomy	1	varies
Ethics and Law in the Radiologic Sciences	1	4,5
Clinical Image Analysis	1	4,5,6
Clinical Practicum 1, 2, 3, 4, 5, 6	31	1,2,3,4,5,6

Non-Core Courses	Trimester
Registry Review	
Anatomy and Physiology	1,2,3
Medical Terminology	1
Simulated Registry exams	6
Peer Teaching	4,5,6

Clinical Curriculum ~ 2700 contact hours

Performance Evaluation	1,2,3,4,5,6
Evaluation of Competency	1,2,3,4,5,6
Mock Simulation	1,2,3,4,5,6
Clinical Image Analysis	4,5,6
Peer Teaching	6
Applied Clinicals	1,2,3,4,5,6

Contact/Credit Hour Policy

Didactic credit hours are determined by the number of hours the student spends on coursework in the classroom each week.
Included in the Procedures I, II, and III course is time spent in the Procedures clinical component.
Clinical credit hours are determined using a 6:1 ratio:

Total number of hours per trimester / number of weeks in trimester / 6

Maintenance of Learning Resources Policy

Program resources are evaluated annually in May and June. All resources are evaluated for availability of new editions, relevance of content, gaps in content, and student feedback. Newly published resources are also evaluated.

Library Resources

Educational resources are available to students through the Community Hospital Anderson Medical Library and through Hancock County Public Library. Students will obtain a Hancock County Public Library card during Rad 200, Introduction to the Radiologic Sciences and Healthcare. Additionally, the School maintains resources specific to Imaging Science in the classroom and simulation lab.

V; stud handbook; rev. 6/13,7/13,6/14, 5/15,4/16,7/17, 5/18, 6/20, 6/23

FACULTY ASSIGNMENTS

INSTRUCTOR	COURSE ASSIGNMENT
Peggy Welage, M.S., R.T.(R)(M) Program Director	Introduction to Radiologic Science and Healthcare Ethics and Law in the Radiologic Sciences Radiographic Procedures I, II, III Patient Care in Radiologic Sciences I, II, III Human Anatomy and Physiology review Registry Review Peer Teaching Radiographic Pathology Principles of Imaging I, II Radiographic Physics I, II Radiation Biology and Radiation Protection Intro to CT and Sectional Anatomy Medical Terminology review
Clinical Instructors Nicole Roland, R.T.(R) Ashley Combs, R.T.(R)(CT) Christina Herwehe, R.T.(R) Caitlin Moorman, R.T. (R)	Applied Clinicals 1. Radiographic Procedures I, II, III 2. Mock Simulation 3. Clinical Performance Evaluation 5. Critical Thinking 6. Image Analysis 7. Peer Teaching

ADJUNCT FACULTY

Educational Services	CPR & AED
Rehabilitation Services	Pt Transfer and Body Mechanics
Infection Control Manager	Infection Control/PPE Nursing
Clinical Education	Procedures
NAO	Fire & Safety
NAO	Guest Relations/AIDET
Laboratory Services	Venipuncture & Phlebotomy
Respiratory Services	Respiratory and Oxygen Safety
NAO	HIPAA
Taylor Jones, RT (R)(CT)(MR)	Intro to CT and Sectional Anatomy

stud handbook: 6/11, 6/13, 7/13,6/14,5/15,4/16,6/17, 5/18, 3/19, 5/19,6/22,5/23

CORE COURSES

Course Number	Course Description	Trimester	Credit Hours
Rad 200	Introduction to Radiologic Science and Healthcare	1	2
	This course is designed to provide students with an overview of the foundations of radiography and the practitioner's role in the health care delivery system. Principles, practices, and polices of the health care organization(s), as well as the responsibilities of the radiographer, will be examined. Introduction to the principles of radiation protection includes protection for the patient, personnel, and the public. Instruction is given in nursing procedures, CPR/AED, guest relations, body mechanics, institutional safety, and infection control. Introduction to the classroom and clinic are also presented.		
Rad 210	Patient Care in Radiologic Sciences I	1,2,3	3
	This course is designed to provide the basic concepts of patient care. This includes factors related to the healthcare team, professional communication, diversity, patient assessment and vital signs, infection control, asepsis, phlebotomy and drawing medications, portable exams, and specialized inpatient units. Students will be assigned lab rotations as a part of this course.		
Rad 211	Patient Care in Radiologic Sciences II	4,5	3
	This course builds on concepts related to Rad 210. This course provides a more in-depth examination of acute situations, medications and adminstration, and IV contrast media.		
Rad 220	Principles of Imaging I	1	2
	This course is designed to establish knowledge in factors that govern and influence the production of radiographic image acquisition. Instruction includes radiation production and characteristics, imaging equipment, and accessories, image display, prime factors, and radiation protection.		
Rad 221	Principles of Imaging II	2	2
	This course is designed to establish knowledge in factors that govern and influence the production of radiographic image acquisition. Instruction includes film based imaging, fluoroscopy, tomography, exposure systems, characteristics of a radiograph, QA/QC, and radiation protection.		

		Trimester	Cr Hr
Rad 222	Principles of Imaging III	3	2
	This course is designed to establish knowledge in factors that govern and influence the production of radiographic image acquisition. Instruction concentrates on digital imaging with integration of course content from Rad 220 and 221		
Rad 230	Radiographic Procedures I	1	3
	This course is designed to provide a foundation for performing radiographic procedures in the clinical setting. Discussion include assessing image quality, positioning, anatomy of interest, and problem solving techniques. Procedures lab is use to compliment the lecture portion of this course. Topics include chest, abdomen, GI procedures, upper extremity.		
Rad 231	Radiographic Procedures II	2	3
	This course is designed to provide a foundation for performing radiographic procedures in the clinical setting. Discussion include assessing image quality, positioning, anatomy of interest, and problem solving techniques. Topics include shoulder girdle, lower extremity, pelvic girdle, spine		
Rad 232	Radiographic Procedures III	3	3
	This course is designed to provide a foundation for performing radiographic procedures in the clinical setting. Discussion include assessing image quality, positioning, anatomy of interest, and problem solving techniques. Topics include bony thorax, mammography, skull, orbits, facial bones, sinuses, nasal bones, mandible, TMJ, IVU.		
Rad 300	Radiographic Physics	4,5	3
	Course content is designed to review principles of radiographic imaging and delve more deeply into imaging equipment and image production.		
Rad 310	Radiographic Pathology	6	1
	Course content is designed to introduce disease causation and the pathophysiologic disorders that compromise healthy systems. Terminology, etiology, radiographic appearance, and use of various radiographic modalities are presented.		

		Trimester	Cr Hr
Rad 320	Radiation Biology Radiation Protection	5	3
	Content provides an overview of principles of radiation interaction with living systems. Radiation effects on molecules, cells, tissues, and the body as a whole, factors affecting biologic response, including acute and chronic effects of radiatino, are presented Methods of radiation protection, responsibilities of the radiographer, regulatory agencies, and dose measurement are also incorporated.		
Rad 330	Intro to CT and Sectional Anatomy	will vary	1
	Content is designed to introduce basic terminology, equipment operations and processes, procedural considerations, and radiation protection in CT. Images of gross anatomical structures in various anatomical planes will also be presented.		
Rad 340	Ethics and Law in the Radiologic Sciences	4,5	1
	Content is designed to provide students with a fundamental background in ethics and healthcare law. The historical and philosophical basis of ethics, elements of ethical behavior, legal and ethical issues and dilemmas in clinical practice, and professionalism will be explored.		
Rad 350	Clinical Image Analysis	4,5,6	1
	Content is designed to provide a basis for analyzing radiographic images. The importance of minimum standards, the discussion of problem solving techniques for image acquisition, and factors that affect image quality will be discussed. Student generated radiographs will be included for analysis. This course compliments Rad 230, 231 232, and the clinical practicum.		33
Rad 240	Clinical Practicum	1	5
241	Didactic courses are structured to compliment and correspond to the application of skills in the clinical setting.	2	6
242	Clinical experience is designed for sequential development, application, critical analysis, integration,	3	6
360	synthesis, and evaluation of concepts and theories when performing radiologic procedures. Through structured,	4	5
361	competency based clinical assignments, concepts of teamwork, patient centered and professional skills shall be	5	4
362	developed. Levels of competency and outcomes measurement shall ensure the well-being of the patient during	6	5
	all aspects of the radiologic procedure. Credit hours for 6th trimester include 1 cr. hr for Portfolio.		31
		TOTAL CREDITS	**64**

1. 10

Non Core Courses

Registry Review

Anatomy and Physiology

This course is designed to review basic anatomy and physiology as it relates to imaging. The course consists of modules that review anatomy and physiology by system. The systems reviewed include Respiratory, Digestive, Urinary, Skeletal, Cardiovascular (Heart, Blood), Vascular, Lymphatic, Reproductive, and Nervous.
Tests are administered at the end of each module. Students are not required to obtain a minimum score of 75% or retake tests. The test grades are recorded under Registry Review.

Medical Terminology

This course is designed to review medical terminology. Students are provided with course content and tested over the content the following week. This course is divided into 15 modules covering various terminology and word parts. Students are not required to obtain a minimum score of 75% or retake tests. The test grades are recorded under Registry Review.

Simulated Registry Exams

This course is designed to acclimate the student to simulated registry questions and is used to identify areas where extra review is needed by the student prior to sitting for the national registry. Simulated registries are conducted via paper and pencil as well as computer. Scores are curved prior to the 6th trimester and recorded under Registry Review.

Peer Teaching

This course consists of a clinical and a class component. The class componenet requires the student to teach course material as a review. Students randomly draw a subject, prepare a lesson, and prepare a test for their peers on two separate occasions. Presentation and test evaluations are averaged for one grade and recorded as one registry review grade per occasion.
The clinic component requires the student to randomly draw from the spine category to teach underclassmen spinal positioning in the clinic. Students are evaluated on the presentation; the grade is recorded under Registry Review.

Hancock Regional Hospital
SCHOOL OF RADIOLOGIC TECHNOLOGY

TECHNICAL PERFORMANCE STANDARDS

Professional competence requires that student radiographers apply knowledge of anatomy, physiology, imaging systems and radiographic exposure factors in the performance of their duties. They are required to manipulate mobile, portable and stationary radiographic equipment in the production of diagnostic images as well as transport patients through various areas of the hospital. It is essential that the student radiographer have the skills to communicate effectively with patients, families of patients, other health care professionals and the general public. Additional duties include image processing, image and equipment evaluation, patient education and care, radiation protection, critical thinking, and venipuncture. The student radiographer displays personal attributes of compassion, competency and concern in meeting the special needs of the patient.
Therefore, students who expect to enter or continue in the radiologic technology program must display the following cognitive and physical skills:

COGNITIVE DEMANDS

REQUIRED SKILL	SPECIFIC REQUIREMENT
1. READING	Must be able to read English, including medical terminology. This relates to exam questions, equipment controls, medical reports, drug labels, patient charts, journals and medical texts.
2. SPEAKING	Must have clear English speaking skills in audible tones. This relates to communicating with patients during exams, telephone communication, communicating with other health professionals, etc.
3. WRITING	Must have legible English writing skills. This relates to exam questions, patient histories, test-taking skills, etc.
4. CRITICAL THINKING	Must be able to modify radiographic equipment, procedures and patient positioning to meet patient needs. React quickly and rationally in chaotic or emergency situations. Solve problems in a variety of situations where only limited standardization exists.
5. REASONING	Must be able to correctly interpret a variety of instructions furnished in written, oral and diagrammatic form.
6. MATHEMATICS	Must have a working knowledge of algebra and geometry to calculate variables and formulas, ratios, proportions, percentages and square roots. Understand planes and angles and their properties.

PHYSICAL DEMANDS

The role of a radiography student cannot be performed without the ability to execute the following:

1. STANDING - Standing unassisted is required 95-100% of the time throughout the assigned clinical hours. This is an essential demand.

2. WALKING - Walking is required 90-100% of the time throughout the assigned clinical hours. This is an essential demand.

3. CLIMBING - Climbing stairs is often required.

4. PUSHING/PULLING - Pushing and pulling an average of 200 pounds is required when transferring patients to and from the radiographic table. Moving radiographic equipment and transporting patients may require significant physical exertion. This is an essential demand.

5. LIFTING - Lifting 25 to 50 pounds frequently. Lifting over 50 pounds is common. Must be able to safely assist patient to and from the radiographic table, wheelchair, or cart. This is an essential demand.

7. BENDING/CROUCHING - Bending, crouching, stooping, kneeling is a requirement in certain exam situations. This is an essential demand.

8. FINE MOTOR SKILLS - Manipulate knobs, buttons, switches and keyboards. Must be able to manipulate small medical devices, don surgical gloves, insert IV catheter, etc. This is an essential demand.

9. HEARING (WITH/WITHOUT CORRECTION) - Distinguish sounds over background noise. Must be able to respond to low sounding alarms, codes, and verbal expressions from patient and physician. Hear muffled sounds in surgery or behind an x-ray control booth, as well as ascultate BP. This is an essential demand.

10. VISION (WITH/WITHOUT CORRECTION) - Ability to see fine lines and distinguish gradual changes in blacks, greys, whites, of images. Perform procedures in dim lighting, read monitors, and written material. This is an essential demand.

PHYSICAL EXPOSURE

Student radiographers are classified as OSHA Category 1: ***required to perform tasks that may result in occupational exposure on a regular basis.***

The role of a student radiographer requires exposure to the following:

1. DISEASE - Disease exposure will occur on a daily basis while in clinical education. It involves caring for patients with known and unknown risk factors and potential infections or harmful diseases.

2. PPE - Due to potential exposure to various diseases, radiography students must be able to wear all types of PPE for various lengths of time throughout the work period.

3. HANDLING REPULSIVE TASKS - Radiograpy students are frequently involved with handling and disposing of body fluids and secretions such as blood, feces, urine, vomit, and the general cleaning and maintenance of an incontinent patient.

4. RADIATION - Exposure to ionizing radiation and radiation producing machines on a daily basis.

5. WORKING IN CONFINED PLACES - Must be able to work in small rooms and areas daily. Duration can vary from one minute to more than an hour.

6. NOISE - Must be able to work around constant low humming noises.

This program reserves the right to require the applicant or student to physically demonstrate any of the above skills at any time. In the event a student is unable to meet the technical standards as described above, s/he will not be accepted into the program or will be released from the program.

I have read and I understand the cognitive and physical performance standards for radiography students and I am able to perform the tasks associated with the technical standards.

Name (print) _____

Signature _____ Date _____

II.
SCORING, SUPERVISION, CLINICAL AND DIDACTIC POLICIES

DIDACTIC SCORING:

Scores achieved in the following courses determine the cumulative didactic average.

A. Core courses: Introduction to Radiologic Science and Healthcare; Patient Care I, II, III; Principles of Imaging I, II; Radiographic Procedures I, II, III; Radiographic Physics I, II; Radiographic Pathology; Radiation Biology and Radiation Protection; Intro to CT and Sectional Anatomy; Ethics and Law in the Rad Sciences

B. Non-Core courses: Peer Teaching, Registry Review, Human Anatomy & Physiology, Medical Terminology

C. Final exams: core course, program

Didactic Grading scale: averages determined to the nearest tenth

- 100 – 95 (A)
- 94.9 – 88 (B)
- 87.9 – 80 (C)
- 79.9 – 75 (D)
- 74.9 or below is failure

End of trimester course average: 75% or higher
End of course average: 80% or higher
Cumulative end of trimester average for all didactic courses: 80% or higher
Cumulative didactic average for all courses over all trimesters: 80% or higher
The program average is determined by the average of the clinical and didactic cumulative averages: 82.5% or higher

Program faculty may require students not meeting the minimum course averages to attend mandatory tutoring outside of assigned clinic and class hours. See demerit policy for academic failure.

SCORING & TESTING: Failed tests in core courses may be re-administered by the clinical instructor at the clinical site the day following the original test if the student chooses to retake the test. The time for the test retake will be at the clinical instructor's discretion. Only the original score will be incorporated into the course average. Students are required to return all original tests to the course instructor. Failure to return any test may result in a grade of "0" for that test. If every student fails the same test, then that test will be deemed as unsound, scores will not be recorded, and a new test will be given. Tests in core courses **will not** be curved. All other tests may or may not be curved at the instructor's discretion.
Quizzes and/or review tests may be given in any course and will equal 20% of the course average.
All graded course material is kept in a confidential and secure manner.

TEST MAKE-UP: If a student knows that a test will be missed, immediate arrangements must be made to schedule a time to take the test prior to the time off. Failure to do so will result in failure of the test. In addition, all failed tests must be retaken until a passing score is achieved. Only the original score will be incorporated into the average.

ATTENDANCE: Students are expected to be on time and in class. Any personal appointments should be made outside of class time. Class absences and tardies count towards the program limits.

COURSE FAILURE: The demerit policy will take effect if a student fails a course. At the instructor's discretion, the student may be required to perform additional course work in the event of a failed course. Students dismissed for academic failure may apply to the program for the next admitted cohort, however, there is no guarantee of acceptance and the student will be required to retake all previously completed courses.

STUDENT COUNSELING: Conducted at mid-first trimester and the end of the 1st, 2nd, 3rd, 4th, and 5th trimesters. The Program Director and Clinical Instructor will meet privately with each student to discuss the student's academic standing, clinical performance, and professional demeanor during that trimester. The counseling sessions will include written evaluations, constructive criticism for performance improvement &/or acknowledgment of successful achievement, and ample opportunity for the student to discuss any perceived issues related to class or clinic. Counseling for any other reason will be determined as the situation arises. All counseling will be documented and kept in the student's file. Psychological counseling is available through the hospital's Social Services Departments. The Social Services Department may recommend an outside agency, if necessary, at the student's expense.

CLINICAL SCORING:

Scores achieved in the following clinical courses determine the cumulative clinical average:

- Clinical Performance Evaluation
- Mock Simulation
- Evaluation of Competency (EOC)
- Image Analysis (4^{th} – 6^{th} Tri)
- Portfolio (6^{th} Tri)
    - Portions of the portfolio will be completed as the student progresses through the program. The portfolio will be compiled and turned in for a grade during the 6^{th} trimester; it will comprise 10% of the clinical grade for the 6^{th} trimester.

Clinic Grading scale: averages determined to the nearest tenth.

- 100 – 95 (A)
- 94.9 - 88 (B)
- 87.9 – 85 (C)
- 84.9 or below is failure

End of trimester course average: 85% or higher
Clinical Performance Evaluation: 85% or higher in each separate performance area at end of trimester
End of course average: 85% or higher
Cumulative end of trimester average for all clinical courses: 85% or higher
Cumulative clinical average for all courses over all trimesters: 85% or higher
Program average is determined by the average of the clinical and didactic cumulative averages: 82.5% or higher

Program faculty may require students not meeting the minimum course averages to attend mandatory tutoring outside of assigned clinic and class hours. See demerit policy for academic failure.
Quizzes may be given at any time at the discretion of the clinical instructor. Quizzes equal 20% of the Mock Simulation grade.

CLINICAL OBJECTIVES: During the course of each trimester, the student is required to accomplish predetermined objectives for each clinical area. The technologist responsible for that area will determine if the student has satisfied the objectives by means of a check-off sheet. If it is determined the student is not meeting the objectives a verbal correction and demerits will be issued; continued failure to complete objectives will result in progressive disciplinary action. It is the student's responsibility to see that all pertinent Clinical Rotation Objective forms are initialed, signed and turned in to the Clinical Instructor as they are completed. Students may have to delay elective rotations &/or graduation to complete any incomplete objectives. See demerit policy.

PERFORMANCE EVALUATION: The student is required to submit a "Performance Evaluation" form to the supervising technologist(s) at the end of each week. The performance evaluation represents the technologist's evaluation of the student's performance for that week. Once complete, it is the student's responsibility to turn this form into the Clinical Instructor where it is incorporated into the student's clinical grade.
A minimum score of 85% must be achieved in each category of the performance evaluation at the end of each trimester or disciplinary action will take effect. See demerit policy.

MOCK SIMULATION: The student is evaluated on each radiographic procedure by program faculty in a simulated situation prior to performance on an actual patient. All failed mock simulations will be repeated until a passing score is achieved; however, only the initial score will be recorded. See demerit policy.
Mock simulations are divided into three types: demonstration of competency, end of trimester, and critical thinking. End of trimester mock simulations are administered for the purpose of knowledge reinforcement and improvement of critical thinking and problem-solving skills.

- Demonstration of competency mocks are required prior to pre-EOC for every exam;
- 3 end of trimester mocks per student are conducted at the end of each trimester;
- 1 critical thinking mock is conducted at the end of the 4^{th}, 5^{th}, and 6^{th} trimesters.
- *If a student has completed the 45/15 requirements on patients* (see pg II. 3) they will perform only the critical thinking mock simulation and image analysis in the 6^{th} trimester. A score of 100% will be awarded for the 6^{th} end of trimester mock grade.

Continued on p. II. 3

Mock (cont from p. II. 2): End of 6th trimester mock simulation may used for students who have not completed the 45 mandatory and 15 elective exams on patients by the mid-6th trimester. If necessary, students will be allowed to simulate up to 10 exams, identified on the Clinical Competency form, to establish competency and fulfill program graduation requirements. If a student has more than 10 mandatory/elective exams to complete by the mid-6th trimester, the 6th trimester vacation week may need to be used to perform the exams on patients; program completion &/or graduation may also be delayed to complete all mandatory and elective exam requirements.

EVALUATION OF COMPETENCY (EOC): Each radiographic exam requires the student to perform a pre-determined number of "pre-EOCs" under direct supervision prior to attempting an EOC of that exam. Successful completion of an EOC allows the student to perform the exam under indirect supervision. An EOC may only be evaluated by a program faculty or a technologist designated by the program. Quality checks will be done periodically by the clinical instructor to determine quality of exam and EOC grade correlation. The clinical instructor has the right to revise any EOC grade upon review of exam images and review of EOC grading form if necessary.
Infrequently ordered exams may be tested by a mock simulation.
It is required that each student perform a minimum of 15 ***passing*** EOC's per trimester. Failure to achieve 15 passing EOC's will result in a significant reduction in the end of trimester EOC average.
Students must perform an EOC on all 45 mandatory and 15 elective exams; **at least 35 must be on patients** (see Clinical Competency Requirements list). Students are strongly encouraged to perform ALL mandatory and elective exams on patients; however, failure to complete all 45 mandatory and 15 elective EOCs on patients prior to the mid-6th trimester will necessitate performing the remaining exams (up to 10) as a mock simulation during the 6th trimester and prior to student participation in graduation ceremonies.
Failed EOCs: the student may fail 3 EOCs per trimester; failed EOCs over 3 will be assessed 1 demerit each.

FREE ZONE: Once 15 passing EOCs have been achieved in each trimester, the student is in the *FREE ZONE.* This means the student has the option of accepting or denying any further EOC scores for that trimester. The purpose of the *FREE ZONE* is for the student to attempt difficult exams, exams for which the student has not yet EOC'd, without the fear of failure. Rules for announcing an EOC will still be in effect.
See pp II. 5,6 regarding Achieving Competency and CT/Surgery EOC.

PORTFOLIO: The objective of the portfolio is for each student to demonstrate effort, progress, and achievement throughout their 23 months of education and training. The student will incorporate journal entries in the critical thinking and personal growth areas as well as record professional development, academic accomplishments, radiographic competencies, and radiographic images. Artifacts for the portfolio will be acquired throughout the 23-month training period and compiled in the 5th and/or 6th trimester. The portfolio will be turned in for a grade that will comprise 10% of the 6th trimester clinical grade. Specific requirements for the portfolio are available on Moodle.

JOURNAL: Throughout the 23-month program the students are required to maintain a journal. This journal is comprised of a critical thinking section and a personal growth section. Students are required to make a **dated**, weekly entry in the critical thinking and personal growth categories of the journal based on events they have experienced in the clinical setting each week. Although the recording material for the journal is left at the student's discretion, journals must be made readily available to the clinical instructor without advance notice. See demerit policy. Portions of the journal will be incorporated into the student's portfolio. See appendices.

STUDENT TIME LOG: Each day the student will clock in and out on a time keeping system. Students may also be required to maintain a paper time log that is used as a cross reference for the student's time in their clinical areas. ALL reasons for any time variations outside of the assigned schedule must be noted in the time keeping system or paper log. For example, students must document reasons for a tardy, illness, staying after or leaving before the assigned time and ANY other reason for a variation. All reasons for time variation require verification by a program official or the supervising technologist. It is the student's responsibility to turn the log in on time. See demerit policy.

POSITIONING BOOK (personal): Students are responsible for creating and maintaining a pocket sized positioning book for the duration of the program; entries in the book should be made as exams are learned in Positioning Lab. Books are to be updated as exams are learned. The book should include all necessary information (CR angle, pt position, technique, etc.) related to performing all exams in which the student performs mock simulations. See demerit policy.

SCHOLASTIC REQUIREMENTS:

DIDACTIC: The student must maintain:

1. a minimum end of trimester course average of 75%
2. a minimum final course average of 80%
3. a minimum cumulative trimester average of 80%
4. a minimum cumulative didactic average of 80%

throughout the 23 month training period.

CLINIC: The student must maintain:

1. a minimum end of trimester course average of 85% in all Clinical Courses
    a. including all performance areas on the Clinical Performance Evaluation and excluding Portfolio
2. a minimum cumulative trimester average of 85%
3. a minimum cumulative clinical average of 85%

throughout the 23 month training period

PROGRAM: The student must maintain a cumulative program average (cumulative didactic and cumulative clinical average) of 82.5% throughout the 23 month training period.

Scholastic reports are computed at the end of each trimester and given to the student during the counseling session with the Program Director and Clinical Instructor. However, students should feel free to discuss concerns regarding his/her education at any time. The Program Director reserves the right to counsel the student and implement the due process policy at any time if the student is making unsatisfactory progress in one or more areas. Academic failure, as defined in the demerit policy, is considered just cause for dismissal from the program.

PROGRAM COMPLETION: Requirements for graduation and verification of student eligibility to sit for the ARRT national registry. These requirements may be modified &/or superseded in extreme cases, such as a catastrophic event*. Completion of ARRT requirements will always be required for program completion, regardless of circumstances.
The student must complete:

- applicable rotation objectives as set forth by the program*
- clinical competency requirements for the program &/or ARRT
- all clinical rotations as set forth by the program*
- all didactic requirements as mandated by the ARRT/ASRT
- the clinical portion of the program with a minimum cumulative average of 85%
- the didactic portion of the program with a minimum cumulative average of 80%
- the HESI with minimum score of 675 (if applicable)

The student must demonstrate competence in:

- application of body mechanics, patient transfer
- CPR
- sterile and medical aseptic technique
- nursing procedures: vital signs and use of medical equipment
- venipuncture/placement of IV catheter
- care of patient medical equipment
- a minimum of 45 mandatory radiographic procedures as established by the program*
- a minimum of 15 elective radiographic procedures as established by the program
- CT scanning of the head, thorax and abdomen

METHODS for STUDENT ACHIEVEMENT of CLINICAL COMPETENCY

The student's clinical rotation schedule and didactic class schedule are correlated so the student may have maximum opportunities to utilize cognitive achievements and develop psychomotor skills necessary to perform radiographic procedures.

The student is evaluated weekly on performance; this includes personal characteristics as well as demonstration of skills. The Performance Evaluation is a portion of the clinical grade. The evaluations, conducted by an R.T., are returned to the Clinical Instructor for review and maintained in the student's file. During the scheduled counseling sessions with each student, the Program Director and Clinical Instructor will review any issues identified on the Performance Evaluation as well as the didactic and clinical course averages with the student for the purpose of documenting the student's progress.

The Clinical Instructor will immediately report to the Program Director any student having difficulty in any clinical rotation. The student must complete the required number of rotations in each area for each trimester.

Steps in Achieving Competency:

1. The student is presented course objectives and is given classroom lecture, audio-visual presentations, hands on simulation in the simulation lab, and radiographic examples pertaining to the anatomy, pathology, and radiographic procedures for the specific area of study.

2. Following classroom presentation, the Clinical Instructor will conduct Procedures Lab to present positioning and procedural skills, routine and special projections, equipment manipulation, and radiation protection for the patient, self, and others. Instruction will include appropriate shielding; however, students will follow the shielding policy at each clinical site. Also included will be patient care, prep, and technical factor selection to obtain a diagnostic radiograph.

3. After the lab class, the student must pass a written exam of the anatomy/procedure being studied with a minimum score of 75%. If the exam is failed, the student must notify the clinical instructor, retake the test, and attain a passing score before proceeding to the mock simulation exam. The retake test may not necessarily be the same test as the original. Only the original score is incorporated into the average.

4. Upon passing the written exam, the student will perform mock simulation exams in the presence of the program faculty. A minimum score of 85% is required to allow the student to perform the radiographic exam under direct supervision. If the exam is failed, the student must repeat the exam until a passing score is achieved. The original score is recorded for the student's average. All mock simulation exams will be documented and filed. A list will be posted in the department specifying the exams each student may perform under indirect and direct supervision.

5. The student must perform a specified number of radiographic exams (pre-EOC) in each procedure under direct supervision prior to attempting an EOC, as identified in the **Clinical Competency Requirements** list. Pediatric and geriatric exams are also identified on this list.

6. An EOC may only be evaluated by program faculty or a technologist designated by the program who has earned the credentials R.T.(R). The student must announce the intention to perform an EOC prior to beginning the exam. Once an EOC has been announced, it cannot be terminated by the student. However, in extreme situations the tech has the prerogative to terminate an EOC. Asking a technologist to give an EOC after the exam is in progress or has been finished is inappropriate and will not be accepted. An EOC must have a minimum score of 90 to pass for junior students and 95 for senior students. A failed EOC will be recorded for the clinical average but must be performed again until a passing score is achieved to progress to indirect supervision. The passing score will also be recorded but not included in the average.

7. Students are allowed to fail up to 3, of the required 15, EOCs per trimester. Each failed EOC over 3, per trimester, will be assessed 1 demerit each.

8. Students will receive classroom instruction in mammography positioning and procedures and a written exam will be administered and recorded. Rotation through this area is not assigned; however, a student may choose observation in mammography as an elective. Limited rotations will be assigned through MRI, nuclear medicine, ultrasound, and other clinical sites. EOCs are not required for these rotations; however, completion of objectives is required.

9. Rotations are assigned through computed tomography (CT) and will require a minimum of 1 EOC in the head, chest, and abdomen categories. Additional EOCs may be completed, however, **no more than 1 CT EOC per exam type (head, chest, abdomen) and no more than 3 CT EOCs per trimester** are allowed. All exams in CT will be performed under direct supervision, regardless of the level of training. Students will also receive instruction in surgical procedures and the use of the portable C-arm. A C-arm EOC is required. The student will always perform under direct supervision when in surgery.

9. The student is provided the **Clinical Rotation Objectives** forms for each trimester. The student will have the supervising technologist check off and date each objective as it is achieved to be certain that all objectives have been met. The student will then turn this form into the Clinical Instructor. If the supervising technologist or Clinical Instructor does not feel the student has met the objectives the Program Director and Clinical Instructor will meet with the student and a plan will be implemented to aid the student in achieving the objective(s). Completion of objectives is reviewed by program faculty at the end of each trimester.

10. GRADUATION: clinical competency is evidenced by the student's records indicating a minimum 85% average in each of the clinical scoring areas, completion of all required competencies, rotations, and completion of clinical objectives.

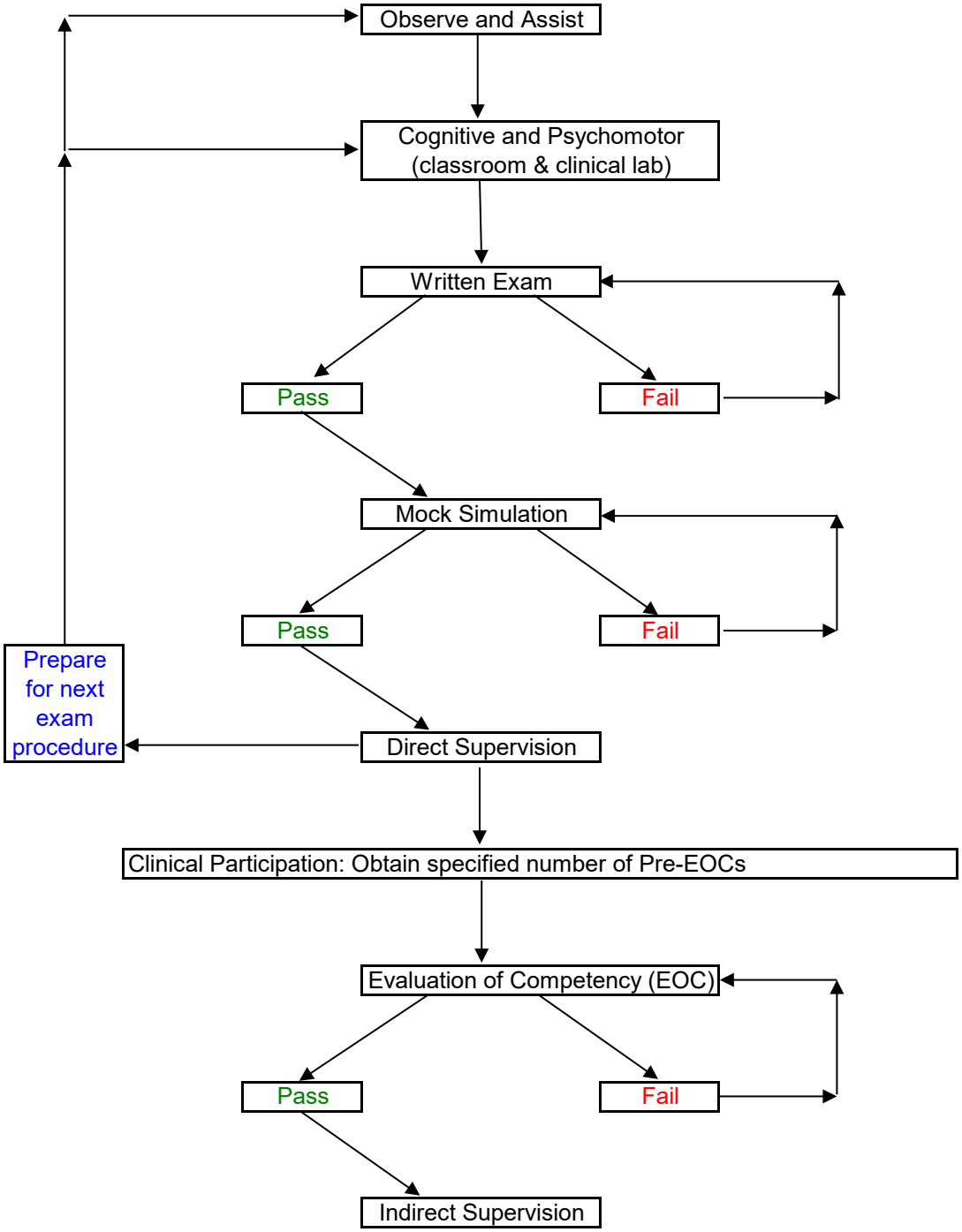
11. The above policies may be affected should a catastrophic event take place. See p. III. 30 for Contingency Plan.

CLINICAL EDUCATION DOCUMENTATION

In order to verify that students are able to acquire a sufficient number and variety of exams a log notebook will be provided to the student for the purpose of recording clinical examinations performed after establishing competency. These books **must be kept up to date** ***and must not leave the radiology department***. The Program Director and Clinical Instructor will have access to these books for the purpose of monitoring the student's progress and for performing Image Analysis.

The students will also be required to construct their own clinical positioning manual. Students will keep this manual with them for quick reference while performing clinical examinations. Additionally, students are required to keep a journal with weekly entries of how critical thinking and problem solving was applied to a clinical situation. Students may include ideas they used to complete an exam that was non-routine or something that they learned by observing. These entries comprise a portion of the student's portfolio.

FLOW CHART for ACHIEVEMENT of CLINICAL COMPETENCY



CLINICAL EDUCATION: Clinical rotations are established by program faculty to insure that the classroom and clinical education correlate as closely as possible and to offer to the student the opportunity to expand his/her clinical knowledge as his/her clinical education progresses. These rotations will include day, evening, and weekend assignments. It is the student's responsibility to inform the supervising technologist of excused time away from the assigned clinical rotation. Excused time would include, but is not limited to, class, testing, meetings, illness, injury, or family emergency. Tardies or unexcused absences will be reflected on the evaluation.
The Program Director and Clinical Instructors are available to the students and technologists to discuss any concerns relating to the clinical rotations. If either party deems necessary, a meeting may be scheduled to express concerns regarding rotations, or to offer suggestions to make the rotations more beneficial.

CLINICAL OBJECTIVES

PURPOSE

- To convey the desired and expected learning outcome for the student.
- To convey to the student the specific behaviors to be exhibited.
- To provide a guide for evaluating student achievement.
- To convey to the student, staff and institution that the student is never to assume the responsibilities of qualified staff radiologic technologists.

SUPERVISION OF CLINICAL EDUCATION AND LABORATORY PRACTICUM

In providing an education for student radiographers, it must be realized that a major portion of the training is in the clinical aspect. In our program this comprises approximately 80% of the student's week.

Clinical education must be supervised carefully and if necessary, be individualized to meet the needs of the student. Students are not permitted to operate x-ray equipment or perform radiographic examinations on patients under indirect supervision until they have successfully achieved competency in each area of radiographic procedures, and have an understanding of radiation protection for the patient and self.

Our program strictly adheres to the **Standards for an Accredited Educational Program in Radiologic Sciences**. The **Standards** state planned and structured clinical education and should include the following:

1. Documented student prerequisite knowledge in:
   - Basic radiation protection.
   - Basic patient care and clinical skills.
   - Principles and procedures related to image quality.
2. Competency based evaluations, based on actual radiographic examination performance.
   - Simulations may be utilized for infrequent or limited volume examinations.
   - Simulations should comprise a minor component of clinical evaluations.
   - Support *As Low As Reasonably Achievable* concept (ALARA).
   - Opportunities for elective rotation may be provided in specialized imaging areas.

Until a student achieves and documents competency in a particular procedure, all clinical assignments shall be carried out under the direct supervision of a qualified radiographer. After demonstrating competency in a particular radiographic procedure, and if departmental policy allows, the student may perform the procedure under indirect supervision.

In support of the professional responsibility of the provision of quality patient care and radiation protection, unsatisfactory images shall be repeated **ONLY IN THE PRESENCE** of a qualified radiographer, regardless of the student's level of competency. Students may **NEVER** pass an image without prior approval from a qualified technologist or disciplinary action will ensue. Repeats will be logged by each student and monitored by faculty and clinical staff.

DEFINITION OF CLINICAL TERMS

RADIOGRAPHIC EXAMINATION: A series of radiographs of an anatomical part sufficient to allow diagnostic evaluation of the part in question.

OBSERVE: The student watches the technologist perform a radiographic examination.

ASSIST: The student aids the technologist in performing the radiographic examination without actually performing the exam. For example, the student will escort the patient to and from the exam room, select the proper IR, process the image, change linens, etc.

PERFORM: The student carries out a radiographic examination under direct or indirect supervision. For example, the student will position the patient, set the proper exposure factors, make the exposure, etc.

DIRECT SUPERVISION: A qualified radiographer reviews the procedure in relation to the student's achievement, evaluates the condition of the patient in relation to the student's knowledge, is physically present during the conduct of the procedure, and reviews and approves the procedure and/or image.

INDIRECT SUPERVISION: A qualified radiographer is immediately available to assist the student regardless of level of achievement. "Immediately available" is interpreted as the physical presence of a qualified radiographer adjacent to the room or location where a radiographic procedure is being performed.

PASSING AN IMAGE: Sending the image &/or exam to the radiologist/PACS for interpretation.

REPEATING AN EXPOSURE: Exposing a patient more than one time per image.

CATEGORY: A series of related radiographic examinations that demonstrate a specific area of the body. For example, the chest category includes AP, PA, lateral, oblique, lordotic, and decubitus projections.

COMPETENT: The student's ability to safely and successfully perform radiographic examinations, and other tasks, in the radiology department, under indirect supervision.

MOCK SIMULATION: The procedure by which a student's performance of a radiographic examination is performed in a theoretical situation. After a successful demonstration of competency mock simulation, the student may perform the radiographic examination under direct supervision. In some cases, mock simulation may be used to fulfill the 45 mandatory and 15 elective exams requirements. See Clinical Competency Requirements form.

EVALUATION OF COMPETENTY (EOC): The procedure by which a student's performance of a radiographic examination on an actual patient and the resulting images are evaluated by a qualified technologist appointed by the program. Performance of the EOC will be conducted under direct supervision. After successful completion, the student may perform the radiographic exam under indirect supervision.

CLINICAL SUPERVISION GUIDELINES

PURPOSE:

- To ensure proper utilization of students in that they are never used as replacement for qualified staff.
- To provide support and direction.
- To provide optimum patient care.

RESPONSIBILITY: Primary supervision of the student while in the clinical setting is the responsibility of the Clinical Instructor. When the Clinical Instructor is not immediately available, a qualified technologist will be designated to assume this responsibility. Students should be aware that the technologists are their primary source for aid in the performance of a radiographic examination and for achieving competency; they may ask for assistance from any technologist at any time while performing a radiographic exam under direct or indirect supervision or any act of patient care. Students will never be assigned to a rotation or shift without educational value or without proper supervision by qualified staff.

PERFORMANCE OF RADIOGRAPHIC PROCEDURES: A student requires direct supervision in the performance of all radiographic procedures and specific acts of patient care until the student has proven competent. It is the student's responsibility to know whether they can perform an exam under direct or indirect supervision.

REPEAT ING A RADIOGRAPH: A student will never repeat an exposure without the direct supervision of a technologist.

PASSING AN IMAGE: A student will never pass an image prior to without the image first being reviewed by the supervising technologist.

DIRECT SUPERVISION REGARDLESS OF EDUATIONAL LEVEL: Direct supervision is required when performing any of the following procedures:

- **CT, surgery, C-arm, contrast injection, placing IV catheter, tipping for barium enema, portable/mobile, repeat images, setting fluoroscopy operation parameters, operating fluoroscopy equipment, performing fluoroscopy exam**

CONTRAST MEDIA: Students will not inject contrast media until the 2nd CT rotation or later, only if deemed competent by the supervising technologist, and only under direct supervision.

PATIENT HISTORY/CONSENT: Students may document the patient's history from the questionnaire, obtain the patient's signature on a consent form, and explain a procedure to a patient providing the supervising technologist deems the student knowledgeable and competent to do so.

REPEAT RATE: Student repeat rates will be monitored periodically by the clinical instructor to identify potential problems related to patient dose and/or clinical performance. Students will be counseled when the repeat rate is higher than 10%. Failure to demonstrate improvement in repeat rate by the 6th trimester could result in disciplinary action.

LIMITED STAFF: In the event that the 1:1 student to technologist ratio cannot be maintained while students are at their clinical site, due to unforeseen circumstances, the following procedure should be temporarily instituted: First option, students will be assigned to technologists in the CT, MRI, or surgery areas; if that is not feasible the students will practice positioning in an unoccupied radiographic exam room; if neither of those options are feasible the students will study clinic &/or class material in a designated area until the 1:1 student to tech ratio can be achieved.

HOURS FOR DIDACTIC AND CLINICAL EDUCATION: Students are assigned 37.5 hours per week of education. One day per week is classroom study and four days per week are clinical education. Assigned times are posted on the didactic and clinical rotation schedules. Hours are typically from 7am-3pm, 8am-4pm, or 9am-5pm during the first year. The second year includes rotations of 1pm-9pm shifts and approximately 6-8 weekend shifts of 11am-7pm, Sat and Sun. Night shift hours are not routinely assigned; however, students may voluntarily request to work these unconventional hours during their elective rotations. All requests must be approved by program faculty. *Assigned times and rotation schedules are dependent upon patient load, access to specialty areas, and whether the program is operating under the Contingency Plan; therefore, assigned times and schedules are subject to change at any time during the 23-month educational program.*

NON-TRADITIONAL HOURS: The goal for evening and weekend clinical assignments during the second year is to aid the student in becoming more independent and confident in the use of critical thinking and problem-solving skills, thereby increasing competence, with movement toward proficiency. The result is a student who becomes more marketable when seeking employment. Graduate feedback via end of program surveys indicates that nontraditional clinical assignments provide educational value to the student.

CLINICAL PLACEMENT: Students are placed at one clinical site for the majority of their clinical education to allow fine-tuning of clinical skills and allow clinical instructors to gain familiarity with each student's clinical strengths and weaknesses. Placement is based on proximity to the student's place of residence, student's preference indicated during the interview process, whether the student has relatives working in a particular imaging department, and interview score.

ALTERNATE CLINICAL EDUCATION SITE: Students will rotate a minimum of two days through the program's clinical education sites during the second year. This rotation is for students to gain appreciation for different protocols and different radiographic equipment. While at the host site, the student is to observe but may assist in procedures that will not involve radiation dose to the student. Students will not be provided with a radiation monitoring badge for use during their 2-day alternate site rotations, therefore, students should not participate in fluoro, surgery, hold patients, or participate in any other activity that would produce exposure to the student. The student is required to complete the alternate site rotation objectives and obtain the clinical instructor's signature. The student will follow the host's departmental and hospital policies. The student's conduct will be professional in all interactions and deeds. The student is not to bring any type of reading materials, laptop computers or any other diversionary or electronic devices to the host site; to do so may result in disciplinary action. Pertinent clinical site policies will be reviewed by each student prior to each alternate rotation.
Absences from alternate site rotations will be made up during the 6th trimester vacation week unless a student has a healthcare provider statement of illness. Plus time may not be used for alternate site rotations.

ELECTIVE ROTATION: The student is scheduled for elective days during the 5th/6th Trimester to allow the student to further explore an area of radiography that is of special interest. The student may observe at an "out of program" institution for at least one day and must shadow a radiologist for one day; the remaining days may be scheduled as "in program" or "out of program" observations. Arrangements should be made to observe for approx. 4 hours at an out of program institution and 7.5 hrs for in program; arrangements are to be made by each student. Each student will submit their elective schedule to the CI for approval at least TWO WEEKS prior to the date of the elective(s). The clinical instructor has the discretion to approve, or not approve, each elective based on student clinical performance and whether the student has program requirements that need completion.
Areas not on campus, but operated by the clinical site, are considered "in program" observations. Students are limited to observation ONLY when without a radiation dose monitor.
The student's rotation is limited to one day in each area unless extenuating circumstances should occur as determined by the program director. The student will be provided with a verification form that must be completed and returned to the clinical instructor following each elective activity. Failure to return this form may result in a deduction of 4 hours from 6th trimester vacation time.
continued on II. 12

ELECTIVE ROTATION (con't):
Rotations in which clinical sites have gender restrictions for students, such as mammography, specific ultrasound exams, etc: The program will make every effort to place a student in a clinical rotation of her/his choice when requested, however, the program must respect the policies of each clinical setting. Students are advised that the availability of some elective rotations may be restricted to a specific gender and access to rotate into these areas is not guaranteed. The program will not deny some students the opportunity to participate in elective rotations when those opportunities are not available to students of the opposite gender. Observation of, or participation in, any exam is always dependent upon consent of the patient. This policy is based on the position statement adopted by the JRCERT Board of Directors, 4/2016.
Job Interviews: Students may use elective rotation time for job interviews, if necessary. Two hours of elective time will be given, per interview; if more time is needed it will be taken out of plus time. Students will provide the clinical instructor with verification that the interview took place, if requested by the clinical instructor.

It is at the prerogative of program faculty to allow the student to use the assigned elective rotation days in this capacity. If program faculty determines that the student would benefit from further instruction in a particular clinical area, based on the student's clinical grade &/or evaluation scores, the student may be assigned to that clinical area, with the goal of improving the student's clinical skills during these elective rotations.

PROFESSIONAL LIABILITY INSURANCE: Enrolled students are covered under the professional liability policy of Hancock Health only while acting in the authorized capacity and scope of students assigned to clinical sites within Hancock Health School of Radiologic Technology and only while acting in accordance with all established program and clinical site policies and procedures.

APPROXIMATE TIMELINE for CLINICAL SUPERVISION

KEY: 1 = Observation and Assistance
2 = Direct Supervision
3 = Indirect Supervision

FUNCTION	ASSIGNMENT	0-6 Mo.	7-12 Mo.	13-18 Mo.	19-23 Mo.
Patient Handling	Transport & Transfer	1, 2, 3	3	3	3
General Radiography	Main Department	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Fluoroscopy	Main Department	1, 2	2	2	2
Special Procedures	Main Department	1	1, 2	1, 2	1, 2
Surgical Procedures	Surgery Suite	0	0	1, 2	1, 2
Mobiles & Portables	Main Department	1	1, 2	2	2
Computed Tomography	CT Suite	0	0	1, 2	1, 2
Venipuncture/Phleb.	Laboratory/Main Dept./CT	0	1, 2	2	2
MRI	MRI Suite	0	0	0	1
Nuclear Medicine	Nuclear Medicine Suite	0	0	0	1
Ultrasound	Ultrasound Suite	0	0	0	1

III.
PROFESSIONALISM AND PROGRAM POLICIES

GENERAL CONDUCT and COURTESY

Student's conduct should, at all times, be above reproach. When on the premises of all clinical education sites, students are required to conduct themselves professionally, with special regard to the patients, visitors, peers, and the employees of the institutions. Differences between peers and other personnel should never be discussed within the hearing of patients or visitors.

Students are expected to be courteous at all times to all people. The public, whether patients or visitors, and hospital personnel should be shown every courtesy in both word and deed. The student should report any misunderstanding to the Clinical Instructor or Program Director. Students need to be aware that their actions help determine the reputation of the school and the hospital.

Students must be aware of how behavior is perceived. Sometimes being too friendly with physicians, departmental staff, or other employees of the hospital may be seen as flirtatious. This almost always brings about unpleasant gossip. The best policy is to maintain a professional demeanor and distance in working relationships.

PEER SIMULATION

Students routinely simulate (mock) the performance of exams utilizing classmates and/or radiology staff as "patients" during the clinical education process. Students are required to remain professional at all times during the simulation of an exam. Any unethical behavior displayed during the simulation process should be immediately reported to the clinical instructor and/or program director. All concerns will be investigated and appropriate action will be taken by program officials.

Refer to Harassment and Nondiscrimination Policies on p. III. 23.

PROFESSIONALISM

Rules of medical and professional ethics must always prevail in any activity with patients, peers, departmental staff, and all other hospital employees. Friendly, prompt, and careful diagnostic treatment is the primary purpose of any radiography department. Personal feelings cannot interfere with the purpose. Failure to maintain proper professional conduct will result in disciplinary action, which may include dismissal from the program.

The following are general rules and regulations that must be observed and practiced by students at all times:

- Congregation and excessive noise are not permitted in the radiology departments. Students are expected to remain in their assigned clinical area.
- Students are expected to focus on their clinical education, patients and exams being conducted while in clinic, and didactic education, not their cell phone or electronic devices that divert attention from their education.
- Students should participate in keeping the assigned clinical area neat and clean; this includes gathering and dispensing departmental laundry and supplies.
- Students will make every effort to aid staff technologists, supervisors, physicians, and all hospital staff in the care of patients and for the smooth operation of the radiology department and hospital.
- Students are to bring complaints and/or behavioral concerns to the Clinical Instructor for appropriate action. Should the complaint or behavior be deemed serious enough to warrant further investigation, the Clinical Instructor will bring the problem before the Program Director.
- Students' attitudes and behaviors will promote a positive environment amongst themselves and all clinical and hospital personnel.
- To maintain a safe working environment, students are required to report any known unethical or unprofessional conduct.
- Students should disclose any personal relationships, present or past, within the clinical setting, that could potentially affect the outcome of a clinical evaluation.
- Should a patient become injured while in a student's care, the student must report the incident immediately to the proper staff employee and follow the injury/exposure reporting process found on p. III. 14. a,b,c,d,e. A report must be filed and a copy given to the Program Director.
- Students will practice exceptional radiation protection techniques at all times. An exposure will NEVER be made on a human subject for an experimental purpose of any kind.
- Student criticism of the policies of the school, department, hospital or any staff member should be brought to the attention of a school official and never be discussed in public. .
- Acceptance of gifts from patients in any form is forbidden.

MERIT and DEMERIT POLICY

MERIT: A numerical documentation of performance which exceeds the expectations of clinical performance to a notable degree. Merits can only be assigned by program faculty and are used only for plus time.* One merit equals one hour of plus time.
*A merit cannot be used in any way to increase the clinical score.

One merit will be awarded for:

1. No sick days in a trimester
2. No tardies in a trimester
3. Written or verbal survey response from a patient or written/verbal acknowledgement from a physician or other department. (must be approved and verified by the clinical instructor or a department manager/supervisor). Other merits may be given by the clinical instructor for actions observed as above and beyond the expected.

DEMERIT: A demerit is a numerical documentation of unsatisfactory performance and may lead to disciplinary action &/or reduce the student's grade average at the end of the trimester. Demerits can only be assigned by program faculty. The number of demerits given will depend on the severity of the infraction and frequency of the infraction.
The following is only meant to be a partial list of offenses; other demerits may be given for situations not listed below as determined by program faculty.
Clinic

- Non- submission &/or incompletion of clinical documents in a timely manner: performance evaluations, journal entries, clinical objectives, time log, positioning book, exchange radiation badge, etc
    - 1 demerit 1st occurrence
    - 2 demerits 2nd occurrence
    - 4 demerits and suspension 3rd occurrence
    - Immediate dismissal 4th occurrence
- Non-compliance with dress code
    - 1 demerit 1st occurrence
    - 2 demerits 2nd occurrence
    - 4 demerits and suspension 3rd occurrence
    - Immediate dismissal 4th occurrence
- Poor clinic performance: score of 0 on clinic Performance Evaluation; more than 3 failed EOCs per trimester
    - 1 demerit per each score of 0 1st occurrence; or more than 3 failed EOCs in one trimester
    - 2 demerits per each score of 0 2nd occurrence
    - 4 demerits and probation per each score of 0 3rd occurrence
    - Immediate dismissal 4th occurrence
- Failure to complete an exam: release patient, finish computer entry/paperwork, reschedule patient, etc.
    - 1 demerit 1st occurrence
    - 2 demerits 2nd occurrence
    - 4 demerits and probation 3rd occurrence
    - Immediate dismissal 4th occurrence
- Failure to verify correct order, utilize 2 standard patient identifiers (name, DOB), radiograph wrong body part, maintain environment of safety for patient, purposely crop image to mask insufficient radiation protection, incorrect use of annotation
    - 1 demerit 1st occurrence
    - 2 demerits 2nd occurrence
    - 4 demerits and probation 3rd occurrence
    - Immediate dismissal 4th occurrence
- Inappropriate electronic device use (cell phone, watch, etc): cell phone/Internet accessible watch/laptop usage interferes and detracts from patient care and ongoing exams in department. Failure to follow Electronics policy (p. III.21) Student is focused on device rather than observing, learning, and/or participating in healthcare.
    - 1 demerit for 3rd "Yes" checked on Performance Evaluation during the program or disregard of Electronics policy 1st occurrence.
    - 2 demerits and probation for 4th "Yes" checked on Performance Evaluation during the program or disregard of Electronics policy 2nd occurrence.
    - 4 demerits and suspension for 5th "Yes" checked on Performance Evaluation during the program or disregard of Electronics policy 3rd occurrence.
    - Immediate dismissal 6th "Yes" on Performance Evaluation or disregard of Electronics policy 4th occurrence

- Offenses specified under Verbal Correction
    - 1 demerit first occurrence
    - 2 demerits 2nd occurrence
    - 4 demerits and probation 3rd occurrence
    - Immediate dismissal 4th occurrence
    - Tardy: 1 demerit will be assessed for each tardy, after 3, in a trimester
- Offenses specified under Written Warning
    - 2 demerits 1st occurrence
    - 4 demerits and probation &/or suspension 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Using another person's radiographic marker
    - 2 demerits 1st occurrence
    - 4 demerits and probation 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Leaving clinic without permission; absent without notification
    - 2 demerits 1st occurrence
    - 4 demerits and probation 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Repeating image without direct supervision
    - 2 demerits 1st occurrence
    - 4 demerits and probation 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Sending image for interpretation (passing an image) prior to technologist approval
    - 2 demerits 1st occurrence
    - 4 demerits and probation 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Academic failure: average below 85 in any **Clinical Course** (identified on pg. II. 2, excluding portfolio); end of trimester average, &/or cumulative trimester average below 85, &/or cumulative clinical average
    - 2 demerits 1st occurrence
    - 4 demerits and probation 2nd occurrence
    - Immediate dismissal 3rd occurrence
- Program failure; Cumulative program average below 82.5%
        - Immediate dismissal

Didactic

- Academic failure
    - Course average at end of any trimester below 75%
        - 2 demerits per course and probation 1st occurrence
        - Immediate dismissal 2nd occurrence in same course
    - Final core course average below 80
        - 4 demerits per course and probation 1st occurrence
        - Immediate dismissal 2nd occurrence
    - Cumulative trimester average for all courses below 80%
        - 4 demerits per occurrence and probation 1st occurrence
        - Immediate dismissal 2nd occurrence
    - Cumulative didactic average for all courses and all trimesters below 80%
        - 8 demerits per occurrence and probation 1st occurrence
        - Immediate dismissal 2nd occurrence
- Program failure
    - Cumulative program average below 82.5%
        - Immediate dismissal

Rules:

- A total of 3 demerits or more will reduce either the student's clinical cumulative trimester average or the didactic cumulative trimester average by 1% per demerit for the trimester in which the demerits were obtained.
    - Demerits assigned for academic failure and /or program failure will not further lower the clinic or didactic average; they will be incorporated into the total demerit number.
- 10 or more demerits in any one trimester will be just cause for immediate dismissal from the program.
- For scoring purposes, demerits do not carry over from trimester to trimester; however, program faculty will keep a running program total for each student. 12 demerits for the program will be just cause for immediate dismissal from the program.

Course Failure

In addition to the demerits assessed for course failure, a student who fails a course will make arrangements to meet with the course instructor to repeat the course in its entirety, or portions of the course, as deemed necessary by the instructor. The tests completed as a part of this repeated course will be averaged with the end of trimester course average(s). The final, overall course average must be at least 80%. A repeated course will be indicated with an "R" on the transcript and no additional course credit will be given.

MERIT AWARD

Presented To:

_____

Presented For:

_____ no sick days in trimester (1 hr)

_____ no tardies in a trimester (1 hr)

_____ written or verbal survey response from a patient (1 hr)

_____ written or verbal acknowledgement from physician or other department (must be approved and verified by CI or dept. manager/supervisor) (1 hr)

_____ actions above and beyond the expected as acknowledged by the CI (1/2 hr)

Awarded By:

_____

Student Signature:

_____

Date Awarded: _____ Date Redeemed: _____

** The CI (or tech in charge) must approve when this may be used. **

Rev. 6/20

V:evaluations; merit/demerit

DUE PROCESS DISCIPLINARY PROCEDURES: The School of Radiologic Technology strives to act in a fair and equitable manner at all times. Should steps be necessary to discipline a student, one of the procedures described below will be followed. The student should understand that the seriousness of the offense might alter the steps in the procedure. The student should also understand that the school may seek dismissal for, but not limited to, any of the reasons described in the *Due Process Disciplinary Procedures Policy*. Any disciplinary action will be initiated in a reasonable length of time.

The school retains the right to discipline a student for just cause. There are four levels of correction; verbal correction, written warning, probation, dismissal; suspension is used in specific circumstances. Each level has examples of offenses identified but each level is not limited to these examples.

Disciplinary Process

1. Verbal Correction and 1 demerit
    a. Student is notified in a private meeting of the infraction and the consequences of the infraction via demerit &/or Disciplinary Action in an attempt to identify behavioral issues &/or poor academics.
2. Written Warning and 2 demerits
    a. If an infraction of the same nature occurs for a second time the number of demerits issued will increase &/or a written warning will be issued in an attempt to warn the student that further behavior will result in more serious consequences.
        i. Probation &/or suspension will also be implemented for more serious infractions
3. Probation &/or Suspension and 3 or more demerits
    a. A third infraction of the same nature will require any of the following:
        i. Increased number of demerits
        ii. Probation
        iii. 2 day suspension
        iv. Dismissal if student had been on probation previously for the infraction
        v. Dismissal if the infraction was sufficiently serious.
4. Dismissal
    a. Immediate dismissal is reserved for the most serious situations; including, but not limited to:
        i. failure to correct behavior after repeated disciplinary actions
        ii. multiple infractions not necessarily of the same nature
        iii. Infractions such as those listed under "Dismissal"
        iv. Academic and/or program failure

Documentation of all infractions will be maintained in the student's file.

Verbal Correction

OFFENSE EXAMPLES INCLUDE BUT ARE NOT LIMITED TO:

- 1 DEMERIT – any incident in which 1 demerit is issued.
- EXCESSIVE ABSENTEEISM – 6 occurrences in any rolling 6-month period.
- EXCESSIVE TARDINESS – 4 or more tardies per trimester. Not being in the assigned clinical or didactic area at the scheduled time is tardy. Clocking in at the time the assignment is to begin is considered as tardy.
  See p. III.3,4 for assessment of demerits.
- SMOKING VIOLATION – smoking anywhere on the campus designated as non-smoking.
- GUM CHEWING – while in the clinic, performing a radiographic exam or while in an act of patient care.
- DISREGARD FOR PROFESSIONALISM – failure to follow the general rules of professionalism as described in the Student Handbook on p. III.2.
- INAPPROPRIATE USE OF ELECTRONIC DEVICE IN CLINIC OR CLASS

V; Handbook Rev. 5/15,9/17,6/18, 2/20, 6/22, 6/23

Written Warning
OFFENSE EXAMPLES INCLUDE BUT ARE NOT LIMITED TO:

- 2 DEMERITS – any instance in which 2 demerits are issued for an occurrence
- SLEEPING – during assigned clinical or didactic hours.
- SAFETY VIOLATION – the disregard of any safety policy. Students are responsible for the safety of patients, visitors, and all personnel including themselves.
- PERFORMING AN EXAM UNDER INDIRECT SUPERVISION PRIOR TO PASSING EOC - Proof of student competence is demonstrated via EOC for each exam. Students must pass the EOC for each exam prior to performing an exam under indirect supervision.
- REPEATING EXAM WITHOUT DIRECT SUPERVISION – Students MUST have direct supervision when repeating an image.
- SENDING AN IMAGE FOR INTERPRETATON PRIOR TO TECHNOLOGIST APPROVAL – Students must have a technologist approve an image, or images, prior to sending to PACS, regardless of level of competence.
- DISCOURTESY AND/OR DISRESPECT – being discourteous or disrespectful toward patients, visitors, peers, technologists, physicians, or any hospital employee
- DISREGARD OF A POLICY – failure to follow a policy of the hospital, department, or school
- NEGLIGENCE IN PATIENT CARE – not providing for patient comfort, leaving a dependent patient alone in an examination room, failure to prevent a foreseeable injury, etc. Depending upon the severity, this may be enforced under Probation, Suspension, or Immediate Dismissal
- USE OF ABUSIVE AND/OR OBSCENE LANGUAGE – the use of vocal language or body language, including gestures, when interacting with patients, visitors, peers, technologists, physicians, or any hospital employee
- ACTING IN A DEFAMATORY MANNER – being libelous or slanderous toward a patient, visitor, peer, technologist, physician, or any hospital employee

A total of 3 written warnings for any offense will be just cause for immediate dismissal of the student.

Probation

Probation is instituted after a student has been duly warned about unsatisfactory performance or an infraction of a serious nature. Continued unsatisfactory performance while on probation will lead to program dismissal.

OFFENSE EXAMPLES INCLUDE BUT ARE NOT LIMITED TO:

- ACADEMIC FAILURE – see p. III. 4
- 3 DEMERITS – any instance in which 3 or more demerits are issued for an occurrence (see demerit policy)

Suspension

Suspension will be implemented when a student has had prior warning(s) about an offense but does not act to correct the behavior OR if it is necessary to conduct an investigation into an alleged infraction. If program faculty determines that suspension is the appropriate step in the disciplinary process the student will be given a 2-day suspension. All suspension time must be made up immediately following the day of graduation; neither plus time nor vacation time will be used to make up suspension time. The student will not receive a certificate nor will the program director sign off on eligibility for the registry until all make-up time is completed.
A total of 3 suspensions for any offense will be just cause for immediate dismissal of the student.

Dismissal

Immediate dismissal will occur for any of the following offenses; if an investigation is required it will be conducted by faculty &/or pertinent Advisory Board member(s). The program director, in consultation with the pertinent Advisory Board member(s) will make the determination for immediate dismissal of the student:

- Theft or attempted theft.
- Possession, usage, or distribution of illegal drugs or controlled substances (see policy p. III. 22).
- Possession, consumption, or distribution of alcohol while on clinical site/school property or while attending any school related function (see policy p. III. 22).
- Possession of a weapon on clinical site/school property.
- Security violation: violating security policies of the clinical site or gaining access to program faculty offices, computers, or files.
- Absence of consecutive 3 days without notification; emergency situations will be investigated.
- Misuse of attendance policies: false reporting of illness, injury, or emergency situation.
- Failure to comply: refusal to perform the duties assigned; willful disobedience of instruction or orders by a duly authorized person.
- Falsification of records: false documentation of hospital or school documents.
- Assault or battery: threatening, intimidating, coercing, or mistreating fellow students, employees, or patients.
- Violation of any HIPAA policy.
- Willful endangerment of a patient: placing a patient in a dangerous situation that could result in injury or illness to the patient.
- Cheating or dishonesty: deceitfulness in any interaction with peers, faculty, employees, or patients in clinic or in class.
- Willful defacement or deliberate destruction of hospital or school property.
- A total of 3 suspensions or 3 written warnings.
- A total of 12 demerits in the program or 10 demerits in one trimester.

If a student is arrested, the student will be suspended at the time of the arrest and the suspension will continue until the completion of the criminal proceedings resulting in either dismissal of charges, conviction, or acquittal. If the student is convicted, he/she will not be reinstated into the School of Radiologic Technology. If the charges are dismissed or the student gains acquittal, the student will be reinstated into the school. If more than 30 days has elapsed, the student will be reinstated the following year at approximately the same time.

CONVICTION OF A CRIME POLICY: Eligibility for enrollment into any school of radiologic technology and certification by the American Registry of Radiologic Technology requires the student be of good ethical character. Therefore, the following must be disclosed to the Program Director and ARRT if it occurred before or during the program:

- Criminal violations
    - Charges or convictions that were: plea of guilty, plea of no contest (nolo contendere), withheld/deferred adjudication, stayed, set aside, suspended, or pre-trial diversion.
- Criminal Proceedings including:
    - Misdemeanor charges and convictions
    - Felony charges and convictions
    - Military court-martials
    - Disciplinary actions taken by a state or federal regulatory authority or certification board
    - Honor code violations related to ARRT certification
    - Drug or alcohol related violations

A student or applicant who has been charged or convicted of a crime must submit to the American Registry of Radiologic Technologists (ARRT) a "Pre-Application Review of Eligibility" form and all required documentation. The fee charged by the ARRT is the responsibility of the student or applicant. The ARRT will then rule on the impact of the conviction on the student's eligibility for certification and registration

Anything less than complete and total disclosure of any and all charges &/or convictions at the time of program application or while enrolled in the program will be considered as having provided false or misleading information to the school and to the ARRT. This is grounds for the following; 1) permanent denial for admission to the school, or 2) immediate dismissal from the program, or 3) denial of eligibility for certification by the ARRT.

HANCOCK HEALTH SCHOOL OF
RADIOLOGIC TECHNOLOGY

DISCIPLINARY ACTION

Student Name _____ Date _____

_____ Number of demerits issued Date of incident _____

_____ Verbal correction Trimester _____

_____ Written warning Total demerits to date _____

_____ Probation (include length of probation in narrative)

_____ 2 day suspension

_____ Dismissal

Problem: _____

_____

_____

_____

_____

Expected Compliance:_____

_____

_____

_____

_____

_____

_____

Student comments: The student may write comments on a separate sheet of paper or on the back of this sheet if desired.

I (student) have read the above and understand the problem(s) and the reason(s) for disciplinary action. If compliance is expected on my part, I understand the method(s) for correcting the problem(s) and the outcome should compliance not be met. My signature does not necessarily indicate agreement.

Student Signature _____ Date _____

Program Official _____ Date _____

Witness _____ Date _____

FORMAL RESOLUTION OF GRIEVANCE

The **Buckley Amendment** assures the student of a fair policy, the right to privacy, and an appeals process. Should a student have a complaint resulting from a decision, act, or omission that directly affects the student, or, it is felt the student has not received fair and equitable treatment, the student has the undeniable right to initiate an appeals process and proceed through the steps outlined below.

If the student has a concern about the school not being in compliance with the Standards, the JRCERT may be contacted by at: JRCERT, 20 N. Wacker Dr., Suite 2850. Chicago, IL 60606-3182. Students must exhaust all steps in the appeal process prior to making contact with the JRCERT.

APPEALS MECHANISM

Step #1 – Should the student wish to lodge a complaint the student must do so within 3 business days of the action/incident by submitting a written statement to the Program Director and/or the Clinical Instructor. A meeting will take place with the student and program director. A written or verbal decision will be given within 5 business days. If the student believes the decision to be unjust, the student may proceed to step #2.

Step #2 – The student must submit a written statement of the complaint to the Hancock Health Imaging Department Director and Program Director within 3 business days of the decision made in step #1. A meeting between the three individuals will be scheduled. A verbal or written decision will be given within 5 business days following the meeting. If the student believes the decision to be unjust, the student may proceed to step #3.

Step #3 – The student must within 3 business days after the decision in step #2 submit a written summary of the complaint to the School Advisory Board*. An Advisory Board meeting will be arranged to review the student's concern at the earliest time available. A written decision will be given within 5 business days following the meeting. If the student believes the decision to be unjust, the student may proceed to step #4.

Step #4 – The student must within 3 business days after receiving the decision from step #3 submit a written summary of the concern to the Hancock Health Administration.** The Hancock Health Administration will review the student's concern at its earliest convenience and will, within 30 days, render the final and binding decision between the hospital and/or school and the student.

*The Program Director and the student's Clinical Instructor will not be involved in complaint decisions made by the Advisory Board.

** Program faculty and the Imaging Department director will not be involved in complaint decisions made by the Hancock Health Administration.

INFORMAL COMPLAINTS

Complaints apart from those invoking the Grievance Procedure that could negatively affect the quality of education should be made to program faculty in writing. Consultation with the parties involved, regarding the complaint, will occur at the monthly clinical instructor meeting and/or with the department director of the student's clinical site and/or the Advisory Board and a response will be presented to the student within 5 days after the consultation.

The program will maintain a log of formal student appeals made through the grievance process as well as informal complaints in order to insure tracking of occurrences and for identification of patterns that may require further program review.

INFECTION CONTROL POLICY: Students are classified as Category 1 and shall follow the methods of infection control as described below.

Category 1 is that category of tasks that involve exposure to blood, body fluids, and body tissues. Category 1 requires protective equipment.

STUDENTS

Students receive instruction in Infection Control Procedures during Introduction to Rad Sciences and Healthcare as well as Patient Care in Rad Sciences and are provided with the Communicable Disease policy of their clinical site, therefore, students are expected to have the required knowledge for minimizing potential exposure of blood, body fluids, and body tissues. If exposed, students will follow the Accidental Student Exposure Policy on Handbook p. III. 15.

Students will:

- Wash hands between patients.
- Use proper PPE when indicated.
- Know the chain of infection.
- Understand the *OSHA Blood Borne Pathogens Standard* and the location of the *Exposure Control Plan* at the assigned clinical site.
- Recognize the biohazard symbol.
- Understand the proper disposal of infectious waste.
- Differentiate the three isolation categories: airborne, droplet, contact.
- Know the epidemiology, symptoms, screening, and prevention of the most prevalent communicable diseases.
- Avoid eating in clinical areas.
- Follow isolation procedures.
- Follow the policy(s) in place at the time of a national health emergency.
- Avoid coming to school when diagnosed with a communicable disease.
- Use sterile procedures when applicable and to destroy all used or unsterile administration equipment.
- Never recap used needles and dispose of them in sharps boxes.
- Dispose glass containers in specially marked boxes.
- Know the steps to take if a sharps injury or blood exposure occurs.
- Follow the PPE Guidelines at the assigned clinical site

NATIONAL HEALTH EMERGENCY: During episodes of a national health emergency, students must remain vigilant of changes in program and clinical polices regarding participation in exams that can potentially affect student health and safety. To assure student safety and timely program completion, the School of Radiologic Technology reserves the right to temporarily, or permanently, modify &/or supersede published Student Handbook polices in these extreme circumstances. See Contingency Plan, p. III. 30.

PATIENT

Handling of Isolation Patients: Before any attempt is made to obtain radiographic examinations on patients who are in isolation, it is necessary that the clinical diagnosis be known to help in the establishing of the proper procedure to follow. This may be obtained from the Charge Nurse on the floor or the placard on the wall next to the patient's door stating the patient's isolation type and the proper protective procedures.

Radiographic Examination of Isolation Patients: Portable unit procedures should be reviewed before entering the patient's room or the radiographic room should be prepared before the patient arrives. One technologist shall be dressed in the proper protective apparel and perform the positioning while the other technologist will handle the IR and control panel.

POLICY FOR IMAGING PATIENTS REQUIRING AIRBORNE ISOLATION: The ability to image all patients, including those with communicable diseases, is a critical component of the education and competency of a student radiographer. It is the policy of the Hancock Health School of Radiologic Technology to allow radiography students to image patients who may have communicable diseases, if the following is strictly observed:

- Students may perform procedures in which the acceptable and required form of PPE is a surgical mask with eye protection, a fitted N95, or PAPR.
    - During times of PPE shortages: if students have not been fitted for N95 or there is limited availability of gloves, gowns, surgical masks, eye protection, N95s or PAPRs for student use, then students may not be able to participate in isolation procedures, including aerosolizing procedures, that require the use of PPE that is in short supply. This includes the following airborne &/or aerosolizing procedures:
        - Any patient requiring Airborne isolation for TB, measles, chicken pox
        - Any patient with suspected or confirmed COVID that is aerosolizing and requiring Airborne Isolation
            - Bronchoscopy, High flow oxygen higher than 6L/min (non-rebreather), intubation/extubation, CPR, mechanical or manual ventilation, nebulizer treatments, autopsy, suction of airway, sputum induction, G tube placement, flushing stool in toilet, CPAP, BiPAP

VACCINE POLICY: Applicants to the program who are not or cannot be vaccinated for COVID &/or Flu must apply for an exemption from Hancock Health prior to program acceptance. Applicants with an unapproved exemption may not be accepted to the program (clinical site dependent). Accepted students who receive exemptions may need to re-apply for the exemption(s) annually if hospital policy requires. Students accepted to the program will be required to provide documentation of vaccine status or exemption at the time of the Occupational Health visit in June, prior to program start in July.

EXPOSURE OR INJURY POLICY: Should a student sustain an exposure or injury during the course of clinical education or didactic education, the Hancock Health Infection Prevention Policy or Safety Policy should be implemented and followed.

EXPOSURE:
Definition of Exposure Includes:

- Parenteral (needle stick or cut).
- Mucous membrane (splash to eye or mouth).
- Cutaneous exposures when the exposed skin is abrased, chapped, previously injured, or afflicted with dermatitis (involving large amounts and/or prolonged exposure to body fluids).
- Mouth-to-mouth resuscitation.

Body Substances Include the Following:

- Blood
- Body cavity effusions or transudates
- Secretions (saliva, tears, semen)
- Excretions (fecal matter, urine, sputum)
- Peritoneal dialysis fluid
- Amniotic fluid
- Cerebrospinal fluid
- TB, Pertussis, or any other airborne pathogen

See Blood/Body Fluid Exposures/Needlesticks Policy #IC8012 in Appendix; see Handbook pp. III. 15. a,b for exposure flow charts.

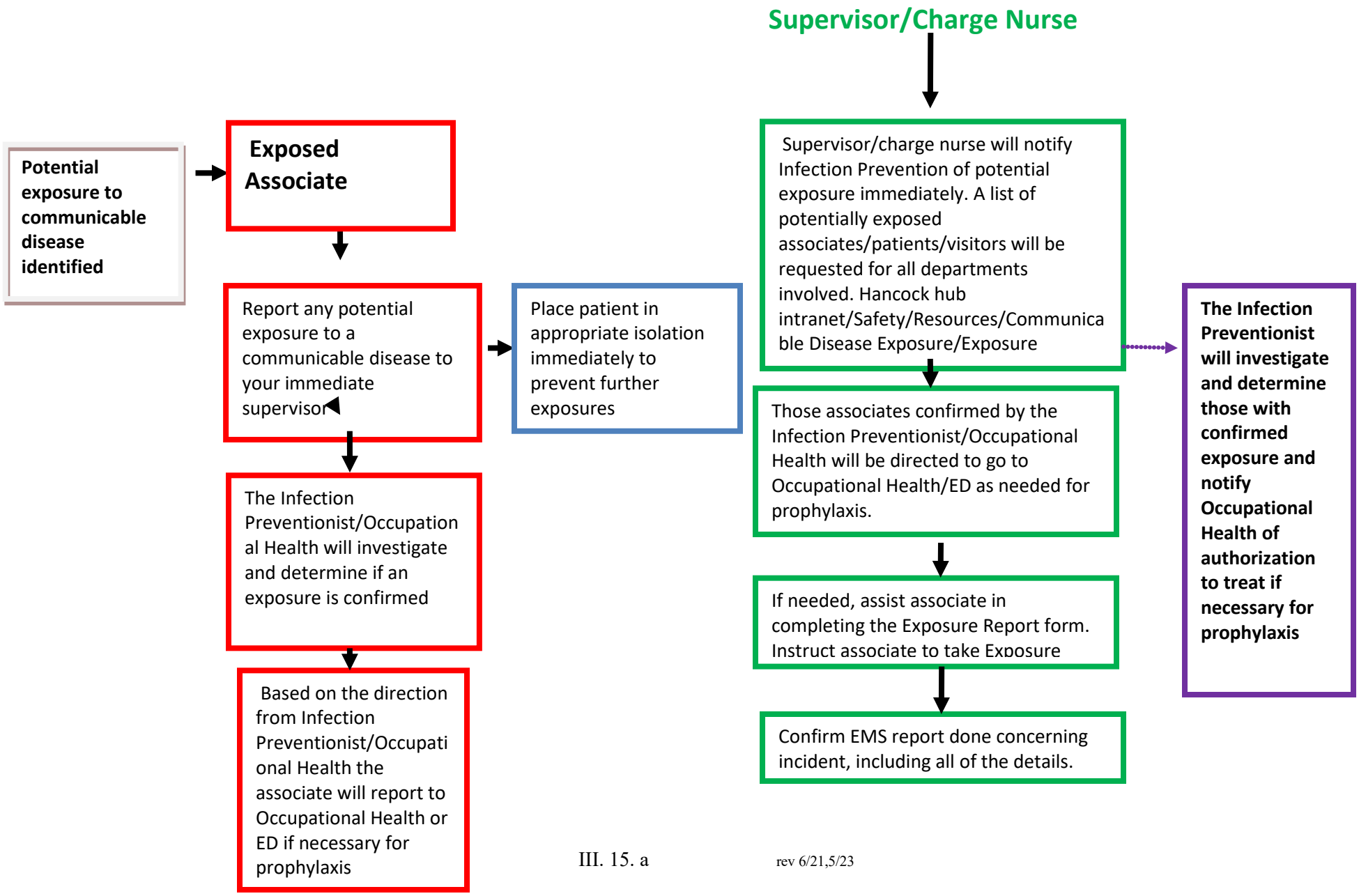
INJURY: If the student sustains an injury that requires immediate medical attention, the student should go to the Emergency Department at the clinical site where the student is located. If medical treatment is necessary but the injury is not severe or life threatening, the student should go to Hancock Health Occupational Health, at the earliest opportunity. If no medical treatment is warranted or refused, a declination of medical treatment form must be signed by the student. See Student Handbook pg. III. 15. e.

PMR Occupational Health: 156 W. Muskegon Dr., Greenfield, IN 46140
317-866-7350

See Safety Policy #1009 Handbook p. III. 15. c and pp. III. 15. d,e,f.

If injury occurs outside of assigned clinical hours, when not working within established departmental protocols or policies or in a negligent manner, the student will be responsible for medical costs incurred. Only injuries sustained during assigned clinical hours and while following proper protocols/policies will be considered for coverage. Bills for Emergency Department or Occupational Health services should be sent to the attention of Lori Cooley, Safety Coordinator, at Hancock Health.

Communicable Disease Exposure Procedure for Associates



Blood and Body Fluid Exposure Procedure for Associates

Exposure Occurs

Injured Associate

STOP

Life Threatening Injury?

Yes-Report Immediately to the ED

No-
*** Puncture wounds or lacerations: Immediately clean the area and make it bleed.**
***Splash in eye, nose or mouth: Flush with copious amounts of water.**

Event Report

Report to supervisor or charge nurse who will direct you to Occupational Health or Emergency Department.

Supervisor/Charge Nurse

Supervisor/charge nurse will assess if Associate needs to go to Occ Health or ED (based on injury and Occ Health hours) and whether to print out packets for "Source" patient and "Associate" Exposure forms from (HRH intranet/General Resources/Clinical Resources/Bloodborne Pathogens Info/Exposure Packet).

Complete "Source Patient Data Collection Sheet" and ask Source patient to sign "Source Patient Consent" form. If the source is unknown, notify Occ Health and indicate unknown in the box on the Exposure Report,

Anesthetized patients have signed consents for testing in case of exposure prior to surgery.

Call lab and notify them of exposure. Fax "Source Data Collection Sheet" and "Source Consent" to lab at 4381, also fax to OHS at 318-7471.

If needed, assist associate in completing the Exposure Report form. Instruct associate to take Exposure packet forms to Occ Health.

Confirm Event Report done concerning incident, including all of the details.

Hancock Regional Hospital

POLICY MANUAL SAFETY	POLICY #: 1009 REV. DATE: 9/2022 PAGE 1 OF 3
TITLE: INCIDENT REPORTING (ASSOCIATE, VISITOR, VOLUNTEER, PHYSICIAN, RADIOLOGY STUDENTS)	
DEPARTMENT(S): ALL DEPARTMENTS	
APPROVED: Lori Cooley	**EFF. DATE: 10/2022**
POSITION: Director of Safety & Employee Health	

PURPOSE: To define the sequential procedures to be used to report all work related and visitor injuries and illnesses.

POLICY: The Incident Reporting procedure is used at Hancock Regional Hospital to document all incidents or near-incidents involving injury to associates, HRH radiology students, volunteers, medical staff and visitors. Incident Reports are filed using a computerized system.

Adherence to the incident reporting guidelines requires the involvement of the Director in the immediate investigation, follow-up and implementation of recommended actions to prevent similar occurrences.

ASSOCIATES/HRH RADIOLOGY STUDENTS/VOLUNTEERS/MEDICAL STAFF

1. Refer to the Employee Injury Reporting Process Flow Chart.
2. If life threatening care is needed, report immediately to the Emergency Department.
3. If the event is related to an exposure, follow the Employee Injury and Exposure Flow Chart.
    a. If the event was an exposure, involves needle-sticks, body fluid exposures or contaminated sharps, complete the hospitals electronic event report and follow policy IC 8012 and guidance from your Director, Nursing Supervisor, or Department Supervisor for procedures in cases of blood or body fluid exposures.
    b. Employees with Exposures should be sent to Occupational Health or the Emergency Department depending on the time of day.
    c. If exposure occurs, the Director/Supervisor will contact Occupational Health Services (OHS) to provide authorization for treatment, during normal business hours and as long as the claimant can travel to the office.
4. If the incident occurs outside normal business hours of Occupational Health Services (8:00a.m. to 5:00 p.m. Monday- Friday), report to the Emergency Department for treatment. If immediate medical attention is warranted, otherwise wait until Occupational Health opens for business the next day.
    a. Occupational Health Services is located at 124 West Muskegon-Suite B, Greenfield.
5. Any treatment in the ED will need to be followed up with a visit to Occ. Health the next business day.
6. Occupational Health Services or the Emergency Department will ask if the Hospitals' electronic event report has been completed at the initial visit, this is a good reminder that you must report incidents to your Director or Supervisor and enter reports right away unless there is a medical emergency sending you to seek care first.
7. Always, inform your Director/Supervisor of the work-related injury or illness. The Director/Supervisor will assist in the completion of the form in the hospital's electronic event reporting system. Complete all sections of the form and provide as much information as you can.
8. Place all detailed information concerning the incident in the hospital's electronic event report and state the facts and omit any speculation in this report.
9. In the event report, include if there was equipment involved that needs to be quarantined until investigation, make sure to properly indicate the level of severity of the incident, information about medical treatment, and ensure it is properly documented.
10. If seen by Occ. Health or the ED, return work status paperwork to the Director of Safety & Employee Health and/or Director.
11. Any lost time, restricted duty work, or prescriptions should be discussed with the Director and Director of Safety & Employee Health.
12. If medical treatment is declined for an injury, complete the Declination of Medical Treatment and return it to the Director of Safety & Employee Health.

13. The Director will notify the VP and the Director of Safety & Employee Health within 8 hours of the event via phone/ email
14. The Director will set up a Safety Huddle within 12 hours of the event. The Director and the Associate should complete and sign the Safety Incident Investigation at this time of the huddle.
    a. All injured associates must participate in the Safety Huddle.
    b. The Safety Huddle will help investigate the cause, discuss details, and create an action plan for prevention.
    c. Those involved should include: Associate, Director, Supervisor, Any additional involved associates, Director of Safety & Employee Health, Infection Control (only for exposures), and VP if necessary.
    d. The Director will document all follow-up information, including information from the Safety Huddle in the electronic event reporting system.
15. The Safety & Employee Health Department will enter each claim to the Work Comp Insurance carrier.
16. The Safety & Employee Health Department will complete OSHA requirements for injuries deemed Recordable.
17. The Safety & Employee Health Department will monitor lost time or restricted work, Occ. Health/ Medical treatment follow-ups, and W.C. correspondence.
18. The Safety & Employee Health Department monitors all incidents for trends or information that would indicate the need for personal or departmental safety education.
19. If a hazard exists that requires immediate attention, contact the Director of Safety & Employee Health, (Ext. 4319) or Building Services, (Ext. 4429). If no answer or in afterhours instances, contact the Switchboard Operator to notify via two-way radio to report property damage to Building Services. The Director of Safety & Employee Health can also be reached at 317-501-0946.

NOTE: COMPLETION OF THE HOSPITAL'S ELECTRONIC EVENT REPORT MUST OCCUR WITHIN 24 HOURS OF THE INCIDENT. FAILURE TO COMPLETE THE REPORT MAY JEOPARDIZE WORKER'S COMPENSATION COVERAGE.

VISITOR

1. The hospital staff member or volunteer, witnessing the visitor incident or receiving a report of the incident notifies the Director of Safety & Employee Health or Security Department.
2. In the Director of Safety & Employee Health or Security Departments absence, the hospital staff member witnessing or being informed of an incident, completes all applicable information in the hospital's electronic event report.
3. If there is an immediate need for contacting law enforcement or emergency medical personnel, the first responder should ensure this is taken care of by calling 911 and would not need to wait on Safety or Security to arrive.
4. A visitor incident report should be completed by the hospital staff member or volunteer for each visitor incident and either attached to the electronic event report or sent to the Director of Safety & Employee Health for inclusion in the electronic event report. This report form is to be signed by the visitor. The forms can be located on the intranet, j drive, and each department should keep copies available in their area.
5. If the visitor is injured inside the hospital and requests medical treatment, the assisting associate will follow the request of the visitor. If they request the services of the Emergency Department, the associate will assist them to the Emergency Department Registration Area. Hancock Immediate Care or a family physician can be recommended to the visitor for a treatment option, if they wish to leave and be treated elsewhere.
6. If the incident occurs in the parking lot of the hospital or at an off-site facility, the visitor can request an ambulance to the Emergency Department; they should not be taken directly to the Emergency Department via wheelchair or bed. Treatment should not be provided at the area of incident. The visitor may also choose to be treated by a family physician or Hancock Immediate Care; they would seek their own transportation for such a visit.
7. No treatment coverage should be promised to the visitor.
8. Place detailed information concerning the incident in the hospital's electronic event report program. State the facts and omit any speculation of cause.

Refer to Administration Policy #2092 for further information related to event reporting.

EMPLOYEE INJURY REPORTING PROCESS

Injured Associate

STOP

Life Threatening Care Needed?

Yes-
Immediately report to ED, approval by supervisor

Report to Director/ Nursing Supervisor and Follow up with Occ. Health on the next business day

No-
Was this an exposure?

Yes-
Report to your Director/ Nursing Supervisor and follow the Exposure Flow Chart

Occ. Health

No-
Report to your Director/ Nursing Supervisor to determine if employee is to be seen by Occ. Health

No Treatment

Complete Event Report

Return Work Status paperwork to Safety Coordinator and/or Director/ Nursing Supervisor

Any lost time, restricted duty work, or prescriptions should be discussed with the Director and Safety Coordinator

Medical treatment not chosen, complete Event Report and Declination of Medical Treatment form and return to Safety

Director/Nursing Supervisor/Dept. Supervisor

Make contact with Occupational Health OR ED to authorize treatment

Director/ Nursing Supervisor is to notify the VP and Safety Coordinator within 8 hours of the event via phone

Quarantine any involved equipment until investigation is complete

Director/ Nursing Supervisor is to set up Safety Huddle within 12 hours of ALL events.

Director/ Nursing Supervisor is to document all follow-up information, including information from the Safety Huddle in the Event Report

Safety Coordinator

Participate in Safety Huddle and Follow up in Event Report

Enter claim to Work Comp Insurance

Complete OSHA Requirements for injuries deemed Recordable

Monitor lost time or restricted work, Occ. Health/ Medical treatment follow-ups, and W.C. correspondence

All injured associates must participate in the Safety Huddle under direction of their Director/ Nursing Supervisor within 12 hours of the event.

Safety Huddle Checklist:

1. Investigate Cause
2. Discuss details
3. Create action plan for prevention
4. Complete Incident Investigation Form and return to Safety Coordinator

Involved parties are to include:
Associate, Director, Supervisor, Any additional involved Associates, Safety Coordinator, Infection Control *(only for exposures)*, and VP if necessary

801 North State Street
Greenfield, IN 46140

Declination of Medical Treatment

Student Name: _____ DOB: _____

Clinical Site:_____ Date of Injury: _____

Affected Body Part(s):
_____
(i.e. left elbow, right thumb, forehead, etc)

I, _____ have advised my Clinical Instructor/Supervising Technologist of an injury that occurred during my clinical education on _____/_____/_____.

I do not feel my injury warrants medical attention at this time.

I understand that if I choose to seek medical treatment, I will be asked to visit Occupational Health at Hancock Health.

My Clinical Instructor/Supervising Technologist will notify the Safety Coordinator at Hancock Health or Program Director as soon as possible.

Student Signature: _____ Date : _____
Time: _____

Clinical Instructor Signature: _____Date:_____

Imaging Director: _____Date: _____

Program Director: _____Date: _____

_____ Check here to verify that an incident report has been completed.

Signature _____Date of documentation: _____

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SAFETY INCIDENT INVESTIGATION

EMPLOYEE NAME DEPARTMENT

EMS # DATE OF INJURY

THE GOAL OF THIS FORM IS TO AID IN FINDING PREVENTION STRATEGIES FOR ASSOCIATE INJURIES IN AN EFFORT TO BUILD A CULTURE OF SAFETY AND MOVE BEYOND THE CULTURE OF BLAME. THE INVESTIGATION IS DESIGNED TO FIND THE ROOT CAUSE AND HELP PREVENT FUTURE OCCURRENCE.

(PLEASE THOROUGHLY EXPLAIN THE ANSWERS TO ALL QUESTIONS BELOW)

INVESTIGATION QUESTIONS	**FEEDBACK**
1. WHAT HAPPENED?	
2. HOW DID IT HAPPEN?	
3. WHY DID IT HAPPEN?	
4. WHAT NEEDS TO BE CORRECTED?	
5. IDENTIFIED ROOT CAUSE:	
6. WHAT ACTIONS WILL BE TAKEN TO ENSURE THIS TYPE OF INCIDENT IS NOT REPEATED?	
7. WAS THERE A DEVICE/ PIECE OF EQUIPMENT THAT WAS INVOLVED IN THE INCIDENT (i.e.: needle, patient lift, tool, appliance, etc.).	

COMMENTS

_____ _____

DIRECTOR OR SUPERVISOR SIGNATURE ASSOCIATE SIGNATURE

STUDENT HEALTH POLICY: Applicants to the School of Radiologic Technology who are accepted into the program must provide evidence of a recent physical examination performed by a qualified healthcare provider within 2 months prior to the first day of school. The student must be in good general health and must not have any condition that would interfere with the satisfactory performance of the *Technical Performance Standards* of the admissions criteria.

Health requirements for students accepted into the school include the following:

- Proof of immunity to Rubella (German measles), Mumps, and Rubeola (measles) by two MMR vaccinations (if born after Dec. 31, 1956) or titer.
- Proof of immunity to Varicella (chicken pox) by vaccination or titer.
- QuantiFERON TB test (Occ Health will administer the test unless the QuantiFERON test has been completed by another health provider within 60 days of the student's Occupational Health visit and the date and results are recorded on the Student Health Statement immunization record by the health provider).
- Evidence of hepatitis B vaccination, titer, or signed refusal to take the vaccine.
- Evidence of Tetanus-diphtheria-pertussis (Tdap) vaccination and booster.
- All immunizations as required by the CDC &/or program clinical sites (COVID, flu, etc) OR approved exemption(s).
- Annual flu vaccines are required for every student. Students will be notified when the vaccines are available. Flu exemptions must be obtained annually or as policy dictates .

Occupational Health Services Appointment

During the dates indicated in the acceptance letter, the student will make an appointment with Occupational Health Services for Hancock Health, PMR (317-866-7350) to have the above noted tests conducted or be able to show proof the test(s) have been performed within the requirements. Other tests completed at the time of the appointment include drug screen, TB test, and respirator fit testing (resp fit test dependent on clinical site). If the original urine specimen results in a dilution factor retesting will be done at the student's expense. A 2nd dilution factor will result in denied entry to the program. Occupational Health will offer the Hepatitis B vaccine to the student free of charge, however, any other immunization &/or titer provided by Occupational Health will be done at the student's expense. The student is required to have a health screening performed by a qualified healthcare provider and submit the completed health form at the time of the Occupational Health visit.

Health Insurance

Students are responsible for providing their own health insurance coverage during the entire training period. *Proof of health insurance is required prior to program entrance*.

Student Illness

A student with a communicable condition is required to report the condition. Communicable diseases/conditions that are required to be reported are listed in the Hancock Health Infection Prevention Policy IC 8012, Associate Infection Reporting Procedure, pages 2-12. Common examples include, but are not limited to, Flu, Strep, Chicken Pox, Herpes, MRSA, Hepatitis, novel respiratory virus, etc. The complete list may be found in the Student Handbook Appendix. If indicated, the student will be placed on sick leave and will remain on sick leave until the student is no longer capable of transmitting the disease during the normal course of student activities.

If the student becomes ill while scheduled in school, the student is required to notify a person of authority immediately. Should the student require immediate medical attention, the student will be taken to the emergency department. Any expenses incurred are the sole responsibility of the student.

It is in the best interest of patient, fellow students, and other employees that a student who is ill remains at home. Students are granted sick days for this purpose.

A physician's statement to return to school is required for any absence due to illness, of any type, of more than 3 consecutive days.

Students may at any time make an appointment with the Program Director or Clinical Instructor to discuss matters of a personal nature. If the student is in need of emotional counseling, the student will be referred to the Social Services department of the sponsoring hospital. Should Social Services determine the need for further counseling, the student will be referred to an agency outside the hospital at the student's expense.

TUITION POLICY:
First Year tuition: the $500 deposit, paid upon acceptance to the program, is applied toward the first-year tuition
Tuition may be paid in one of the following ways:
***One payment*:** $3015 due on or before June 1st prior to the program start date.
***Two payments*:** First payment of $2015 is due on or before June 1st prior to the program start date; the second payment of $1000 is due on or before Dec. 1.
*Due at time of tuition payment is a $15 fee for the Clinical Record Log book.
Tuition not received by the due date will result in denial of acceptance into the program.
Second year tuition: may be paid in one of the following ways:
One payment: $3500 due on or before June 30th.
Two payments: First payment of $2000 is due on or before June 1; the second payment of $1500 is due on or before Dec. 1.
Students **MUST inform the program director if/when they intend to pay in two installments**.
Students receiving financial assistance from WorkOne will work with the program director and WorkOne to determine tuition payment.
Tuition not received by the due date(s) will result in an immediate suspension for up to 30 days. When the tuition is received, the student may return to school. Time lost due to the suspension must be made up according to the suspension policy defined under Due Process. If the tuition is not received within the 30 days, the student will be dismissed from the program.
Tuition does not include the cost of textbooks, the fee charged by the ARRT for taking the National Registry Exam, uniform scrubs, or other miscellaneous items.

FINANCIAL AID AND SCHOLARSHIPS: Hancock Health School of Radiologic Technology does not participate in the federal financial aid program (FAFSA).
Scholarships for enrolled students are provided by and through the Hancock Health Foundation, however, receipt of a scholarship is NOT guaranteed to any student. Students are provided with the scholarship application annually. The typical scholarship award is $1000 per student.
The school accepts community-based scholarships; however, the guidelines for a particular scholarship will dictate whether the student/program is eligible to receive the scholarship funds.

STUDENT ACTIVITY FEE: A student activity fee of $200, to cover registry review materials and miscellaneous student related expenses such as field trips, is due by May 31 prior to program entry. A refund will not be issued after completion of the pre-program visit to occupational health.

TEXTBOOKS: Accepted students will receive information for ordering textbooks from Rittenhouse Book Distributors prior to the start of classes. Students may order textbooks through Rittenhouse or purchase them on their own. Textbook costs through Rittenhouse are approximately $900-$1000 for the program.
Students who choose to purchase textbooks on their own are responsible for making sure they order the correct textbook and correct edition. Accepted students will also have an opportunity to purchase used textbooks from graduating students.

TUITION REFUND POLICY: A full tuition refund will be given upon student withdrawal if the first-year tuition is paid prior to the tuition deadline. An 80% refund of the first-year tuition will be granted if the student voluntarily withdraws from the program prior to the first day of school, is denied entry as a result of the required drug screen, criminal background check, or pre-enrollment physical. Tuition will not be refunded at any other time for withdrawal or dismissal from the program.

TRANSFER STUDENT POLICY: Acceptance of transfer students will be evaluated on an individual basis; the program does not accept part-time or advanced placement students.

WITHDRAWAL POLICY: A student must submit a letter of voluntary withdrawal to the Program Director. The student is responsible for returning lead markers, ID badges, radiation badge, loaned books and any other program owned materials. If no letter is submitted, or program items are not returned, the Program Director will not finalize the student's records and will not authorize the release of any files. The Program Director reserves the right to a two-week period after letter submittal to complete finalization of records.

ATTENDANCE POLICIES: All students must complete the full 23 months of training to be eligible for graduation and to sit for the National Registry Examination. Attendance is one of the most important and most stressed aspects of the entire program. Schedules are posted and made out in advance. Any changes in the schedule must be approved by the Program Director. The student's scheduled didactic and clinical time does not typically exceed 37.5 hours per week and never exceeds 40 hours per week. The week runs from Sunday morning at 12:00 am to Saturday night at 11:59 pm. Students are expected to be in their assigned rotations on time. Failure to do so will be reflected on the performance evaluation and deduction of "plus time". 6 occurrences in any rolling 6 month period is considered excessive absenteeism; therefore, the demerit policy and disciplinary action will take place. An **occurrenc**e is defined as one day or consecutive days with the same illness or injury. Reason for all absences must be documented in detail on the student time log.

PLUS TIME: Plus time will be earned every two weeks at a rate of .02 times the number of attended clinical hours. Additional plus time may be earned if the student is performing appointed duties in the radiology department past the assigned hours. To receive this type of plus time, the student must have stayed 12 or more minutes past the end of the assignment and the supervising technologist must document the occurrence. Plus time may also be granted for other school-related functions as determined by the Program Director. Plus time is cumulative. It may be used for time off for personal business or for make-up time (except in cases of suspension). Plus time may be used if a student's children are ill. If the student has not accumulated plus time it will not be granted, however, emergencies will be evaluated on an individual basis. Plus time will not be given for clocking in early unless a prior arrangement has been made with the Program faculty. Only the Program faculty or a designated technologist may grant the use of plus time. Students are not permitted to use more than 2 consecutive days of plus time. Plus time will not be used in conjunction with, or substituted for, vacation time. Use of plus time may not be allowed while in areas of limited rotations; requested plus time that falls during weekend rotations should be limited to one occurrence and may not be granted if requested more frequently. Time off will not be granted the week of graduation or during Alternate Clinical Site assignments. Taking plus time will not be allowed if a student is on clinical &/or didactic probation unless program faculty determines extenuating circumstances warrant the exception. 24 hours notice must be given when requesting plus time for one entire school day; less than 24 hr notice will result in one occurrence of an absence. Approval of plus time is at the discretion of program faculty, last minute requests may not be granted.

SEMINARS: The school encourages attendance at seminars and will grant plus time up to 30 hours in 23 months. Students who attend all-day seminars scheduled on assigned clinical days will neither have plus time deducted, nor receive additional plus time; all lectures must be attended in order to qualify. Students who attend seminars scheduled during non-clinical assignments will receive one hour of plus time for each hour of lecture attended. The student must furnish documentation of attendance from a seminar official to receive clinical credit/plus time. Travel to and from a meeting or seminar is the sole responsibility of the student.

TARDY: Students are expected to be in their assigned rotations at the scheduled times. Clocking in after the assigned clinic start time, clocking in on the exact assigned start time, clocking in early but reporting to the assigned rotation late, and clocking in late from lunch are all considered a tardy. If the student knows he/she will be late, the student must notify the Program faculty or the supervising technologist. When arriving in the department, the student must first report to the Clinical Instructor or supervising technologist.
Tardy up to 30 min.: 30 min. of plus time deducted from accumulated plus time.
Tardy by more than 30 min.: the amount of tardy time will be deducted from accumulated plus time.
More than 3 tardies, per trimester, will be considered as excessive; 1 demerit will be issued for each tardy, above 3, at the end of each trimester. Disciplinary action will take place for excessive tardiness. The reason for any tardy must be documented. See time log policy p. II.3.

WEATHER RELATED ABSENCE: Two weather days may be given, November through March, if the county in which the student resides, or must travel through, has declared a Level 2 (watch/orange), or Level 3 (warning/red), weather emergency. Students are responsible for determining whether they can travel to/from program functions safely. Time missed, outside of the conditions described above or beyond the two days, will be taken from plus time or made up. https://www.in.gov/dhs/traveladvisory/

MANDATORY ATTENDANCE: There are 3 mandatory, after hour's attendance requirements for all students: New Student Party (held on a weeknight in June), Information Session (held on a Saturday morning in March), and the graduation ceremony (held on a weeknight in May). Student's time will be compensated for these activities either through plus time or early release from clinic. Sufficient advanced notice will be given as to the time and date of the function. Failure to attend a mandatory function will result in a 10% reduction in the student's cumulative program average for that trimester.

SICK TIME: 75 hours (equivalent of 10 school days) will be granted for illness or injury to the student. Plus time OR sick time may be taken for an ill child. Sick time taken over the 75 hours will be made up during the 6th trimester vacation week or after graduation. Sick time cannot be substituted for plus time, vacation time, or as make-up time. A student who calls in sick will be considered sick for the entire day. 6 or more occurrences (an occurrence is defined as 1 day or consecutive days with the same illness/injury) in any rolling 6-month period will be just cause for disciplinary action. Unforeseen medical emergencies and when operating under the Contingency Plan (p. III. 30) will be handled on an individual basis. Student must document the reason for sick time on the student time log.

MAKE-UP TIME: Time that MUST be made up: absence from Alternate clinical site(s), last assigned day of clinic (see Alt Clin. Site Policy, p. II. 11). When a student's attendance falls below the assigned hours per clinical period, make-up time will be necessary. The following options are available:

- deduct make-up time from plus time (excludes absence from Alt Site or last day of clinic)
- deduct make-up time from vacation time (excludes absence from Alt Site or last day of clinic)
- make up time during the 6th trimester vacation week
- make up time after graduation

Program faculty has the flexibility to choose the appropriate action.

REPORTING ILLNESS, INJURY, OR FAMILY EMERGENCY: The student must notify the Program Director, Clinical Instructor, or supervising technologist **each day** of the absence. Due to the variation in work patterns, each Clinical Instructor will handle student notification of illness differently; **the student is responsible for following the proper site-specific procedure when giving notification.** Failure to do so will result in disciplinary action and a reduction of plus time for that day. A minimum of **one-half hour** notification is required prior to the scheduled assignment. **The student is required to state the specific reason for the absence. In the case of illness, the symptoms must be stated if the diagnosis is unknown**. Upon return to clinic, the student must document the reason for the absence on the student time log. Any student who is absent for more than 3 consecutive days due to illness or injury must have a signed physician's statement indicating the student may return to normal school activities. False reporting of illness, injury, family emergency, or any other reason for absence is grounds for immediate dismissal from the program. **See Student Illness p. III. 16.**

PROLONGED ILLNESS: A student, who is on academic probation at the time of an illness in which 7 or more scheduled educational days are missed within a two-week period, will be dismissed from the program. The student may reapply to the program for a subsequent cohort with no guarantee of acceptance.

UNSCHEDULED ABSENCE/OCCURRENCE: An unscheduled absence/occurrence without the school being notified 30 minutes prior to the assigned time will be just cause for disciplinary action. An occurrence is defined as 1 day or consecutive days with the same illness, injury, etc. An absence of 3 consecutive days without notification is grounds for dismissal from the program; however, compelling and mitigating reasons that could justify the absence without prior notification will be investigated.

FUNERAL LEAVE: 3 days off are granted for the death of an immediate family member. Immediate family members are the following: spouse, child, mother, father, brother, sister, legal guardian, or legal dependent. 2 days off are granted for the death of a grandparent, mother-in-law, father-in-law, brother-in-law, or sister-in-law, aunt, uncle, niece, or nephew. 1 day will be granted for the death of a grandparent-in-law or any other blood relative.

LEAVE OF ABSENCE (LOA):

Military leave: Only a student called for active military duty will be granted a leave of military absence. Students must provide advance notice of military activation unless advance notice is impossible. Proof of service must be provided to the Program Director upon return. Make up time and progression through the program will be considered on an individual basis in conjunction with the Advisory Board.

Medical leave: A student in good academic standing may be granted a medical LOA if he/she is unable to fulfill the requirements associated with didactic and/or clinical education due to illness, injury, and/or recuperation. LOAs must be approved by the program director and the program reserves the right to grant or deny a LOA in recognition that course work is offered only once per year.

The student must provide a physician's written statement to the program director indicating the beginning date of the leave and projected ending date. The student will be dismissed from the program if the medical leave extends for more than 14 weeks; if a student wishes to return to the program he/she will be required to reapply for the next cohort with no guarantee of acceptance. Student placement at the original clinical site is not guaranteed. If applicable, tuition payment will be determined on an individual basis.

Should any leave extend between 7 and 14 weeks, the program will require the student to undergo a reassessment period to determine the level of retained didactic information and clinical skills; this may result in repeating courses and/or verifying clinical competence. A LOA does not relieve the student of graduation requirements. Completion of these requirements will likely extend beyond the original date of graduation.

VACATION: Students receive 10 days of vacation per year. Vacation days cannot be taken in increments of less than 1 day. Vacation days will be scheduled at least 7 days in advance with the clinical instructor.

- Junior and Senior students: 5 vacation days may be chosen from the available dates published each year in the didactic calendar over the Holiday Season. Vacation days not used will be lost.
- Junior students: 5 days of vacation may be taken after the last regular day of didactic class in May/June until the first day of didactic class in September.
- Senior students: 5 days of vacation are given between the last scheduled clinic day and the week of graduation provided the student does not have time to make up. If a student has accrued negative sick/plus time throughout the program it will be necessary for the student to make up the time deficit during these 5 vacation days; the remaining time will be used as vacation. Suspension time will not be made up until after graduation.
- When operating under the Contingency Plan, this policy may require modification.

HOLIDAYS: The school observes six holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving, and Christmas. When the holiday falls on a weekend, the students will be given off either the Friday prior to the holiday or the Monday after the holiday. Vacation and plus time are not used for a holiday.

JURY DUTY/SUBPOENA: Up to 15 hours will be granted for a student who is called for jury duty or receives a subpoena. Cases requiring additional time will be handled on an individual basis.

TRADING HOURS/DAYS OFF: Permission to trade hours/days off must be obtained from the Program Director or Clinical Instructor to ensure the trade remains within the *Standards*.

CLOCKING IN/OUT: Students are required to have documentation of didactic and clinic time. Students should not clock in or out for anyone but themselves; to do so will result in disciplinary action. Any falsification of time, including reporting false illness or reason for tardy, is grounds for immediate dismissal from the program. Students are expected to be in their assigned clinical/didactic rotation on time or plus time will be deducted. Students must clock in at the assigned computer for each clinical site. Failure to clock in at the assigned computer will result in a tardy. Failure to clock in or out will result in ½ hour of plus time being deducted. This includes lunch breaks if leaving the hospital campus. Unauthorized early clock out will also result in a ½ hour deduction from plus time. *Continued on p. III. 21*

Time Card policy cont from III. 20
Time is figured in tenths of an hour (.1 = 6 minutes). Every 6 minutes will either add or subtract from the student's plus time. In order to receive plus time for time over the assigned hours, the student must have stayed a minimum of 12 minutes past the end of the clinical assignment and be verified by the supervising technologist's signature on the *Student Log*. Students who intentionally prolong clocking out to gain plus time will be disciplined.

STUDENT RECORDS POLICY: All student records belong solely to the School of Radiologic Technology and are kept in a locked file cabinet in the Program Director's or Clinical Instructor's office. Student may at any time request to see their personal file. The Program Director or Clinical Instructor will retrieve the student's file at the earliest convenience for review. The student will review his/her file only in the presence of the Program Director or Clinical Instructor and may never be taken out of the office.
The school will permanently maintain a file with: verification of the graduate's clinical competency requirements, completion of graduation requirements, submitted transcripts, final program transcript, original program application and criminal history check, health/immunization record, student permit, and authorization to release information documents.
Occupational Health Services of Hancock Health will maintain health records. Radiation reports will be maintained by the student's home clinical site as well as the program. Release of personal information to potential employers or any other institution requires a written request from the student or graduate.

ELECTRONICS POLICY: Telephones and computers in the radiology department are for hospital or patient care use ONLY. Except in emergency situations, all personal business should be taken care on the student's personal time, such as during the lunch/dinner break. Use of cell phones or any other personal electronic device capable of access to internet, phone, or email, in any manner, should not be used if their use detracts from clinical &/or didactic education. Personal laptop computers are NOT allowed in the technologist area or patient care area; personal laptops may be accessed by a student ONLY during the lunch/dinner period while in clinic. Other electronic devices may only be used in the tech area under extenuating circumstances. See demerit policy, p. III.3.

LOITERING POLICY: Students who do not have a didactic or clinical assignment are not to be in the radiology department visiting with staff or other students. If a student needs to perform a homework assignment, permission must be obtained from the Program Director or Clinical Instructor.

SOCIAL MEDIA POLICY: Clinical experiences with patients must never be discussed on any social media site. Patient information is only to be discussed with faculty and/or health care providers for educational purposes &/or who have a need to know and/or have a role in the patient's care. Radiographic images and exam results may be discussed in a confidential manner as a part of the educational process by students and faculty only.

HIPAA POLICY: Students are introduced to the concepts and guidelines of HIPAA in Intro to Radiologic Sciences and Healthcare and are provided with access to the HIPAA policy at their clinical site. Students are responsible for understanding and complying with HIPAA.

EMPLOYMENT/OUTSIDE COURSES POLICY: Employment &/or enrolling in an outside educational course is permitted as long as the school schedule takes priority. The school will not alter schedules to accommodate outside work or outside educational course schedules. Students are expected to regard their training as top priority and are expected to be present and on time for scheduled assignments.

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ALCOHOL/DRUG ABUSE POLICY: All students accepted to the program will undergo testing for use of illegal drugs and controlled substances, through Occupational Health, prior to the first day of school; results of the drug screen are shared with the student's assigned clinical instructor. Students who refuse to complete the drug screen or who test positive for illegal substances or who are presently abusing drugs will not be knowingly enrolled. The school maintains an environment free of illicit drugs and illegal use of alcohol. The school prohibits the illegal manufacture, possession, use and/or distribution of drugs and alcohol by students on the premises of any clinical site or as part of a school activity. Reasonable suspicion of drug/alcohol use during a student's clinical or classroom time may require that the student submit to drug/alcohol testing. Student refusal to submit to drug/alcohol testing upon reasonable suspicion may subject the student to dismissal. Positive drug/alcohol test results will result in dismissal from the program for an enrolled student; however, the student has the right to initiate the school's appeals mechanism.
See page III. 16 for Occupational Health Services appointment
Students under suspicion of impairment should never be allowed to drive; the program director will be contacted to arrange for transportation to the student's place of residence.
In situations that require investigation by program faculty the student may be suspended until the investigation is complete.
Students arrested or convicted of a drug or alcohol offense while enrolled in the program must notify the Program Director within 5 days after the arrest or conviction. Consultation with the Advisory Board and/or ARRT will take place prior to action from the program.

SMOKING POLICY: All clinical education sites are non-smoking facilities. Smoking is not permitted in the hospitals or in any hospital owned or operated building or event.

PARKING POLICY: Parking is provided free of charge at all clinical education sites. Students will park only in the designated areas of each clinical education site. The clinical instructor and/or program director will indicate location of designated parking during orientation.

SCHOOL OFFICES AND COMPUTERS POLICY: Students are not allowed access to the school office or classroom without the permission of the Program Director or Clinical Instructor. Violation of this policy will result in immediate dismissal from the school. Computer use for personal reasons must be approved and coordinated with a school official. Students may use the classroom computer with permission of program faculty.

PERSONAL BELONGINGS POLICY: Students are responsible for their own personal belongings. Neither the school nor hospital will be held responsible for lost or stolen articles. A secure area will be provided for storage of personal items.

LUNCH BREAK POLICY: Students may not leave for lunch or dinner until instructed to do so by the Clinical Instructor or supervising technologist. Meal breaks are 45 minutes. Students are expected to return to their assigned area on time. Students must clock out and in if leaving the hospital campus for meals.

VISITOR POLICY: Visitors are not permitted in the radiology department. In all cases, the visitor should wait in the reception area. All visitations will be kept to a minimum.

VOLUNTEERING POLICY: Volunteering within the community and/or at the clinical site is highly encouraged. Students may be given opportunities to volunteer throughout the program. In most cases students will volunteer on their own time; plus time will not be given for volunteer time.

HARASSMENT POLICY: All students, staff, patients, and visitors will be treated with dignity, respect, and courtesy. Violence or threats of violence directed toward a student or displayed by a student is prohibited. All forms of discrimination, including harassment, based on race, gender, ethnic background, age, religion, disability, or sexual orientation is prohibited. Potential violations of this policy will be investigated and, if found factual, will result in disciplinary action and/or dismissal from the program.

Harassment: Any improper and unwelcome conduct that a reasonable person would view as offensive. It may include actions, comments, or displays that demean, belittle, or cause personal humiliation or embarrassment, or any act of intimidation or threat.

Sexual harassment: Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature that may interfere with effective learning and/or working.

Threats and violence: Any conduct which causes an individual to fear for personal safety, safety of others, or security of property, including words, conduct, actions, or behaviors.

Any student who believes they have been harassed or has received threats of violence will immediately report the incident to the program director, clinical instructor, or other supervisory staff without fear of reprisal. Incidents will be investigated immediately and resolved in conjunction with the Advisory Board, Human Resources, or other entity as necessary.

NONDISCRIMINATION POLICY: The program faculty shall not discriminate against any individual of legally protected status, such as race, color, religion, gender, age, disability, national or ethnic origin, sexual orientation, veteran status, or based on a person's gender identity or expression, or any other characteristic protected by federal, state, or local laws. Recruitment, admissions, and all other operations of the School are conducted in accordance with this in mind. Nondiscrimination is supported institutionally by all clinical sites of the program. Any student who believes he/she is being discriminated against should bring a written complaint to the attention of the program director or clinical instructor. If the complaint is not satisfactorily resolved at the program level the student should institute the grievance process.

DRUG SCREENING AND CRIMINAL BACKGROUND CHECK POLICY: It is the policy of the American Registry of Radiologic Technologists for all radiographers, and of Hancock Health as sponsor of the radiography program, for all students and employees to be of high moral and ethical character. Therefore, each student that is accepted into the program will have a drug screen and criminal background check. The Occupational Health Department will conduct the drug screening and the Human Resources Department will conduct the criminal background check. Students will be denied entry into the program if the result of the drug screen is positive. A dilution factor will require retesting at the student's expense; one retest will be allowed. A student may be denied entry with a criminal history due to the program's inability to place that student at a clinical site &/or sit for the ARRT certification exam.

EMERGENCY PREPAREDNESS POLICY: Students receive instruction in emergency preparedness during Intro to Radiologic Sciences and Healthcare. Students are to be familiar with the emergency preparedness policy and procedures of their assigned clinical site and know how/where to access the policy. Students will document their understanding of the emergency preparedness polices on the orientation objective form.

For students who are unable to travel safely to class or clinic due to severe weather see "Weather Related Absence" for additional information.

AMERICANS WITH DISABILITIES ACT: The Hancock Health School of Radiologic Technology does not discriminate based on disability as defined by the Americans with Disabilities Act (ADA), or any other applicable law. The School of Radiologic Technology does not request disability information from program applicants. An applicant accepted to the program will be required to undergo a mandatory Hancock Health Occupational visit, in June, prior to the program start date. During that assessment, accepted candidates may voluntarily disclose a disability and request an accommodation for a disability as defined by the ADA. The School of Radiologic Technology, in conjunction with Occupational Health, will determine if the recommended accommodations are reasonable. The program reserves the right to deny a request for accommodation if the request is determined to be unreasonable. The School of Radiologic Technology reserves the right to reassess requests for accommodation as needed in accordance with applicable law. All accepted applicants must meet the Technical Performance Standards for the duration of the program, with or without accommodation. Applicants/students are not required to disclose a disability; however, reasonable accommodations cannot be made for an undisclosed disability

RADIATION MONITORING POLICY: *Radiation Monitoring Devices and Records*: Students are provided with a radiation monitoring device or devices that is/are to be worn at all times during clinical assignments. Some types of devices are collected on a regular schedule, sent for reading, and new dosimeters issued. The occupational radiation exposure records are permanently maintained at each clinical site and in the program director's files. Monthly exposure data is made available to each student within 30 school days following receipt of the data. Students are required to initial their dose report monthly. After graduation, the information will be released to employers with written permission from the graduate.

Students will observe the following at all times:

- Personnel dosimeters will always be worn when performing activities in the vicinity of ionizing radiation. See policy for alternate site clinical rotations.
- If one dosimeter is worn, it must be at collar level outside of the lead apron. If a second dosimeter is worn, it must be at waist level under the lead apron.
- Students must not hold image receptors.
- Students should not hold patients during any radiographic procedure when an immobilization method is the appropriate standard of care.
- All lost, forgotten, or damaged dosimeters must be reported immediately.
- Never leave a dosimeter in the vicinity of a source of radiation.
- Dosimeters should not be subjected to liquids or extreme heat/cold.
- Never launder a dosimeter.
- Dosimeters should never be worn outdoors. Sunlight and outdoor exposure may give false readings.
- Never break the seal on a dosimeter or damage the dosimeter in any manner.
- Never lend a dosimeter to anyone for any reason.
- Never knowingly expose a dosimeter. Doing so is grounds for immediate dismissal.
- Dosimeters must be kept in a designated area in the radiology department. Should a student inadvertently take a dosimeter home and forget to bring the dosimeter to clinic, the student will be sent home to get the dosimeter. The student must clock out when leaving and clock in when returning; the time lost will be made up or taken out of plus time.
- If applicable, dosimeters must be exchanged in a timely manner. Disciplinary action may result if dosimeters are not exchanged as required.
- Dose reports must be signed/initialed as soon as they are made available. Disciplinary action may result if reports are not initialed as required.
- Replacement cost for lost or damaged monitoring devices will be borne by the student.

Students are required to follow the more specific policies/protocols at their assigned clinical site.

Dose Limit Protocol

Students will be instructed in the ALARA concept and its relationship to work procedures and work conditions. The radiation reports are reviewed regularly by the Radiation Safety Officer (RSO) or designee. The program has established investigational levels for occupational external radiation doses which, if exceeded by a student, will initiate review or investigation by the RSO or designee. The adopted investigational levels are shown in Table 1.

Table 1
Investigational Levels in mrems
per calendar quarter

	Level 1	Level 2
Whole body deep	EDE 100 (NRC 125)	EDE 350 (NRC 375)
Lens of eye	350 (NRC 375)	1100 (NRC 1125)
Extremity/skin	1225 (NRC 1250)	3725 (NRC 3750)

Protocol for Exceeding Dose Limits

1. Student dose equal to or greater than Investigational Level 1, but less than Investigational Level 2
    a. The Program Director, Clinical Instructor, or designee, will review the dose of the student whose quarterly dose equals or exceeds Investigational Level 1 and will report the results of the review at the first Radiation Safety Committee meeting following the quarter when the dose was recorded. If the dose does not equal or exceed Investigational Level 2, the student will be counseled as to methods of reducing personal radiation dose.
2. Student dose equal to or greater then Investigational Level 2
    a. The Program Director, Clinical Instructor, or designee, will investigate the causes of the excessive dose and will take action when warranted. A report of the investigation, actions taken, and a copy of the student's report will be presented at the first Radiation Safety Committee meeting following completion of the investigation.
3. Carelessness in radiation protection will not be tolerated and repeated offenses subject the student to disciplinary actions and/or dismissal from the program.
4. In the event that a student receives a dose equal to or greater than the annual total effective dose equivalent of 5 rem, the following procedure will be followed:
    a. The Program Director will immediately consult with the Radiation Safety Officer and the Radiation Physicist.
    b. The NRC central office will be contacted immediately.
    c. The Indiana State Department of Health will be contacted immediately.
    d. Instructions from NRC/ISDH will be followed and documented.

MRI SAFETY POLICY: Students will complete a personal history questionnaire to determine any contraindications for participating in MRI clinical rotations and receive instruction in MRI safety during Introduction to Radiographic Science and Healthcare. The history questionnaire will be kept in the student's file for the duration of the program. Students are responsible for informing program faculty of any health-related changes that would prevent participation in MRI clinical rotations.

PREGNANCY POLICY: The Nuclear Regulatory Commission has issued regulations regarding the declared pregnant student in Regulatory Guide 8.13 (see appendix). To be consistent with these regulations, the school gives the student the option of whether or not to inform program officials of the pregnancy. If the student voluntarily chooses to inform officials of the pregnancy, it must be in writing and indicate the expected date of delivery. According to the NRC, in the absence of this voluntary, written disclosure, the student cannot be considered pregnant.

If the student chooses to disclose a pregnancy, the student has the following two options:

- Continue the educational program without modification or interruption.
- Request a leave of absence from the program, in which case the student will be eligible for a medical leave of absence of 14 weeks or less. Time missed, over and above vacation and plus time, will be made up.

The student may also submit a written withdrawal of declaration; in this case the student will no longer be considered pregnant and will no longer require a fetal radiation badge.

If pregnancy is known or suspected, the student is urged to declare her pregnancy to the Program Director so the risks to the mother and fetus can be fully explained and monitored. The student will then acknowledge the information in writing. Upon declaration of pregnancy, the student will be issued a badge to monitor fetal dose. Should the student choose to continue the program, she will sign a statement to that effect. A maternity leave of 6 weeks will be granted; however, all missed didactic and clinical requirements must be completed prior to program completion. A physician's statement is required indicating the student is able to return to school.

Declaration of Pregnancy Form

Original copy to student's file
CC to: Department Supervisor
Radiation Safety Officer
Student

Section I

The purpose of this communication is to voluntarily inform you of my pregnancy. My estimated date of delivery is _____ (Month/year).

Student Name: _____

Student Signature: _____

Signature Date: _____

Section II

The Program Director or their delegate has reviewed the following topics with me and/or I have read the following items. I understand the information provided. I realize that if I have further questions I may contact program faculty and/or the Radiation Safety Officer who may refer me to a consulting radiological physicist for further information.

- ***Exposure reduction through time, distance, and shielding***
- ***Radiation risks as they pertain to my job***
- ***My exposure history***
- ***General Guidelines for the Pregnant Worker (MPC)***
  - ***NRC Reg. Guide 8.13 available upon request***

____ I choose to continue the educational program without modification or interruption.

_____	_____
Student Name (please print)	**Date**
_____	_____
Student Signature	**Date**
_____	_____
Program Director	**Date**

DRESS CODE POLICY

We expect our students to appear professional. Our dress code is strictly adhered to and clinical evaluations will reflect compliance with this dress code. Students should be aware that they may be sent home to correct the situation and that plus time will be deducted.

1. Scrubs are to be worn with hospital ID badge, radiation monitor badge, and lead markers:
    - Scrubs can be any coordinated colors with the exceptions of denim and white.
    - Print tops are acceptable **(licensed cartoon characters are not allowed)** and must coordinate with pants. Print pants are not acceptable.
    - Scrubs cannot have script of any kind or form (except on special occasions as determined by the clinical site).
    - Pant cuffs will not be tucked into socks. **Pants cannot drag on the floor.**
    - Scrub shorts or skorts are not allowed.
    - T-shirts, polo shirts, crop-tops, tank-tops, sweatshirts or any other tops are not allowed. Plain **white** shirts may be worn under the scrub top with no printing of any kind. Long sleeve **white** tops under scrubs tops are permitted in cold weather and must be all white with no printing of any kind.
    - Tops and pants will not be clinging, see-through, suggestive, or revealing in nature.
    - **Community Hospital East and Anderson students must wear pewter gray scrubs in clinic. No fleece, hooded jackets, or sweatshirts may be worn.**
    - **Major Hospital students must wear black scrubs in clinic. No fleece jackets may be worn.**
    - **Hancock Health students are not allowed to wear navy blue scrubs.**
2. *Upon approval by the clinical site*: lab jackets in solid colors or prints (licensed cartoon characters are not allowed) may be worn and will coordinate with the scrub top and pants; fleece **logo** jackets may be allowed in lieu of lab/scrub jackets at some clinical sites.
3. Shoes must be professional and discrete with minimal display of neon colors; shoes must be kept neat and clean.
    - Thongs, flip-flops, sandals, Crocs, etc. are not allowed.
    - Open heeled or open toe shoes are not allowed.
4. Undergarments are to be worn and are not to show through the scrubs; therefore, prints or dark colors should not be worn under light color scrubs.
5. All clothing must be clean and unwrinkled.
6. Hair and nails must be neat and clean.
    - Artificial nails are NOT allowed as they harbor germs. Nail polish should be professional and appropriate.
    - Fingernails must be trimmed back to no longer than **¼" past the nail bed**.
    - Long hair should be pulled back so as not to brush against the face of a patient; headbands are acceptable for this.
    - Head coverings such as a doo rag, bandana, or hat may not be worn; head coverings for religious reasons are allowed.
    - Hair should be of a natural color; dying with trendy colors is not professional and will not be allowed. Colors of this type include, but are not limited to red, blue, green, purple, pink, yellow, etc.
7. Perfume and cologne can enhance nausea in a patient. Fragrances must be used in moderation.
8. Jewelry/body art is permitted in moderation.
    - **Only stud jewelry** is allowed for safety reasons
    - Long dangling necklaces and earrings are not to be worn as they present a danger to student and patient.
    - Visible tattoos must not be offensive in nature; tattoos that are deemed offensive by school faculty or clinical site must be covered.
9. Personal hygiene must be maintained while working in the clinical setting. Students will be counseled if personal hygiene (body odor, halitosis, etc) does not meet acceptable standards.
10. Students are allowed to wear special shirts/sweatshirts when the entire department observes special occasions, providing department policy is followed (ex: Colts, holiday items).

    11.a. Exception to #11: T-shirts designed and sold by the program may be worn in class; in clinic only if approved by the clinical site.

Handbook- rev. 7/14,5/15,4/16,9/16, 5/17,9/17,6/18,2/19, 4/21, 5/22, 6/22, 4/23,5/23

ACADEMIC CALENDAR: Students begin the program the first Monday following July 4 of each year. Students attend class at Hancock Health one day per week and spend the four remaining days of the week at their clinical education site. Clinical hours include weekdays, weekends, and evening hours. Students typically accrue approximately 2700 hours of clinical experience during the entire program. During their second year, students will be required to spend at least two days at the program's other clinical education sites to which they are not assigned. The program runs for 23 consecutive months. Graduation date may vary slightly from year to year; students typically graduate before the end of May.

Students are given Labor Day, Thanksgiving, Christmas, New Year's Day, Memorial Day and July 4th as holiday days off. One day during the week will be given as a vacation day when the holiday lands on a weekend. Students are also given five days of vacation to use during the Christmas/New Year holidays. The dates need to be scheduled in advance with the clinical instructor. The available dates are published each year in the student calendar. Additionally, junior students are given five days of vacation to be taken at any time during the months of June through August. These dates need to be scheduled with the clinical instructor in advance. Senior students are given 5 days of vacation after the last scheduled clinic day and prior to the week of graduation unless time must be made up.

Students accrue personal time off which must be scheduled with the clinical instructor. See plus time policy for additional details.

Trimester 1: July-November
Trimester 2; November-March
Trimester 3: March- July
Trimester 4: July- October
Trimester 5: October-January
Trimester 6: January-May

In the first year students will rotate through a total of 51 clinical weeks.
In the second year students will rotate through a total of 43 clinical weeks.

The Academic Calendar may need revision in the case of a catastrophic event. See Contingency Plan on p. III. 30.

PROGRAM CONTINGENCY PLAN: To assure continuity of student learning due to a catastrophic event, the program will implement the following guidelines. The decision to implement the contingency plan will be upon recommendation of the School Advisory Board &/or other communities of interest. The decision to conclude the contingency plan will be determined upon recommendation of the School Advisory Board &/or other communities of interest.

- Didactic courses
  - Program faculty will utilize a virtual platform for teaching and the continuation of courses (Zoom, Microsoft Teams, etc).
  - Course tests and resources will be made available on the program's LMS in use at the time of the event (Moodle, Blackboard, etc).
- Physical Resources needed
  - Students access to a computer, internet, email, and must be able to download resources for testing purposes.
  - Required PPE will be supplied by the program &/or the clinical site.
  - HRH pastoral care team availability for student support.
- IT Support
  - Support will be available through the Program Director in conjunction with HH IT Support.
- Clinical courses
  - Attendance in clinic will be situational and dependent on policies in place at the clinical sites.
    - All students will be required to follow the most stringent policy in effect at any of the clinical sites for the duration of the event.
      - Ability of students to complete exams on various types of patients may be limited by the event.
      - Efforts will be made to utilize the simulation lab to maintain continuity of learning and review if students are not allowed to attend clinic.
- Communication
  - Faculty will communicate with students via email, text, phone, LMS, virtually, as needed.
- Program policies
  - Clinical and didactic policies published in the Student Handbook may be temporarily revised, as needed, during the event, however, all ARRT requirements must always be met prior to graduation.
    - Earned plus time
      - Accumulation of plus time may be affected; for example, calculated at a different rate, at the discretion of program faculty.
      - Use of plus time may be determined on an individual basis based on student performance in class &/or clinic.
    - Clinical assessment
      - The event may affect the ability to mock, completion of performance evaluations, the procedure for obtaining an EOC, or any other clinical assessments which will be reflected on the final transcript.
    - Sick time
      - Students will follow the policy at their respective clinical site, during the event, when reporting illness.
      - Illness during the event, due to the event: 5 sick days will be granted only with approved documentation. Any sick days, over 5, will be deducted from the program's 10 allotted sick days.
      - Program faculty reserve the right to make decisions regarding sick time on a case-by-case basis, when needed.
    - Published schedules
      - Published clinical and didactic schedules may require revision. This includes elective and alternate site rotations, graduation date, etc.
    - Vacation days
      - Use of vacation days will be at the discretion of program faculty only for students in good programmatic standing.
        - Students on probation or identified as having difficulty in the program may not receive approval for vacation.
    - Assigned clinic time
      - Assigned hours per week will be dependent on the situation; may be fluid and may vary. Per JRCERT Standards, 10 hours assigned per day will not be exceeded.
- Vaccines or other medical issues
  - Medical decisions made by the student may affect the ability of the program to assure continued clinical placement.
    - Clinical sites can require students to have specific vaccines (flu, HepB, varicella, COVID, etc). Declination of a vaccine may jeopardize the ability of the program to place, or keep, the student at a clinical site and, therefore, complete the program.
  - Testing for exposure; return to normal operations.
    - Students will follow policies for exposure testing at their assigned clinical site.
    - The program will follow policies/recommendations instituted by Infection Control when considering returning to normal operations.
- Graduation
  - The date of graduation may be affected and may change due to a catastrophic event.
    - Incomplete ARRT/program requirements will affect each student's ability to graduate on the original published graduation date.

PROGRAM DISCONTINUATION POLICY: It is the policy of Hancock Health to protect the rights of enrolled students to complete their education should it become necessary to discontinue the radiography program. Hancock Health and all the clinical education sites will fulfill their obligation to enrolled students by remaining in operation until all students have graduated.

Upon notification of a plan to discontinue the radiologic technology program, the Program Director will:

- Notify all applicants on file of the plan of discontinuation.
- Return all application fees to the applicants on file.

STUDENT CONCERN ABOUT PROGRAM COMPLIANCE

If a student has a concern at any time about the program being in compliance with the *Standards for an Accredited Educational Program in Radiologic Sciences,* the student may contact:

Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Dr., Suite 2850
Chicago, IL 60606-3182
(312) 704-5300

HANCOCK HEALTH

SCHOOL of RADIOLOGIC TECHNOLOGY

STATEMENT OF UNDERSTANDING

I have received instructions on how to access the *Handbook of Policies and Procedures for Student Radiographers*. I have read the Handbook and I have the required knowledge and understanding of the published school policies.

http://www.hancockregionalhospital.org/careers/school-of-radiologic-technology-program-overview

OR Moodle

Student signature Date

Print Name

IV.
GRADUATION

HANCOCK HEALTH
SCHOOL of RADIOLOGIC TECHNOLOGY

GRADUATION REQUIREMENTS & TERMINAL OBJECTIVES

At the time of graduation, the Program Director will check-off and sign this document as evidence that all graduation requirements and terminal objectives have been satisfied.

THE GRADUATE HAS COMPLETED:

_____ applicable rotation objectives as set forth by the program
_____ program &/or ARRT clinical competency requirements*
_____ all clinical rotations as set forth by the program*
_____ all didactic requirements as mandated by the ARRT/ASRT
_____ the clinical portion of the program with a minimum cumulative average of 85%
_____ the didactic portion of the program with a minimum cumulative average of 80%
_____ the HESI with minimum score of 675 (if applicable)

THE GRADUATE HAS DEMONSTRATED COMPETENCE IN:

_____ application of body mechanics, patient transfer
_____ CPR
_____ sterile and medical aseptic technique
_____ nursing procedures: vital signs and use of medical equipment
_____ venipuncture/ placement of IV catheter
_____ care of patient medical equipment
_____ a minimum of 45 mandatory radiographic procedures as established by the program*
_____ a minimum of 15 elective radiographic procedures as established by the program*
_____ CT scanning of the head, thorax and abdomen

*The School of Radiologic Technology requires that students complete more mandatory procedures than the ARRT requires, however, the program reserves the right to modify &/or supersede the school's published policies and schedules in extreme circumstances, such as a national health emergency &/or implementation of the Contingency Plan. Regardless of circumstances, the ARRT Competency Requirements will always be met prior to student program completion.

_____ has completed all graduation requirements and terminal objectives.

Program Director Date

V; Handbook rev. 6/11, 5/12, 6/13,5/15,4/16,6/18, 6/20,6/21,5/23

PROGRAM GRADUATION AWARDS

Outstanding Student Award: This award is presented to the student who graduates with the highest program cumulative average.

Richard A. Silver Clinical Excellence Award: This is a monetary scholarship award presented to the student who most demonstrates the highest order of clinical skills based on the formula found on p. IV. 3 of this Handbook.

Hancock Health Scholastic Achievement Award: This award is presented to the student(s) who graduate with a final program average of 95% (A) or higher.

Rob Matt Distinguished Student Award: This award will be given to the one student who has demonstrated Character First and Patient's First affective behaviors. The student with the highest overall average score taken from the performance evaluation in the categories of initiative, attitude, communication, accountability, and professionalism will be presented with this award. Should there be a tie between two students, the program director will choose the recipient based on which student best demonstrates these five character qualities in the classroom as well as the clinic.

Character First Award: Each graduating student will be recognized for positively demonstrating one of the leadership and character qualities of the Character First program.

Program faculty reserves the right to determine whether any award is presented in any particular year.

Graduation Pins: Each student is presented a graduation pin from the school. The student's initials and year of graduation are etched on the back of the pin.

Certificate: Each student will receive a certificate of program completion at graduation.
Degrees are not awarded by the program and, if applicable, will be awarded by Ivy Tech Community College. Students must apply for graduation through Ivy Tech and may apply to participate in the graduation ceremony if desired.

LAMBDA NU NATIONAL HONOR SOCIETY

Lambda Nu is a national honor society for first year students of radiologic technology. Induction is during the senior student graduation ceremonies. Election to membership is dependent on the following criteria:

- Completion of the second trimester in good standing.
- Earned a cumulative minimum of 85% in all didactic courses (core and non-core courses)
- Earned a cumulative minimum of 90% in all clinical evaluation areas.
- Earned a cumulative minimum of 93.5% in the total program.
- Has demonstrated good character and ethical behavior as outlined in the *Handbook for Student Radiographers*.
-

RICHARD A. SILVER CLINICAL AWARD CRITERIA

1. The student must have a graduating clinical average of 95% or better.

2. The 6th Trimester clinical cumulative average and portfolio grade are averaged together; end of 6th trimester clinical cumulative average is weighted 90% and portfolio 10%.

3. A .1 percentage point will be deducted from the overall cumulative clinical average for each of the following infractions:
   - Each tardy
   - Each missed clock in/out (arrival, departure, lunches, etc)
   - Each sick day and/or partial sick day over the granted 75 hours*
   - Each demerit

4. Any disciplinary action resulting in 2 or more demerits given at one time &/or written warning is automatic elimination from consideration.

5. A total of 3 or more demerits, over the program, warrants automatic elimination from consideration

6. The student with the highest determined average will be the recipient.

Example:
Clinical average = 96.3
Tardys x 8 = .1 x 8 = .8
Sick days x 2 = .1 x 2 = .2

.8 + .2 = 1.0

96.3 - 1 = **95.3**

***Note**: Lengthy illness, injury or other "Acts of God" that causes the student to miss more than the allotted sick time may or may not result in elimination from consideration. This will be investigated by the program faculty and a decision made prior to graduation.

AUTHORIZATION TO RELEASE INFORMATION

In accordance with the "Federal Education Provisions Act" of 1975, program faculty may release the following information concerning a student or graduate:

- Dates of attendance
- Degree/certificate awarded
- Content of course work completed

In order to provide additional information concerning a student or graduation to a potential employer or educational institution, a signed release is required. Please indicate your preference below.

I, _____
(print name)

_____ **DO**

_____**DO NOT**

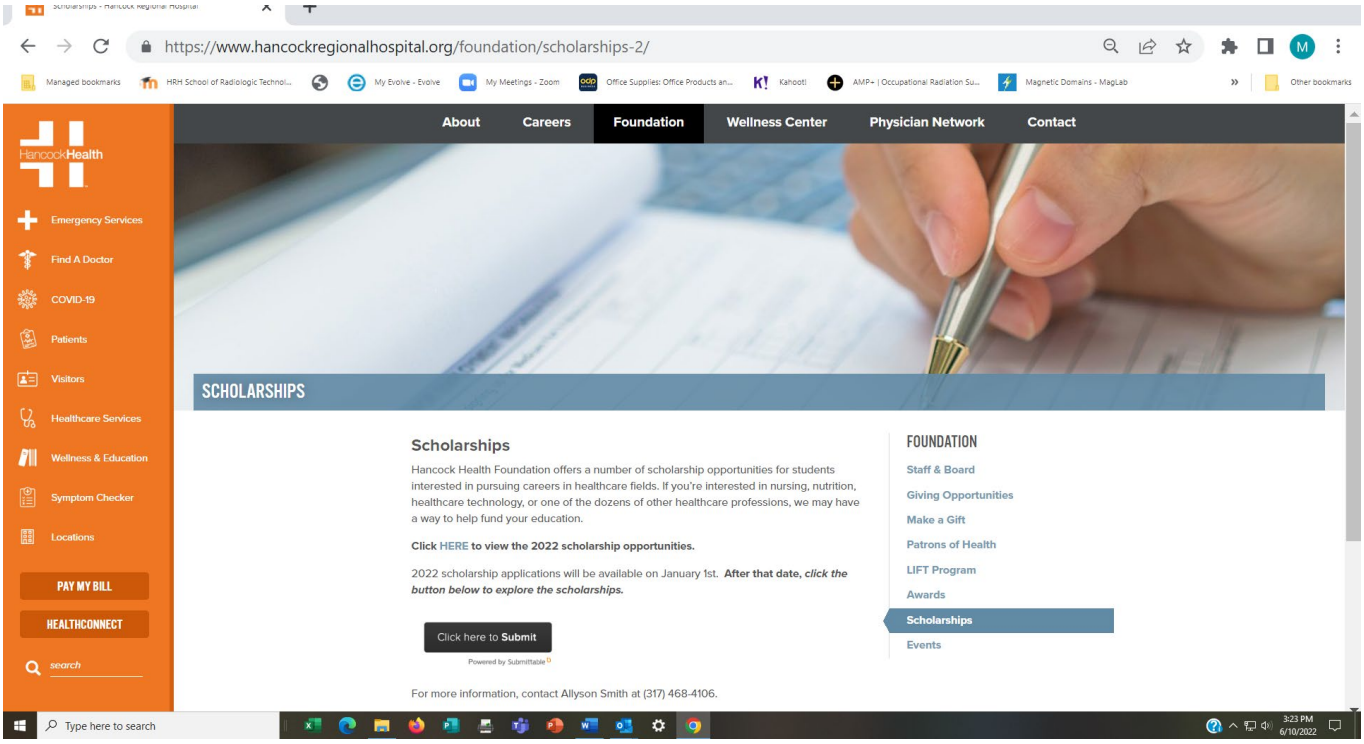
authorize the Program Director and/or Clinical Instructor of the School of Radiologic Technology, sponsored by Hancock Health, to release information concerning my academic and clinical performance, demeanor and attendance. I understand that if I have checked "**DO**", the Program Director and/or Clinical Instructor may make this information available to potential employers or education institutions, either written or oral. Furthermore, I understand that if I choose to change this authorization, I must do so in writing.

Student or graduate signature Date

Scholarships

Hancock Health Foundation offers a number of scholarship opportunities for students interested in pursuing careers in healthcare fields. If you're interested in nursing, nutrition, healthcare technology, or one of the dozens of other healthcare professions, we may have a way to help fund your education.

Scholarship applications will be available on January 1st.



For more information, contact Allyson Smith at (317) 468-4106.

Hancock Health Foundation

School of Radiologic Technology Scholarship Application

Program Director Evaluation

Applicant Name: _____

Please circle the number which corresponds best with the character of this applicant.

	Strong	Above Average	Average	Below Average	Weak
Educational Material Comprehension	**5**	**4**	**3**	**2**	**1**
Enthusiasm for Learning	**5**	**4**	**3**	**2**	**1**
Ability to Create Connections	**5**	**4**	**3**	**2**	**1**
Diligence	**5**	**4**	**3**	**2**	**1**
Career Longevity/ Continuing Education	**5**	**4**	**3**	**2**	**1**

Additional Comments: _____

_____

_____

_____

_____

Program Average: _____

Lambda Nu Status: _____ Eligible _____ Not Eligible

Program Director Signature: _____

APPENDICES

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ **Go to *www.irs.gov/FormW9* for instructions and the latest information.**

Give Form to the requester. Do not send to the IRS.

Print or type. See **Specific Instructions** on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

Requester's name and address (optional)

6 City, state, and ZIP code

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–		–				

or

Employer identification number

		–							

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here **Signature of U.S. person** ▶ **Date** ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Hancock Health School of Radiologic Technology
Request for Medical Leave of Absence

Only students in good standing with the school may request a medical leave of absence.

Absences of more than six weeks will have a negative effect on the student's education and ability to pass the national registry, as a result, there are requirements the student must meet if the absence extends past six weeks. Refer to the Leave of Absence Policy for details.
A leave of absence of more than 14 weeks will result in thestudent's dismissal from the program.

I read the Leave of Absence Policy on _____ , understand the policy, and have no further questions regarding the policy.

_____ Check here for program receipt of medical provider's written statement.

Starting date of leave _____

Expected return date _____

Student Name (please print) _____

Student Signature _____

Date of notice _____

Date of reentry _____

Signature of Program Director _____ Date _____

Original to Student's file
copy to student

49 Character Qualities

ALERTNESS
vs. Unawareness
Being aware of that which is taking place around me so I can have the right responses.

ATTENTIVENESS
vs. Unconcern
Showing the worth of a person or task by giving them my undivided concentration.

AVAILABILITY
vs. Self-Centeredness
Making my own schedule and priorities secondary to the wishes of those I am serving.

BENEVOLENCE
vs. Selfishness
Giving to others' basic needs without having as my motive personal reward.

BOLDNESS
vs. Fearfulness
Confidence that what I have to say or do is true, right, and just.

CAUTIOUSNESS
vs. Rashness
Knowing how important right timing is in accomplishing right actions.

COMPASSION
vs. Indifference
Investing whatever is necessary to heal the hurts of others.

CONTENTMENT
vs. Covetousness
Realizing that true happiness is not hindered by material conditions.

CREATIVITY
vs. Underachievement
Approaching a need, a task, or an idea from a new perspective.

DECISIVENESS
vs. Doublemindedness
The ability to recognize key factors and finalize difficult decisions.

DEFERENCE
vs. Rudeness
Limiting my freedom so I do not offend the tastes of those around me.

DEPENDABILITY
vs. Inconsistency
Fulfilling what I consented to do, even if it means unexpected sacrifice.

DETERMINATION
vs. Faintheartedness
Purposing to accomplish the goals I am given in the allotted time regardless of the opposition.

DILIGENCE
vs. Slothfulness
Investing all my energies to complete the tasks that are assigned to me.

DISCERNMENT
vs. Judgment
The ability to understand the deeper reason as to why things happen.

DISCRETION
vs. Simplemindedness
The ability to avoid words, actions, and attitudes which could result in undesirable consequences.

ENDURANCE
vs. Giving up
The inward strength to withstand stress and do my best.

ENTHUSIASM
vs. Apathy
Expressing joy in each task as I give it my best effort.

FAITH
vs. Presumption
Confidence that doing the right thing will bring the best outcome, even when I cannot see how.

FLEXIBILITY
vs. Resistance
Not becoming attached to ideas or plans which could be changed by my authorities.

FORGIVENESS
vs. Rejection
Clearing the record of those who have wronged me and bearing no grudge against them.

GENEROSITY
vs. Stinginess
Carefully managing my resources so I can freely give to those in need.

GENTLENESS
vs. Harshness
Showing personal care and concern in meeting the needs of others.

GRATEFULNESS
vs. Unthankfulness
Letting others know by my words and actions how they have benefited my life.

HOSPITALITY
vs. Loneliness
Cheerfully sharing food, shelter, and fellowship with those around me.

HUMILITY
vs. Pride
Recognizing that others are actually responsible for the achievements in my life.

INITIATIVE
vs. Unresponsiveness
Recognizing and doing what needs to be done before I am asked to do it.

JOYFULNESS
vs. Self-Pity
Not allowing unpleasant conditions to control my attitudes.

JUSTICE
vs. Fairness
Personal responsibility to uphold that which is pure, right, and true.

LOYALTY
vs. Unfaithfulness
Using difficult times to demonstrate my commitment to those I serve.

MEEKNESS
vs. Anger
Yielding my personal rights and expectations with a desire to serve.

OBEDIENCE
vs. Willfulness
Cheerfully carrying out the directions and the wishes of my authorities.

ORDERLINESS
vs. Disorganization
Arranging myself and my surroundings to achieve the greatest efficiency.

PATIENCE
vs. Restlessness
Taking the time that is necessary to properly resolve a difficult situation.

PERSUASIVENESS
vs. Contentiousness
Guiding vital truths around another's mental roadblocks

PUNCTUALITY
vs. Tardiness
Being ready to begin each task at the appointed time.

RESOURCEFULNESS
vs. Wastefulness
Finding practical uses for that which others would overlook or discard.

RESPONSIBILITY
vs. Unreliability
Knowing and doing that which is expected of me.

REVERENCE
vs. Disrespect
Honoring those in positions of leadership because of the higher authorities they represent.

SECURITY
vs. Anxiety
Structuring my life around that which cannot be destroyed or taken away.

SELF-CONTROL
vs. Self-Indulgence
Rejecting wrong desires and doing what is right in all areas of my life.

SENSITIVITY
vs. Callousness
Exercising my senses so I can perceive the true attitudes and emotions of those around me.

SINCERITY
vs. Hypocrisy
Eagerness to do what is right with transparent motives.

THOROUGHNESS
vs. Incompleteness
Knowing what factors will diminish the effectiveness of my work or words if neglected.

THRIFTINESS
vs. Extravagance
Not letting myself or others spend that which is not necessary.

TOLERANCE
vs. Prejudice
Accepting others as unique expressions of specific character qualities in varying degrees of maturity.

TRUTHFULNESS
vs. Deception
Earning future trust by accurately reporting past facts.

VIRTUE
vs. Impurity
The moral excellence demonstrated in my life as I consistently do what is right.

WISDOM
vs. Natural Inclinations
Seeing and responding to life situations from a perspective that transcends my current circumstances.

Applied Principles, Inc. • 7525 E. 39th Street, Suite 100 • Indianapolis, IN 46226 • (317) 543-4868 • www.appliedprinciples.com

CHARACTER RECOGNITION WORKSHEET

Five Steps to an Effective Recognition

The goal in character recognition is to build up your employees with genuine praise. Praise is pointing out words, actions, or attitudes that demonstrate character qualities and explaining how they have benefited you. The following steps will guide you in documenting a specific quality that has been demonstrated by your employees. Remember to make your praise specific, genuine, and believable. Steps 1, 4, and 5 are to be printed on the Character Recognition Certificate and information from all five steps should be read at the presentation of the certificate.

1. Student's [redacted] Name

Use the employee's given name rather than a nickname.

2. [redacted]

In your introduction include information about family, hobbies, and interests.

3. [redacted]

Describe current job and responsibilities, as well as past positions.

4. Character Quality Demonstrated

Name the specific character quality that was demonstrated and state the definition.

Definition:

5. Demonstration of Quality

Give specific examples of how the character quality listed in step four was demonstrated and how it has benefited you and the company. Be specific, genuine and believable.

Supervisor: _____ **Signature:** _____

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American Society of Radiologic Technologists

www.asrt.org

ARRT® STANDARDS OF ETHICS

Last Revised: September 1, 2022
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PREAMBLE

The *Standards of Ethics* of The American Registry of Radiologic Technologists (ARRT) shall apply solely to persons that are either currently certified and registered by ARRT or that were formerly certified and registered by ARRT, and to persons applying for certification and registration by ARRT (including persons who submit an Ethics Review Preapplication) in order to become Candidates. Radiologic Technology is an umbrella term that is inclusive of the disciplines of radiography, nuclear medicine technology, radiation therapy, cardiovascular-interventional radiography, mammography, computed tomography, magnetic resonance imaging, quality management, sonography, bone densitometry, vascular sonography, cardiac-interventional radiography, vascular-interventional radiography, breast sonography, and radiologist assistant. The *Standards of Ethics* are intended to be consistent with the Mission Statement of ARRT, and to promote the goals set forth in the Mission Statement.

STATEMENT OF PURPOSE

The purpose of the ethics requirements is to identify individuals who have internalized a set of professional values that cause one to act in the best interests of patients. This internalization of professional values and the resulting behavior is one element of ARRT's definition of what it means to be qualified. Exhibiting certain behaviors as documented in the *Standards of Ethics* is evidence of the possible lack of appropriate professional values.

The *Standards of Ethics* provides proactive guidance on what it means to be qualified and to motivate and promote a culture of ethical behavior within the profession. The ethics requirements support ARRT's mission of promoting high standards of patient care by removing or restricting the use of the credential by those who exhibit behavior inconsistent with the requirements.

A. CODE OF ETHICS

The Code of Ethics forms the first part of the *Standards of Ethics*. The Code of Ethics shall serve as a guide by which Registered Technologists and Candidates may evaluate their professional conduct as it relates to patients, healthcare consumers, employers, colleagues, and other members of the healthcare team. The Code of Ethics is intended to assist Registered Technologists and Candidates in maintaining a high level of ethical conduct and in providing for the protection, safety, and comfort of patients. The Code of Ethics is aspirational.

1. The Registered Technologist acts in a professional manner, responds to patient needs, and supports colleagues and associates in providing quality patient care.
2. The Registered Technologist acts to advance the principal objective of the profession to provide services to humanity with full respect for the dignity of mankind.
3. The Registered Technologist delivers patient care and service unrestricted by the concerns of personal attributes or the nature of the disease or illness, and without discrimination on the basis of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, familial status, disability, sexual orientation, gender identity, veteran status, age, or any other legally protected basis.
4. The Registered Technologist practices technology founded upon theoretical knowledge and concepts, uses equipment and accessories consistent with the purposes for which they were designed, and employs procedures and techniques appropriately.
5. The Registered Technologist assesses situations; exercises care, discretion, and judgment; assumes responsibility for professional decisions; and acts in the best interest of the patient.
6. The Registered Technologist acts as an agent through observation and communication to obtain pertinent information for the physician to aid in the diagnosis and treatment of the patient and recognizes that interpretation and diagnosis are outside the scope of practice for the profession.

7. The Registered Technologist uses equipment and accessories, employs techniques and procedures, performs services in accordance with an accepted standard of practice, and demonstrates expertise in minimizing radiation exposure to the patient, self, and other members of the healthcare team.
8. The Registered Technologist practices ethical conduct appropriate to the profession and protects the patient's right to quality radiologic technology care.
9. The Registered Technologist respects confidences entrusted in the course of professional practice, respects the patient's right to privacy, and reveals confidential information only as required by law or to protect the welfare of the individual or the community.
10. The Registered Technologist continually strives to improve knowledge and skills by participating in continuing education and professional activities, sharing knowledge with colleagues, and investigating new aspects of professional practice.
11. The Registered Technologist refrains from the use of illegal drugs and/or any legally controlled substances which result in impairment of professional judgment and/or ability to practice radiologic technology with reasonable skill and safety to patients.

B. RULES OF ETHICS

The Rules of Ethics form the second part of the *Standards of Ethics*. They are mandatory standards of minimally acceptable professional conduct for all Registered Technologists and Candidates. ARRT certification and registration demonstrates to the medical community and the public that an individual is qualified to practice within the profession. The Rules of Ethics are intended to promote the protection, safety, and comfort of patients. Accordingly, it is essential that Registered Technologists and Candidates act consistently with these Rules.

The Rules of Ethics are enforceable. Registered Technologists are required to notify ARRT of any ethics violation, including state licensing issues and criminal charges and convictions, within 30 days of the occurrence or during their annual renewal of certification and registration, whichever comes first. Applicants for certification and registration are required to notify ARRT of any ethics violation, including state licensing issues and criminal charges and convictions, within 30 days of the occurrence.

Registered Technologists and Candidates engaging in any of the following conduct or activities, or who permit the occurrence of the following conduct or activities with respect to them, have violated the Rules of Ethics and are subject to sanctions as described hereunder:

The titles and headings are for convenience only, and shall not be used to limit, alter or interpret the language of any Rule.

Fraud or Deceptive Practices

Fraud Involving Certification and Registration

1. Employing fraud or deceit in procuring or attempting to procure, maintain, renew, or obtain or reinstate certification and registration as issued by ARRT; employment in radiologic technology; or a state permit, license, or registration certificate to practice radiologic technology. This includes altering in any respect any document issued by ARRT or any state or federal agency, or by indicating in writing certification and registration with ARRT when that is not the case.

Fraudulent Communication Regarding Credentials

2. Engaging in false, fraudulent, deceptive, or misleading communications to any person regarding any individual's education, training, credentials, experience, or qualifications, or the status of any individual's state permit, license, or registration certificate in radiologic technology or certification and registration with ARRT.

Fraudulent Billing Practices

3. Knowingly engaging or assisting any person to engage in, or otherwise participating in, abusive or fraudulent billing practices, including violations of federal Medicare and Medicaid laws or state medical assistance laws.

Subversion

Examination / CQR Subversion

4. Subverting or attempting to subvert ARRT's examination process, and/or ARRT's Education Requirements, including the Structured Self-Assessments (SSA) that are part of the Continuing Qualifications Requirements (CQR) process. Conduct that subverts or attempts to subvert ARRT's examination, Education Requirements and/or CQR or SSA processes, includes but is not limited to:

i. disclosing examination and/or CQR SSA information using language that is substantially similar to that used in questions and/or answers from ARRT examinations and/or CQR SSA when such information is gained as a direct result of having been an examinee or a participant in a CQR SSA or having communicated with an examinee or a CQR participant; this includes, but is not limited to, disclosures to students in educational programs, graduates of educational programs, educators, anyone else involved in the preparation of Candidates to sit for the examinations, or CQR participants; and/or

ii. soliciting and/or receiving examination and/or CQR SSA information that uses language that is substantially similar to that used in questions and/or answers on ARRT examinations or CQR SSA from an examinee, or a CQR participant, whether requested or not; and/or

iii. copying, publishing, reconstructing (whether by memory or otherwise), reproducing or transmitting any portion of examination and/or CQR SSA materials by any means, verbal or written, electronic or mechanical, without the prior express written permission of ARRT or using professional, paid or repeat examination takers and/or CQR SSA participants, or any other individual for the purpose of reconstructing any portion of examination and/or CQR SSA materials; and/or

iv. using or purporting to use any portion of examination and/or CQR SSA materials that were obtained improperly or without authorization for the purpose of instructing or preparing any Candidate for examination or participant for CQR SSA; and/or

v. selling or offering to sell, buying or offering to buy, or distributing or offering to distribute any portion of examination and/or CQR SSA materials without authorization; and/or

vi. removing or attempting to remove examination and/or CQR SSA materials from an examination or SSA room; and/or

vii. having unauthorized possession of any portion of or information concerning a future, current, or previously administered examination or CQR SSA of ARRT; and/or

viii. disclosing what purports to be, or what you claim to be, or under all circumstances is likely to be understood by the recipient as, any portion of or "inside" information concerning any portion of a future, current, or previously administered examination or CQR SSA of ARRT; and/or

ix. communicating with another individual during administration of the examination or CQR SSA for the purpose of giving or receiving help in answering examination or CQR SSA questions, copying another Candidate's or CQR participant's answers, permitting another Candidate or a CQR participant to copy one's answers, or possessing or otherwise having access to unauthorized materials including, but not limited to, notes, books, mobile devices, computers and/or tablets during administration of the examination or CQR SSA; and/or

x. impersonating a Candidate, or a CQR participant, or permitting an impersonator to take or attempt to take the examination or CQR SSA on one's own behalf; and/or

xi. using any other means that potentially alters the results of the examination or CQR SSA such that the results may not accurately represent the professional knowledge base of a Candidate, or a CQR participant.

Education Requirements Subversion

5. Subverting, attempting to subvert, or aiding others to subvert or attempt to subvert ARRT's *Education Requirements for Obtaining and Maintaining Certification and Registration* ("Education Requirements"), including but not limited to, continuing education (CE), clinical experience and competency requirements, structured education activities, and/or Continuing Qualifications Requirements (CQR). Conduct that subverts or attempts to subvert ARRT's Education Requirements or CQR Requirements includes, but is not limited to:

   i. providing false, inaccurate, altered, or deceptive information related to CE, clinical experience or competency requirements, structured education or CQR activities to ARRT or an ARRT recognized recordkeeper; and/or

   ii. assisting others to provide false, inaccurate, altered, or deceptive information related to education requirements or CQR activities to ARRT or an ARRT recognized recordkeeper; and/or

   iii. conduct that results or could result in a false or deceptive report of CE, clinical experience or competency requirements, structured education activities or CQR completion; and/or

   iv. conduct that in any way compromises the integrity of ARRT's education requirements, including, but not limited to, CE, clinical experience and competency requirements, structured education activities, or CQR Requirements such as sharing answers to the post-tests or self-learning activities, providing or using false certificates of participation, or verifying credits that were not earned or clinical procedures that were not performed.

Failure to Cooperate with ARRT Investigation

6. Subverting or attempting to subvert ARRT's certification and registration processes by:
    i. making a false statement or knowingly providing false information to ARRT; or
    ii. failing to cooperate with any investigation by ARRT in full or in part.

Unprofessional Conduct

Failure to Conform to Minimal Acceptable Standards

7. Engaging in unprofessional conduct, including, but not limited to:
    i. a departure from or failure to conform to applicable federal, state, or local governmental rules regarding radiologic technology practice or scope of practice; or, if no such rule exists, to the minimal standards of acceptable and prevailing radiologic technology practice.
    ii. any radiologic technology practice that may create unnecessary danger to a patient's life, health, or safety.

Actual injury to a patient or the public need not be established under this clause.

Sexual Misconduct

8. Engaging in conduct with a patient that is sexual or may reasonably be interpreted by the patient as sexual, or in any verbal behavior that is seductive or sexually demeaning to a patient; or engaging in sexual exploitation of a patient or former patient. This also applies to any unwanted sexual behavior, verbal or otherwise.

Unethical Conduct

9. Engaging in any unethical conduct, including, but not limited to, conduct likely to deceive, defraud, or harm the public; or demonstrating a willful or careless disregard for the health, welfare, or safety of a patient. Actual injury need not be established under this clause.

Scope of Practice

Technical Incompetence

10. Performing procedures which the individual is not competent to perform through appropriate training and/or education or experience unless assisted or personally supervised by someone who is competent (through training and/or education or experience).

Improper Supervision in Practice

11. Knowingly assisting, advising, or allowing a person without a current and appropriate state permit, license, registration, or ARRT certification and registration to engage in the practice of radiologic technology, in a jurisdiction that mandates such requirements.

Improper Delegation or Acceptance of a Function

12. Delegating or accepting the delegation of a radiologic technology function or any other prescribed healthcare function when the delegation or acceptance could reasonably be expected to create an unnecessary danger to a patient's life, health, or safety. Actual injury to a patient need not be established under this clause.

Fitness to Practice

Actual or Potential Inability to Practice

13. Actual or potential inability to practice radiologic technology with reasonable skill and safety to patients by reason of illness; use of alcohol, drugs, chemicals, or any other material; or as a result of any mental or physical condition.

Inability to Practice by Judicial Determination

14. Adjudication as mentally incompetent, mentally ill, chemically dependent, or dangerous to the public, by a court of competent jurisdiction.

Improper Management of Patient Records

False or Deceptive Entries

15. Improper management of records, including failure to maintain adequate patient records or to furnish a patient record or report required by law; or making, causing, or permitting anyone to make false, deceptive, or misleading entry in any patient record and/or any quality control record.

Failure to Protect Confidential Patient Information

16. Revealing a privileged communication from or relating to a former or current patient, except when otherwise required or permitted by law, or viewing, using, releasing, or otherwise failing to adequately protect the security or privacy of confidential patient information.

Knowingly Providing False Information

17. Knowingly providing false or misleading information that is directly related to the care of a former or current patient.

Violation of State or Federal Law or Regulatory Rule

Narcotics or Controlled Substances Law

18. Violating a state or federal narcotics or controlled substance law, even if not charged or convicted of a violation of law.

Regulatory Authority or Certification Board Rule

19. Violating a rule adopted by a state or federal regulatory authority or certification board resulting in the individual's professional license, permit, registration or certification being denied, revoked, suspended, placed on probation or a consent agreement or order, voluntarily surrendered, subjected to any conditions, or failing to report to ARRT any of the violations or actions identified in this Rule.

Criminal Proceedings

20. Convictions, criminal proceedings, or military courts-martial as described below:
    i. conviction of a crime, including, but not limited to, a felony, a gross misdemeanor, or a misdemeanor; and/or
    ii. criminal proceeding where a finding or verdict of guilt is made or returned but the adjudication of guilt is either withheld, deferred, or not entered or the sentence is suspended or stayed; or a criminal proceeding where the individual enters an Alford plea, a plea of guilty or nolo contendere (no contest); or where the individual enters into a pre-trial diversion activity; and/or
    iii. military courts-martial related to any offense identified in these Rules of Ethics; and/or
    iv. required sex offender registration.

Duty to Report

Failure to Report Violation

21. Knowing of a violation or a probable violation of any Rule of Ethics by any Registered Technologist or Candidate and failing to promptly report in writing the same to ARRT.

Failure to Report Error

22. Failing to immediately report to the Registered Technologist's or Candidate's supervisor information concerning an error made in connection with imaging, treating, or caring for a patient. For purposes of this rule, errors include any departure from the standard of care that reasonably may be considered to be potentially harmful, unethical, or improper (commission). Errors also include behavior that is negligent or should have occurred in connection with a patient's care, but did not (omission). The duty to report under this rule exists whether or not the patient suffered any injury.

C. ADMINISTRATIVE PROCEDURES

These Administrative Procedures provide for the structure and operation of the Ethics Committee; they detail procedures followed by the Ethics Committee and by the Board of Trustees of ARRT in administering challenges raised under the Rules of Ethics, and in handling matters relating to the denial of an application for certification and registration (for reasons other than failure to meet the criteria as stated in Article II, Sections 2.03 and 2.04 of the *Rules and Regulations* of ARRT, in which case, there is no right to a hearing) or the denial of renewal or reinstatement of certification and registration. All Registered Technologists and Candidates are required to comply with these Administrative Procedures. All Registered Technologists and Candidates are expected to conduct themselves in a professional and respectful manner in their interactions with the ARRT Board of Trustees, Ethics Committee and/or staff. Failure to cooperate with the Ethics Committee or the Board of Trustees may be considered by the Ethics Committee and by the Board of Trustees according to the same procedures and with the same sanctions as failure to observe the Rules of Ethics.

1. Ethics Committee

(a) Membership and Responsibilities of the Ethics Committee

The President, with the approval of the Board of Trustees, appoints three Trustees to serve as members of the Ethics Committee, each such person to serve on the Committee until removed and replaced by the President, with the approval of the Board of Trustees, at any time, with or without cause. The President, with the approval of the Board of Trustees, will also appoint a fourth, alternate member to the Committee. In the event that the full Committee is not available for a meeting, an alternate member may participate on the Committee. If an alternate member is not available, the remaining members of the Committee will hold the meeting and act irrespective of the composition of the Committee. The Ethics Committee is responsible for: (1) investigating and reviewing each alleged violation of the Rules of Ethics and determining whether a Registered Technologist or Candidate has failed to observe the Rules of Ethics and determining an appropriate sanction; and (2) periodically assessing the Code of Ethics, Rules of Ethics, and Administrative Procedures and recommending any amendments to the Board of Trustees.

(b) The Chair of the Ethics Committee

The President, with the approval of the Board of Trustees, appoints one member of the Ethics Committee as the Committee's Chair to serve for a maximum term of two years as the principal administrative officer responsible for management of the promulgation, interpretation, and enforcement of the *Standards of Ethics*. In the event that the Chair is not available for a meeting, the Chair may appoint any remaining member to act as Chair. The President may remove and replace the Chair of the Committee, with the approval of the Board of Trustees, at any time, with or without cause. The Chair presides at and participates in meetings of the Ethics Committee and is responsible directly and exclusively to the Board of Trustees, using staff, legal counsel, and other resources necessary to fulfill the responsibilities of administering the *Standards of Ethics*.

(c) Preliminary Screening of Potential Violations of the Rules of Ethics

The Chair of the Ethics Committee shall review each alleged violation of the Rules of Ethics that is brought to the attention of the Ethics Committee. If, in the sole discretion of the Chair: (1) there is insufficient information upon which to base a charge of a violation of the Rules of Ethics; or (2) the allegations against the Registered Technologist or Candidate are patently frivolous or inconsequential; or (3) the allegations, if true, would not constitute a violation of the Rules of Ethics, the Chair may summarily dismiss the matter. The Chair may be assisted by staff and/or legal counsel of ARRT. The Chair shall report each such summary dismissal to the Ethics Committee.

At the Chair's direction and upon request, the Chief Executive Officer of ARRT shall have the power to investigate allegations regarding the possible settlement of an alleged violation of the Rules of Ethics. The Chief Executive Officer may be assisted by staff members and/or legal counsel of ARRT. The Chief Executive Officer is not empowered to enter into a binding settlement, but rather may convey and/or recommend proposed settlements to the Ethics Committee. The Ethics Committee may accept the proposed settlement, make a counterproposal to the Certificate Holder or Candidate, or reject the proposed settlement and proceed under these Administrative Procedures.

2. Hearings

Whenever ARRT proposes to take action in respect to the denial of an application for certification and registration (for reasons other than failure to meet the criteria as stated in Article II, Sections 2.03 and 2.04 of the *Rules and Regulations* of ARRT, in which case there is no right to a hearing) or of an application for renewal or reinstatement of certification and registration, or in connection with the revocation or suspension of certification and registration, or the censure of a Registered Technologist or Candidate for an alleged violation of the Rules of Ethics, it shall give written notice thereof to such person, specifying the reasons for such proposed action. A Registered

Technologist or Candidate to whom such notice is given shall have 30 days from the date the notice of such proposed action is mailed to make a written request for a hearing. The written request for a hearing must be accompanied by a nonrefundable hearing fee in an amount to be determined by ARRT. In rare cases, the hearing fee may be waived, in whole or in part, at the sole discretion of ARRT.

Failure to make a written request for a hearing and to remit the hearing fee (unless the hearing fee is waived in writing by ARRT) within such period or submission of a properly executed Hearing Waiver form within such period shall constitute consent to the action taken by the Ethics Committee or the Board of Trustees pursuant to such notice. A Registered Technologist or Candidate who requests a hearing in the manner prescribed above shall advise the Ethics Committee of the intention to appear at the hearing. A Registered Technologist or Candidate who requests a hearing may elect to appear in person, via teleconference, videoconference, or by a written submission which shall be verified or acknowledged under oath.

A Registered Technologist or Candidate may waive the 30 day timeframe to request a hearing. To request a waiver of the 30 day timeframe, the Registered Technologist or Candidate must complete a Hearing Waiver form that is available on the ARRT website at www.arrt.org. The Hearing Waiver form must be signed by the Registered Technologist or Candidate, notarized, and submitted to ARRT. The Chief Executive Officer of ARRT shall have the authority to receive, administer, and grant the Hearing Waiver form and may be assisted by staff members and/or legal counsel of ARRT. Any sanction proposed by the Ethics Committee would become effective on the date the hearing waiver is processed.

Failure to appear at the hearing in person or via teleconference, videoconference, or to supply a written submission in response to the charges shall be deemed a default on the merits and shall be deemed consent to whatever action or disciplinary measures that the Ethics Committee determines to take. Hearings shall be held at such date, time, and place as shall be designated by the Ethics Committee or the Chief Executive Officer. The Registered Technologist or Candidate shall be given at least 30 days notice of the date, time, and place of the hearing. The hearing is conducted by Ethics Committee members other than any members of the Ethics Committee who believe for any reason that they would be unable to render an objective and unbiased decision. In the event of such disqualification, the President may appoint Trustees to serve on the Ethics Committee for the sole purpose of participating in the hearing and rendering a decision. At the hearing, ARRT shall present the charges against the Registered Technologist or Candidate in question, and the facts and evidence of ARRT in respect to the basis or bases for the proposed action or disciplinary measure. The Ethics Committee may be assisted by legal counsel. The Registered Technologist or Candidate in question, by legal counsel or other representative (at the sole expense of the Registered Technologist or Candidate in question), shall have up to 30 minutes to present testimony, and be heard in the Registered Technologist's or Candidate's own defense; to call witnesses; hear the testimony of and to cross-examine any witnesses appearing at such hearing; and to present such other evidence or testimony as the Ethics Committee shall deem appropriate to do substantial justice. Any information may be considered that is relevant or potentially relevant. The Ethics Committee will be afforded 15 minutes in addition to any unused time remaining from the Registered Technologist's or Candidate's time allotment, to ask questions and shall not be bound by any state or federal rules of evidence. The Registered Technologist or Candidate in question shall have the right to make a closing statement before the close of the hearing. A transcript or an audio recording of the hearing testimony is made for in person, teleconference, and videoconference hearings only. Ethics Committee deliberations are not recorded.

In the case where ARRT proposes to take action in respect to the denial of an application for certification and registration (for reasons other than failure to meet the criteria as stated in Article II, Sections 2.03 and 2.04 of the *Rules and Regulations* of ARRT) or the denial of renewal or reinstatement of certification and registration, the Ethics Committee shall assess the evidence presented at the hearing, or continue the matter and request the Registered Technologist or Candidate provide additional evidentiary information prior to making its decision, and shall subsequently prepare written findings of fact and its determination as to whether grounds exist for the denial of an application for certification and registration or renewal or reinstatement of certification and registration, and shall promptly transmit the same to the Registered Technologist or Candidate in question and to the Board of Trustees at the next Board of Trustees meeting.

In the case of alleged violations of the Rules of Ethics by a Registered Technologist or Candidate, the Ethics Committee shall assess the evidence presented at the hearing, or continue the matter and request the Certificate Holder or Candidate provide additional evidentiary information prior to making its decision, and shall subsequently prepare written findings of fact and its determination as to whether there has been a violation of the Rules of Ethics and, if so, the appropriate sanction, and shall promptly transmit the same to the Registered Technologist or Candidate in question and to the Board of Trustees at the next Board of Trustees meeting.

Potential actions available to the Ethics Committee are set forth in Section 4 (Range of Actions). Unless a timely appeal from any findings of fact and determination by the Ethics Committee is taken to the Board of Trustees in accordance with Section 3 below (Appeals), the Ethics Committee's findings of fact and determination in any matter (including the specified sanction) shall be final and binding upon the Registered Technologist or Candidate in question.

3. Appeals

Except as otherwise noted in these Administrative Procedures, the Registered Technologist or Candidate may appeal any decision of the Ethics Committee to the Board of Trustees by submitting a written request for an appeal within 30 days after the decision of the Ethics Committee is mailed. The written request for an appeal must be accompanied by a nonrefundable appeal fee in an amount to be determined by ARRT. In rare cases, the appeal fee may be waived, in whole or in part, at the sole discretion of ARRT.

Failure to make a written request for an appeal and to remit the appeal fee (unless the appeal fee is waived in writing by ARRT) within such period or submission of a properly executed Appeal Waiver form within such period shall constitute consent to the action taken by the Ethics Committee or Board of Trustees pursuant to such notice.

A Registered Technologist or Candidate may waive the 30 day timeframe to request an appeal. To request a waiver of the 30 day timeframe, the Registered Technologist or Candidate must complete an Appeal Waiver form that is available on the ARRT website at www.arrt.org. The Appeal Waiver form must be signed by the Registered Technologist or Candidate, notarized, and submitted to ARRT. The Chief Executive Officer of ARRT shall have the authority to receive, administer, and grant the Appeal Waiver form and may be assisted by staff members and/or legal counsel of ARRT. Any sanction proposed by the Ethics Committee would become effective on the date the appeal waiver is processed.

In the event of an appeal, those Trustees who participated in the hearing of the Ethics Committee shall not participate in the appeal. The remaining members of the Board of Trustees, other than any members who believe for any reason that they would be unable to render an objective and unbiased decision, shall consider the decision of the Ethics Committee, the files and records of ARRT applicable to the case at issue, and any written appellate submission of the Registered Technologist or Candidate in question, and shall determine whether to affirm or to modify the decision of the Ethics Committee or to remand the matter to the Ethics Committee for further consideration. In making such determination to affirm or to modify, findings of fact made by the Ethics Committee shall be conclusive if supported by any evidence. The Board of Trustees may grant re-hearings, hear additional evidence, or request that ARRT or the Registered Technologist or Candidate in question provide additional information in such manner, on such issues, and within such time as it may prescribe.
All hearings and appeals provided for herein shall be private at all stages. It shall be considered an act of professional misconduct for any Registered Technologist or Candidate to make an unauthorized publication or revelation of the same, except to the Registered Technologist's or Candidate's attorney or other representative, immediate superior, or employer.

4. Range of Actions

(a) No Action

A determination of no action means that there is little or no evidence to substantiate that a violation even occurred. In a situation lacking even a preponderance of evidence, the complaint is determined to be unsubstantiated.

(b) Clear

A determination that there was a violation of the Rules of Ethics but that no further action will be taken against a person's eligibility for certification and registration or for continued certification and registration. The determination of cleared/eligible can be made administratively by staff, by the Chair, or by the Committee depending on the nature of the violation and existing policies addressing authority for taking action. After a violation has been cleared, the applicant or registrant will not be required to report the violation in the future.

(c) Private Reprimands

A private reprimand is a reprimand that is between the individual and ARRT and is not reported to the public. Private reprimands allow for continued certification and registration.

(d) Public Reprimands

A public reprimand is a sanction that is published on ARRT's website for a period of one year. Public reprimands allow for continued certification and registration.

(e) Conditional

Conditional status may be given for continued certification and registration in those cases where there are additional requirements that need to be met before the ethics file can be closed (e.g., conditions mandated by the court, regulatory authority and/or Ethics Committee).

(f) Suspensions

Suspension is the temporary removal of an individual's certification and registration in all categories for up to one year.

(g) Summary Suspensions

Summary suspension is an immediate suspension of an individual's certification and registration in all categories. If an alleged violation of the Rules of Ethics involves the occurrence, with respect to a Registered Technologist, of an event described in the Rules of Ethics, or any other event that the Ethics Committee determines would, if true, potentially pose harm to the health, safety, or well-being of any patient or the public, then, notwithstanding anything apparently or expressly to the contrary contained in these Administrative Procedures, the Ethics Committee may, without prior notice to the Registered Technologist and without a prior hearing, summarily suspend the certification and registration of the individual pending a final determination under these Administrative Procedures with respect to whether the alleged violation of the Rules of Ethics in fact occurred. Within five working days after the Ethics Committee summarily suspends the certification and registration of an individual in accordance with this provision, the Ethics Committee shall, by expedited delivery or certified mail, return receipt requested, give to the individual written notice that describes: (1) the summary suspension; (2) the reason or reasons for it; and (3) the right of the individual to request a hearing with respect to the summary suspension by written notice to the Ethics Committee, which written notice must be received by the Ethics Committee not later than 15 days after the date of the written notice of summary suspension by the Ethics Committee to the individual. If the individual requests a hearing in a timely manner with respect to the summary suspension, the hearing shall be held before the Ethics Committee or a panel comprised of no fewer than two members of the Ethics Committee as promptly as practicable, but in any event within 30 days after the Ethics Committee's receipt of the individual's request for the hearing, unless both the individual and the Ethics Committee agree to a postponement beyond the 30 day period. The Ethics Committee has the absolute discretion to deny any request for a postponement and to proceed to a hearing with or without the participation of the individual. The applicable provisions of Section 2 (Hearings) of these Administrative Procedures shall govern all hearings with respect to summary suspensions, except that neither a determination of the Ethics Committee, in the absence of a timely request for a hearing by the affected individual, nor a determination by the Ethics Committee or a panel, following a timely requested hearing, is appealable to the Board of Trustees.

(h) Ineligible

An individual may be determined ineligible to obtain or renew certification and registration or ineligible for reinstatement of certification and registration. The time frame may be time limited or permanent.

(i) Revocation

Revocation removes the individual's certification and registration in all categories. The time frame may be time limited or permanent.

(j) Alternative Dispositions

An Alternative Disposition ("AD") is a contract between an individual and the ARRT (as represented by the Ethics Committee) that allows for continued certification and registration in lieu of revocation, provided the individual performs certain requirements, including, but not limited to, providing documentation, attending counseling and/or submitting to random drug and/or alcohol screening. A Registered Technologist or Candidate who voluntarily enters into an Alternative Disposition Agreement agrees to waive all rights set forth in these Administrative Procedures.

(k) Deny Removal of a Sanction

After a predetermined time, an individual may request removal of a sanction that had been previously imposed by the Committee. Sufficient compelling evidence must be provided to convince the Committee the sanction should be removed or modified. If evidence is not provided, the Committee may deny removal of the sanction. Situations that may result in denial of a sanction removal request include: additional violations of the Rules of Ethics after the sanction was imposed, failure to demonstrate that there has been adequate rehabilitation, and/or continued denial of responsibility.

(l) Civil or Criminal Penalties

Conduct that violates ARRT's Rules of Ethics may also violate applicable state or federal law. In addition to the potential sanctions under the *Standards of Ethics*, ARRT may, without giving prior notice, pursue civil and/or criminal penalties.

5. Publication of Adverse Decisions

Summary suspensions and final decisions (other than private reprimands, Alternative Dispositions and conditional statuses) that are adverse to a Registered Technologist or Candidate will be communicated to the appropriate authorities of certification organizations and state licensing agencies and provided in response to written inquiries into an individual's certification and registration status. The ARRT shall also have the right to publish any final adverse decisions and summary suspensions and the reasons therefore. For purposes of this paragraph, a "final decision" means and includes: a determination of the Ethics Committee relating to an adverse decision if the affected individual did not request a hearing in a timely manner; a non-appealable decision of the Ethics Committee; an appealable decision of the Ethics Committee from which no timely appeal is taken; and, the decision of the Board of Trustees in a case involving an appeal of an appealable decision of the Ethics Committee.

6. Procedure to Request Removal of a Sanction

A sanction imposed by ARRT, including a sanction specified in a Settlement Agreement, specifically provides a sanction time frame and it shall be presumed that a sanction may only be reconsidered after the time frame has elapsed. At any point after a sanction first becomes eligible for reconsideration, the individual may submit a written request ("Request") to ARRT asking the Ethics Committee to remove the sanction. The Request must be accompanied by a nonrefundable fee in an amount to be determined by ARRT. A Request that is not accompanied by the fee will be returned to the individual and will not be considered. In rare cases, the fee may be waived, in whole or in part, at the sole discretion of ARRT. The individual is not entitled to make a personal appearance before the Ethics Committee in connection with a Request to remove a sanction or to modify a Settlement Agreement.

Although there is no required format, Requests for both sanction removal and Settlement Agreement modification must include compelling reasons justifying the removal of the sanction or modification of the Settlement Agreement. It is recommended that the individual demonstrate at least the following: (1) an understanding of the reasons for the sanction; (2) an understanding of why the action leading to the sanction was felt to warrant the sanction imposed; and (3) detailed information demonstrating that the individual's behavior has improved and similar activities will not be repeated. Letters of recommendation from individuals, who are knowledgeable about the person's sanction imposed; and current character and behavior, including efforts at rehabilitation, are advised. If a letter of recommendation is not on original letterhead or is not duly notarized, the Ethics Committee shall have the discretion to ignore that letter of recommendation.

Removal of the sanction is a prerequisite to apply for certification and registration. If, at the sole discretion of the Ethics Committee, the sanction is removed, the individual will be allowed to pursue certification and registration via the policies and procedures in place at that time as stated in Section 6.05 of the *ARRT Rules and Regulations*.

If the Ethics Committee denies a Request for removal of the sanction or modification of a Settlement Agreement, the decision is not subject to a hearing or to an appeal, and the Committee will not reconsider removal of the sanction or modification of the Settlement Agreement for as long as is directed by the Committee.

7. Amendments to the Standards of Ethics

The ARRT reserves the right to amend the *Standards of Ethics* following the procedures under Article XII, Section 12.02 of the *ARRT Rules and Regulations*.

Code of Ethics

The Code of Ethics forms the first part of the Standards of Ethics. The Code of Ethics shall serve as a guide by which Certificate Holders and Candidates may evaluate their professional conduct as it relates to patients, healthcare consumers, employers, colleagues, and other members of the healthcare team. The Code of Ethics is intended to assist Certificate Holders and Candidates in maintaining a high level of ethical conduct and in providing for the protection, safety, and comfort of patients. The Code of Ethics is aspirational.

1. The radiologic technologist acts in a professional manner, responds to patient needs, and supports colleagues and associates in providing quality patient care.
2. The radiologic technologist acts to advance the principal objective of the profession to provide services to humanity with full respect for the dignity of mankind.
3. The radiologic technologist delivers patient care and service unrestricted by the concerns of personal attributes or the nature of the disease or illness, and without discrimination on the basis of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, familial status, disability, sexual orientation, gender identity, veteran status, age, or any other legally protected basis.
4. The radiologic technologist practices technology founded upon theoretical knowledge and concepts, uses equipment and accessories consistent with the purposes for which they were designed, and employs procedures and techniques appropriately.
5. The radiologic technologist assesses situations; exercises care, discretion, and judgment; assumes responsibility for professional decisions; and acts in the best interest of the patient.
6. The radiologic technologist acts as an agent through observation and communication to obtain pertinent information for the physician to aid in the diagnosis and treatment of the patient and recognizes that interpretation and diagnosis are outside the scope of practice for the profession.
7. The radiologic technologist uses equipment and accessories, employs techniques and procedures, performs services in accordance with an accepted standard of practice, and demonstrates expertise in minimizing radiation exposure to the patient, self, and other members of the healthcare team.
8. The radiologic technologist practices ethical conduct appropriate to the profession and protects the patient's right to quality radiologic technology care.
9. The radiologic technologist respects confidences entrusted in the course of professional practice, respects the patient's right to privacy, and reveals confidential information only as required by law or to protect the welfare of the individual or the community.
10. The radiologic technologist continually strives to improve knowledge and skills by participating in continuing education and professional activities, sharing knowledge with colleagues, and investigating new aspects of professional practice.
11. The radiologic technologist refrains from the use of illegal drugs and/or any legally controlled substances which result in impairment of professional judgment and/or ability to practice radiologic technology with reasonable skill and safety to patients.

THE AMERICAN REGISTRY
OF RADIOLOGIC
TECHNOLOGISTS®

GOLD STANDARD
PATIENT CARE

Hancock Regional Hospital

POLICY MANUAL INFECTION PREVENTION	POLICY #: IC 8012 REV. DATE: 1/2023 PAGE 1 of 21
TITLE: Management of Exposure to Blood Borne Pathogen or Communicable Disease	
DEPARTMENT(S): Occupational Health, Infection Prevention	
APPROVED: Craig Felty RN, BSN, MBA EFFECTIVE DATE 1/2023	
POSITION: Vice President Patient Care/CNO	

I. PURPOSE:

To provide a systematic and standard procedure for medical care, reporting, evaluation, and preventive treatment for:

- Known or suspected exposures to blood or other potentially infectious materials
- Known or suspected exposures to communicable/infectious diseases

which may occur among associates, volunteers, medical staff, and students (collectively referred to as HCW's, health care workers, throughout this policy), and visitors.

II. POLICY:

1. Exposures and suspected exposures to blood or other potentially infectious materials (OPIM's)/Communicable/Infectious Diseases which occur while providing care to Hancock Regional Hospital patients are reported to the exposed person's supervisor and to Occupational Health Services (OHS) or the Hancock Regional Hospital Emergency Department (ED) immediately following the incident.
2. Associates, patients, medical staff, contracted and agency staff, Radiology students and volunteers exposed during Hancock Regional Hospital patient care receive follow-up and treatment through OHS/ ED.
3. Contracts must provide language to direct care in the event of an exposure.
4. It is the responsibility of the student or contracted employee to know and understand the school/employer's policies regarding evaluation and treatment of injuries incurred during clinical rotation and/or a work shift.
5. Students/contracted employees sustaining exposures may receive first aid, testing and counseling through OHS/ ED which includes but is not limited to ongoing treatment and evaluation at their own expense if not covered under the schools/contract employer's policies.
6. Hancock Regional Hospital Radiology School students are covered by the school for first aid, testing, evaluation, counseling, treatment and follow up care.
7. Students and contracted employees will be provided the immediate evaluation and initial prophylactic treatment for HIV risk if appropriate.
8. Visitor exposure incidents are handled on a case-by-case basis, but exposure process flow is followed for each case.
9. Medical staff not employed by the hospital may receive initial treatment through OHS/ED. If further follow-up and treatment is required after the initial visit, they will be directed to their designated Occupational Health company
10. HCW's with or exposed to, infectious/communicable diseases will be restricted as outlined in the table attachment D
11. HCW's will be notified by verbal or written notice if they have been exposed to a suspected or confirmed infectious disease case in the course of their duties

III. GUIDELINES/PROCEDURES:

A. Definition of Exposure includes:
   1. Percutaneous exposure: needlesticks (contaminated needles), cuts or punctures with contaminated scalpels or other sharps.
   2. Mucosal exposure: direct mucous membrane contact (eye, nasal mucosa, mouth) with blood or other potentially infectious materials (see below).
   3. Accidental oral ingestion: direct contact of blood or other potentially infectious materials with oral mucosa.
   4. Human bites should be reported; they are assessed for risk factors according to circumstances of the event.
   5. Cutaneous exposure: broken or abraded skin visibly contaminated with blood or other potentially infectious materials, especially when involving large amounts and/or prolonged contact
   6. Communicable/Infectious Disease: Disease in which HCW has no immunity that can cause illness, infectious diseases requiring Airborne, Contact or Droplet precautions

B. Blood or Other Potentially Infectious Materials include the following:

1. Blood and blood products.
2. Any other body fluid which contains visible blood.
3. Body cavity effusions or transudates: cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, and breast milk.
4. Semen and vaginal secretions.
5. All body fluids in situations when it is difficult or impossible to differentiate between body fluids and human tissue either living or separated from a human body.
6. Laboratory specimens that contain HIV, HBV, or HCV (e.g., suspensions of concentrated virus).

C. Communicable/Infectious Disease

1. Chicken pox/varicella zoster, measles, mumps, or other vaccine preventable disease
2. Neisseria meningitis
3. Pertussis
4. Tuberculosis
5. Lice or scabies

IV. PROCEDURE FOR EXPOSURE TO BLOOD BORNE PATHOGEN

1. A HCW sustaining an exposure or possible exposure should immediately clean the wound with a skin cleanser. Soap and water may be used. Do not attempt to "milk" the wound. Household bleach should not be used. Mucous membranes should be flushed liberally with water or saline.

2. The exposure should be reported to the appropriate supervisor immediately.

3. A HCW sustaining exposure requires IMMEDIATE evaluation. The associate will be sent to OHS or ED if the injury is severe or if OHS is closed) and be registered as a Workman's Comp. The HCW is counseled and evaluated for post exposure prophylaxis (PEP) by OHS/ED staff. The hospital Infectious Disease Specialist should be consulted if PEP is going to be offered. PEP MUST is initiated within 24 hours of the exposure and preferably within 3 hours; the sooner it is begun, the more effective it may be, in cases for which it is indicated. PEP prescriptions will be provided in OHS/ED. If PEP must be provided after OHS hours, pharmacy will need to be called as soon as possible so the PEP can be obtained. If after pharmacy hours, then page the on-call pharmacist.

4. OHS/ED staff provides medical care, evaluation, prophylaxis, testing and follow-up according to current approved departmental protocols. Unless HIV is not known or suspected, no HIV PEP is generally warranted.

5. Refer to Appendix A for the recommended post-exposure prophylaxis for percutaneous or mucosal exposure to hepatitis B virus and
6. Refer to Appendix B for the algorithm for hepatitis C virus (HCV) testing for asymptomatic persons.
7. Refer to Appendix C, for Guidelines for the Management of Occupational Exposure to HIV and Post-Exposure Recommendations for PEP. Additional information can be found at www.cdc.gov/mmwr. 24 –Hour HIV PEPLINE 1-888-448-4911 (practitioners only)
8. Exposure follow-up for associates: OHS/ED determines appropriate prophylaxis based upon information found in the associate's source patient data collection sheet, and test results. Usually, associate follow-up can wait until the next business day if an exposure occurs when OHS is closed AND the exposure is low risk. Note: Labs for exposed associate will be requested by OHS or ED at the time the associate is seen. Orders are entered into the system by either OHS or Lab associates.

    1. If deemed necessary, blood tests (HBsAB, HCV antibody, HIV I&II) should be run on the HCW at the time of the exposure if the HIV consent has been signed. *If the exposed associate prefers not to have an HIV test run at the time of exposure, HCW may elect to have blood drawn and held (pending consent from HCW and order from OHS) for up to 90 days to provide baseline information if needed later.*

    2. Associates may refuse any or all follow-up procedures, medications, or vaccines recommended for blood or body fluid exposures. Such refusals should be documented and signed by the associate. Refusal for baseline testing, prophylaxis, or other aspects of recommended follow-up may cause forfeiture of rights relating to this incident under Indiana Workers' Compensation law. All follow-up testing related to a specific exposure must be completed within 12 months of the exposure date.

3. Blood tests ordered for exposure follow-up are sent through the Hancock Regional Hospital Lab to the reference lab with code identifiers only, both for the exposed person and for the source patient. HCW specimens are sent to the Hancock Regional Hospital Lab ONLY by code identifier. However, Hancock Regional Lab may draw blood on exposed HCW under special circumstances e.g., positive, or high-risk source. The Nursing Supervisor, Director or Unit Coordinator (in the Nursing Supervisor's absence), notifies the Hancock Regional Hospital Lab of the connection between the HCW's initials/name and the source patient name to send the correct specimens to the Reference Lab.

   The CODES are constructed as follows:
   (1) EMP (employee)
   (2) SOURCE (source patient)
   (3) Complete initials of exposed associate. An example of this code for an exposed HCW with the initials AMU would be: EMP, AMU. An example of this code for the source patient from same exposure would be: SOURCE, AMU* Note: Meditech requires the comma after EMP, and after Source, *

4. Source patient testing: Whenever possible, source patients are tested for HIV I&II, HBsAG, HCV antibody and ALT. If the patient is known to have any of these viruses, or any other medical conditions testing is adjusted accordingly. A signed informed consent must be obtained before HIV testing may be done. *** If the source patient is unknown, unable to provide consent, or refuses testing the HCP will be treated as "unknown" exposure and followed by OHS.
5.
6. The exposed HCW must visit OHS on the next business day to ensure counseling and adequate treatment including prophylaxis is provided. OHS is staffed Monday through Friday from 8a to 5p. The associate should go to ED if treatment cannot wait until the next OHS business day or be provided within 24 hours. At this time the HCW will be asked to sign consent for testing and instructed in the follow-up procedure. If the HCW plans to decline treatment, a visit to the OHS is still required to sign a declination.

V. PROCEDURE FOR SOURCE PATIENT TESTING IS AS FOLLOWS:

1. Nursing Supervisor/Director/Unit coordinator/Charge Nurse:
   a. File an EMS report immediately after the exposure.
   b. Provide HCW with exposure instruction forms located on the Hancock Hub. Click on Resources & References". Click on Safety. Scroll down to Exposure Policy and print Source Patient and Associate Exposure Forms. Flow charts for Lab, ED and overall process are also available for viewing/printing. If the computer is down, paper packets can be obtained from the Infection Control Manager or from the Nursing Office Supervisor. Fax all completed forms to OHS as soon as possible.
   c. Interview source patient and complete the 3 forms from the source packet instructions. (Patients undergoing anesthesia have signed consent to test for all applicable "source" tests, including HIV).
   d. Fax the signed consent form and source patient information immediately to the Lab and notify them an exposure has taken place.
   e. Provide the initials, NOT THE NAME, of the exposed associate to the Lab.
   f. The source patient test results will be reported to the Infection Prevention Director, or designee, by the lab supervisor, or designee. The Infection Prevention Director, or designee, will report all negative lab results to the source patient, as per patient request, unless the tests are positive. All positive test results will be reported to the Chairperson of Infection Prevention Committee/Pathologist, or designee, by the Infection Prevention Director, or designee, for determination on which physician will notify the patient.

2. Lab Personnel:
   a. After receiving a copy of the source patient's signed consent, the Lab will register and order labs on the source patient. Labs for the exposed associate will be ordered by OHS/LAB once the need has been established.
   b. Check to determine if blood from source patient is available in lab and request a hold of SST (gold top) tubes for testing. If no blood available proceed to step "c".
   c. Draw two SST (gold top) tubes on source patient for testing.
   d. Assign the source patient code labels.
   e. Only lab personnel will be allowed to draw from source patient.
   f. Only in high-risk circumstances when OHS is closed should the ED or Lab draw blood on the exposed associate.
   g. Occupational Health / ED provides follow-up care post exposure:
      a. During this process if questions arise, assistance may be obtained from the Infection Prevention Manager or designee, the Chairperson of Infection Prevention Committee/Pathologist or designee or

the OHS Medical Director. At a minimum, HBsAg, HCV antibody and HIV I&II, testing may be initiated without consent. HIV testing will be withheld if consent is not obtained. Refer to Appendix C regarding HIV testing.

b. If the source is unknown, the associate exposure is handled as an unknown Exposure. Using approved CDC guidelines HIV and HCV screening is offered to the exposed person. Other testing is done according to current CDC recommendations.

c. If the source has AIDS or is positive for HIV antibody, refuses testing or cannot be identified, the exposed person is counseled regarding the risk of infection and is evaluated clinically and serologically for evidence of HIV infection. The use of prophylaxis is considered when applicable.

d. If the source patient is unable to provide consent and an unauthorized representative of the source is not immediately available to provide consent or refusal of the test, a physician or a physician's authorized representative may order an HIV test to be performed without informing the patient or the patient's representative of the test.

e. The total cost of the source patient follow-up testing is assumed by the facility.

VI. Exposure follow-up for medical staff, contracted and agency staff, volunteers, students, patients, and visitors:

1. Hancock Regional Medical staff: When any physician credentialed to practice at Hancock Regional Hospital reports that an exposure occurred while providing services for a hospital patient, initial follow-up is provided through OHS/ED the same as any other associate. ED can be used only when the OHS center is closed AND treatment cannot wait until the next day (See sections E and F).

2. Volunteers: Volunteers are covered under hospital workers' compensation for medical expenses incurred which relate to their hospital activities; blood exposures for this group are handled just as for associates.

3. Hancock Regional Radiology Students: After a blood or body fluid exposure, follow-up and laboratory testing on the source patient and exposed individual are provided at no charge.. Appropriate vaccines and/or medications are recommended by the OHS/ED . Expenses will be handled on a case-by-case basis after consultation with the student's supervisor.

4. Clinical Students from Other Educational Facilities: Covered by contractual language as follows: Hancock Regional Hospital will provide the students access to emergency medical services in the event of illness or injury during the experiential course. Such emergency care will be provided at the student's expense.

5. Visitors: Follow-up for visitor blood exposures are handled as a courtesy through the hospital after consultation with the Infection Control Director. Responsibility for expenses of testing, vaccines and medications are handled on a case-by-case basis as determined by management.

6. Patients: After a documented blood or body fluid exposure, follow-up and laboratory testing on the source patient and exposed individual are provided at no charge (costs are absorbed by the hospital). Appropriate vaccines and/or medications are recommended by the Infection Prevention Director/Infection Prevention Committee Chairman and the cost will be determined on a case-by-case basis.

VII. PROCEDURE FOR EXPOSURE TO COMMUNICABLE DISEASE

1. HCW's identified as potentially having been exposed to acommunicable/infectious disease will be reported to and followed, as indicated by OHS
2. HCW's will report any potentially communicable illness or any exposures to communicable diseases to OHS, Employee Health (EH), and the Infection Prevention Director immediately
3. The Infection Prevention Director/OHS/EH will investigate when notification is received.
4. When indicated, the department director/supervisor will be contacted to generate a list of HCW's, visitors, and patients who may have been exposed.
5. The Infection Prevention Director/OHS, EH, if needed, will conduct follow-up investigations on exposed contacts to ensure treatment/resolution.

6. An investigation will be conducted by the Infection Prevention Director, if needed, to determine the cause of the exposure and any practices that may require revision to prevent future exposures
7. Investigation and follow-up documentation will be completed by OHS.

VIII. TREATMENT OF COMMUNICABLE/INFECTIOUS DISEASE EXPOSURES

1. Follow the following protocols for specific exposure. If there is no protocol, contact OHS or after hours the ED physician on duty for immediate treatment needs.
2. Refer to Appendix D for additional communicable disease exposures.

a. Chicken pox, varicella zoster, measles, mumps or other disease for which immunity is present in most people

i. HCW's with immunity are not considered exposed.
ii. Those HCW's without immunity, or those with no documentation of immunity will be contacted and immunization, testing or prophylaxis will be provided per Occupational Health
iii. HCW's may be restricted from work based on CDC and Public Health Guidelines
iv. Follow Exposure to Communicable/Infectious Disease Flowchart (see attached)

b. Meningitis
i. Exposure is defined as intensive contact with respiratory secretions from a patient with meningococcal disease (Neisseria meningitides)
ii. There is negligible risk of disease following casual contact
iii. Intensive contact would occur in unprotected
1. Mouth to mouth resuscitation
2. Suctioning without proper precautions
3. Participation in intubation
4. Oral or fundoscopic examination
5. Other mucous membrane contact with respiratory secretions
iv. Follow Exposure to Communicable/Infectious Disease Flowchart (see attached)

c. Pertussis
i. Exposure is defined as intensive contact with respiratory secretions from a patient with Pertussis.
ii. There is negligible of disease following casual contact
iii. Intensive contact includes unprotected:
1. Mouth to mouth resuscitation
2. Suctioning without using proper precautions
3. Participation in intubation
4. Oral or funduscopic examination
5. Other mucous membrane contact with respiratory secretions

d. Tuberculosis:
i. Follow policy IC # 8094 TB Associate Exposures

e. Lice or Scabies
i. Definition of exposure to lice: Occurs when a HCW comes into direct contact with another person with lice. Contact must be close head-to-head, or sharing of same fabric covered chair, lab coats, or other personal items. Time is not a factor to determine exposure.
ii. Definition of exposure to scabies: Occurs when a HCW come into direct skin to skin contact with another person with scabies. Occasionally, transmission may occur when there is contact with heavily contaminated clothing or bed sheets.
iii. Any HCW who suspects exposure by any source will immediately notify their director or supervisor.
iv. If the source of exposure is a patient the director or supervisor will:
1. Initiate isolation of the patient
2. Notify Infection Prevention immediately with patient name and room number
3. Have potentially exposed HCW follow Exposure to Communicable/Infectious Disease Flowchart (see attached)

REFERENCES:

CDC – Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Post Exposure Prophylaxis; Society for Healthcare Epidemiology of America, September 2013, Vol.34 No.9, pages 875-892.

CDC Guideline for infection control in health care personnel, 1998

OSHA, 29 CFR 1910. 1030. Occupational Exposure to Bloodborne Pathogens, final rule. Fed Registry 1991;56:64004-64182.

CDC – Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Post-exposure Management, MMWR, Vol.62/No.10, Dec.20, 2013.

Indiana Code 16-41-6, Chapter 6. Communicable Disease: Mandatory Testing of Individuals with Communicable or Dangerous Diseases.

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RECOMMENDED BY:

Chairman, Infection Prevention Committee	2-21-23 Date
Kelly Manning RN BSN CIC FAPIC Infection Prevention Director	1/27/2023 Date
Janet Strauch Director, Laboratory Services	2/27/23 Date
Director, Emergency Department	2/28/23 Date
Director, Acute Care Services	2/28/23 Date
Director, Human Resources	2/28/23 Date

HANCOCK REGIONAL HOSPITAL & OCCUPATIONAL HEALTH SERVICES

EXPOSED HEALTHCARE WORKER CONSENT/DECLINATION

FOR POST-EXPOSURE HIV ANTIBODY TESTING

A blood test is available which can determine the presence or absence of antibodies to HIV. Because you have reported an exposure to blood and/or body fluids, it may be advisable for you to be tested for HIV antibodies. If the blood/body fluids to which you were exposed were high risk or known to contain the HIV virus, HIV antibody testing should be repeated at 6 weeks, 3 months, 6 months and one year following the baseline test done at the time of the exposure, to monitor your status. Before you agree to have the HIV antibody test run, you should be aware of the following:

1. All reasonable efforts to provide confidentiality to the extent provided by law will be made. Your test orders and blood tubes are labeled only with a code, not by name or social security number. The code key and test results are retained only in your health record in Occupational Health Services. These test results are regarded as confidential and are not disclosed to unauthorized parties without your written authorization. Test results are available to the occupational physician and other health care professionals responsible for your care. Positive test results are reported to the Indiana State Department of Health as required by law (I.C. 16-1-9.5-2).

2. The initial (screening) HIV blood test is not 100% accurate; it sometimes produces a false positive or false negative test result. In all cases of positive initial test results, confirmatory testing is performed prior to reporting a result. Positive HIV tests do not indicate that a person has AIDS; to diagnose AIDS, other means must be used in conjunction with the HIV antibody test.

3. You may have testing performed at an alternate site, such as at the local Health Department. You would be responsible for charges incurred for outside testing. Should you contract HIV because of your reported exposure, your workers' compensation benefits would be forfeited if your negative baseline and subsequent positive test results were not made known to your employer and your employer's medical provider. Baseline testing must be completed within 10 days of your exposure.

4. If the source person involved in your exposure has AIDS, is HIV-seropositive, or refuses testing, you should report any acute illness that occurs during the follow-up period, especially fever, rash, myalgia, fatigue, malaise, or swollen lymph glands. Such illnesses may be unrelated to your exposure but should be evaluated.

5. If the source person has AIDS, is HIV-seropositive, or refuses testing, you should follow Public Health Service recommendations for preventing transmission of HIV during the follow-up period, especially during the first 6-12 weeks after the exposure (when most infected persons are expected to seroconvert). These recommendations include: (1) refraining from blood, semen or organ donation; (2) refrain from breast feeding; and (3) practicing safe sex.

6. There are potential physical and psychological risks involved in being tested for HIV. When the blood sample is taken, there may be some discomfort at the site of entry of the needle and a small bruise may develop; otherwise, there is little risk of physical injury. A positive test result could cause psychological stress; counseling would be provided.

7. You will not be charged for the test. You may request copies of your test results.

8. If the HIV test result is positive and if your physical or mental condition poses a risk to you and/or others in the course of your job duties, your job responsibilities would need to be reviewed by Occupational Health Services and may need to be revised.

9. By consenting to HIV testing, you will be agreeing to indemnify and hold harmless Hancock Regional Hospital, its associates, agents, subcontractors and medical staff from any loss, cost, damage, expense attorney's fees, and liability arising out of the hospital's good faith performance under this consent and not arising out of its own negligence. You will also be acknowledging that you have been advised about the purpose, potential uses, limitations and meaning of HIV test results; the voluntary nature of the test; the right to withdraw at any time prior to the completion of laboratory tests; the right to anonymity; and the confidentiality protection under the law. You will be acknowledging that you have had an opportunity to ask questions and they have all been answered to your satisfaction.

Please read the following statements, place your initials beside your choice, and complete the information following the selections:

_____ I have read the information above which relates to testing my blood for antibody to HIV and understand the limitations and consequences of this test. Test results will be reported in confidence to me by a physician. I agree to have the baseline HIV test run at this time. I agree to complete subsequent HIV follow-up tests as recommended by the evaluating physician.

_____ I have read the information above which relates to testing my blood for antibody to HIV and understand the limitations and consequences of this test. Test results will be reported in confidence to me by Occupational Health Services. I agree to have the baseline HIV tests run at this time. I agree to complete subsequent HIV follow-up tests (3 months, and 6 months) ONLY if the source patient is HIGH RISK or UNKNOWN.

_____ I have read the information above which relates to testing my blood for antibody to HIV and understand the limitations and consequences of this test. Test results will be reported in confidence to me by Occupational Health Services. I agree to have the baseline HIV tests run at this time. I agree to complete subsequent HIV follow-up tests (3 months) ONLY if the source patient is negative and considered a low risk.

DECLINATION

_____ This test is being offered to me as part of an occupational exposure follow-up. I decline to have the HIV antibody test performed, but I consent to a baseline blood collection which shall be preserved for 90 days. I understand that if, within 90 days, I elect to have this sample tested, it is my responsibility to request testing through Occupational Health Services, following which such testing shall be done as soon as feasible.

_____ I decline to have the HIV antibody test performed. I understand that since this test is being offered as part of an occupational exposure follow-up, I may request a test no later than 12 months following the exposure test: however, my ability to collect workers' compensation benefits (if viral transmission occurs) may be affected if initial testing is delayed beyond 10 days after the exposure.

_____	_____	_____
Printed name of associate / employee	Date of birth	Social security number
_____	_____	
Signature of associate / employee	Date	
_____	_____	_____
Signature of witness	Printed name of witness	Date

HANCOCK REGIONAL HOSPITAL

SOURCE PATIENT CONSENT

FOR THE PRESENCE OF HIV ANTIBODIES FOLLOWING BLOOD OR BODY FLUID EXPOSURE

I have been advised that an individual has been accidentally exposed to my blood or body fluids. To determine whether that individual has been exposed to a transmittable disease, the Hospital is requesting that I consent to a blood test to determine if I have HIV antibodies in my blood. "HIV" is the abbreviation for Human Immuno-Deficiency Virus, the name of the virus that causes AIDS (Acquired Immune Deficiency Syndrome). My blood would also be tested for the presence of hepatitis B and C viruses.

I authorize the tests to be run on blood already available in the hospital laboratory. If no blood is available, I agree to have blood drawn for testing. I understand that if a blood sample is taken, I may have some slight discomfort at the site of entry of the needle, and a small bruise may develop otherwise, there is little risk of physical injury. A positive test result could cause psychological stress; in this event, counseling would be made available to me. I understand that neither myself nor my insurance will be billed for these tests or services.

It has been explained to me that the HIV blood test is not 100 % accurate and that it sometimes produces a false positive or false negative test result. Should my test be positive for the HIV antibody, I have been advised that a second confirmatory test will be conducted which will confirm or refute the initial screening test result before results are reported to me. I further understand that the presence of HIV antibodies means that a person probably has been infected with the AIDS virus. I understand that because it takes the body time to produce HIV antibodies, if I have been exposed to HIV recently, I may have a negative test result at this time. I have been informed that if I have any questions regarding the nature of the blood tests, their expected benefits, or their risks, I may ask those questions before I decide to consent to the blood tests.

I understand that the results of these blood tests are considered confidential and will only be released to those health care practitioners responsible for my care and treatment, to any individual exposed to my blood or body fluids during the course of my care, to the physicians of those individuals, and to those individuals and organizations that have been given access by law who are also required to keep my health record information confidential. No individual may make further disclosure of the results of my HIV or hepatitis tests without my separate consent to this disclosure (Indiana Code 16-1.9-5.7). The blood is labeled with a code number instead of my name, to further preserve confidentiality.

I hereby agree to indemnify and hold harmless Hancock Regional Hospital, its associates, agents, subcontractors and medical staff from any loss, cost, damage, expense, attorney's fees and liability arising out of the hospital's good faith performance under this consent and not arising out of its own negligence.

I acknowledge that I have been advised about the purpose, potential uses, limitations and meaning of the test results; the voluntary nature of the test; the right to withdraw at any time prior to the completion of laboratory tests; the right to anonymity; and the confidentiality protection under the law. With the information presented above having been completely and clearly explained to me, and all of my questions having been answered, I hereby authorize Hancock Regional Hospital and Health Services to test my blood for HIV antibodies.

Please send results to me at this address:

_____

_____

Please send results to my personal physician at this address:

Physician's name: _____

Address: _____

_____	_____	_____
Signature	Printed name	Date
_____	_____	_____
Witness signature	Witness printed name	Date

Appendix A

Postexposure Management of Hepatitis B

Managing Vaccinated HCW

For vaccinated HCW (who have written documentation of a complete, ≥3-dose HepB vaccine series) with subsequent documented anti-HBs ≥10 mIU/mL, testing the source patient for HBsAg is unnecessary. No postexposure management for HBV is necessary, regardless of the source patient's HBsAg status.

For vaccinated HCW (who have written documentation of HepB vaccination) with anti-HBs <10 mIU/mL after two complete, ≥3-dose HepB vaccine series, the source patient should be tested for HBsAg as soon as possible after the exposure. If the source patient is HBsAg-positive or has unknown HBsAg status, the HCW should receive 2 doses of HBIG (*1*,*11*). The first dose should be administered as soon as possible after the exposure, and the second dose should be administered 1 month later. If the source patient is HBsAg-negative, neither HBIG nor HepB vaccine is necessary.

For vaccinated HCW (who have written documentation of a complete, ≥3-dose HepB vaccine series) without previous anti-HBs testing, the HCW should be tested for anti-HBs and the source patient (if known) should be tested for HBsAg as soon as possible after the exposure. Testing the source patient and the HCW should occur simultaneously; testing the source patient should not be delayed while waiting for the HCW anti-HBs test results, and likewise, testing the HCW should not be delayed while waiting for the source patient HBsAg results.

- If the HCW has anti-HBs <10 mIU/mL and the source patient is HBsAg-positive or has unknown HBsAg status, the HCW should receive 1 dose of HBIG and be revaccinated as soon as possible after the exposure. The HCW should then receive the second 2 doses to complete the second HepB vaccine series (6 doses total when accounting for the original 3-dose series) according to the vaccination schedule. To document the HCW's vaccine response status for future exposures, anti-HBs testing should be performed 1–2 months after the last dose of vaccine.

- If the HCW has anti-HBs <10 mIU/mL and the source patient is HBsAg-negative, the HCW should receive an additional HepB vaccine dose, followed by repeat anti-HBs testing 1–2 months later. HCW whose anti-HBs remains <10 mIU/mL should undergo revaccination with 2 more doses (6 doses total when accounting for the original 3-dose series). To document the HCW's vaccine response status for future exposures, anti-HBs testing should be performed 1–2 months after the last dose of vaccine.

- If the HCW has anti-HBs ≥10 mIU/mL at the time of the exposure, no postexposure HBV management is necessary, regardless of the source patient's HBsAg status.

Managing HCW Who Lack Documentation of Vaccination, are Unvaccinated or Incompletely Vaccinated

For unvaccinated or incompletely vaccinated HCW (including those who refused vaccination), the source patient should be tested for HBsAg as soon as possible after the exposure. Testing unvaccinated or incompletely vaccinated HCW for anti-HBs is not necessary and is potentially misleading, because anti-HBs ≥10 mIU/mL as a correlate of vaccine-induced protection has only been determined for persons who have completed an approved vaccination series (*15*, *42*).

- If the source patient is HBsAg-positive or has unknown HBsAg status, the HCW should receive 1 dose of HBIG and 1 dose of HepB vaccine administered as soon as possible after the exposure. The HCW should complete the Hep B vaccine series according to the vaccination schedule. To document the HCP's vaccine response status for future exposures, anti-HBs testing should be performed approximately 1–2 months after the last dose of vaccine. Because anti-HBs testing of HCP who received HBIG should be performed after anti-HBs from HBIG is

no longer detectable (6 months after administration), it will likely be necessary to defer anti-HBs testing for a period longer than 1–2 months after the last vaccine dose.
— HCW with anti-HBs ≥10 mIU/mL after receipt of the primary vaccine series are considered immune. Immunocompetent persons have long-term protection and do not need further periodic testing to assess anti-HBs levels.
— HCW with anti-HBs <10 mIU/mL after receipt of the primary series should be revaccinated. For these HCW, administration of a second complete 3-dose series on an appropriate schedule, followed by anti-HBs testing 1–2 months after the third dose, usually is more practical than conducting serologic testing after each additional dose of vaccine. To document the HCW's vaccine response status for future exposures, anti-HBs testing should be performed 1–2 months after the last dose of vaccine.

- If the source patient is HBsAg-negative, the HCW should complete the HepB vaccine series according to the vaccination schedule. To document the HCW's vaccine response status for future exposures, anti-HBs testing should be performed approximately 1–2 months after the last dose of vaccine.
— HCW with anti-HBs ≥10 mIU/mL after receipt of the primary vaccine series are considered immune. Immunocompetent persons have long-term protection and do not need further periodic testing to assess anti-HBs levels.
— HCW with anti-HBs <10 mIU/mL after receipt of the primary series should be revaccinated. For these HCW, administration of a second complete 3-dose series on an appropriate schedule, followed by anti-HBs testing 1–2 months after the third dose, usually is more practical than conducting serologic testing after each additional dose of vaccine. To document the HCW's vaccine response status for future exposures, anti-HBs testing should be performed 1–2 months after the last dose of vaccine.

Recommended postexposure prophylaxis for percutaneous, mucosal, non-intact skin, or unknown exposure to hepatitis B virus

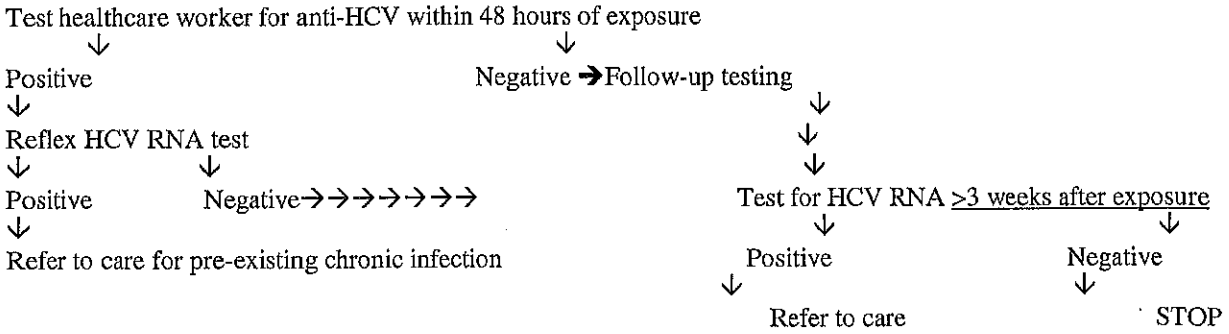
	Treatment when source is:		
	HBsAg* positive	HBsAg negative	Not tested or unknown
Vaccination and antibody response status of exposed person			
Unvaccinated	HBIG• x 1 as soon as possible after exposure preferably within 24 hours; initiate HB vaccine seriesΔ	Initiate HB vaccine series	Initiate HB vaccine series
Previously vaccinated			
Known responder	No treatment	No treatment	No treatment
Known non-responder	HBIG x 2 or HBIG x 1 and initiate revaccination	No treatment	If known high-risk source, treat as if source were HBsAg positive
Antibody response unknown	Test exposed person for anti-HBs◊	No treatment	Test exposed person for anti-HBs
	If adequate§, no treatment		If adequate§, no treatment
	If inadequate§, HBIG x 1 and vaccine booster		If inadequate§, initiate revaccination

* Hepatitis B surface antigen.
•Hepatitis B immunoglobulin; dose 0.06 mL/kg IM.
ΔHepatitis B vaccine.
◊Antibody to hepatitis B surface antigen.
§ Responder is defined a person with adequate levels of serum antibody to hepatitis B surface antigen (i.e., ≥ 10mIU/mL); inadequate response to vaccination defined as serum anti-HBs <10 mIU/mL.

Appendix B

CDC Information for Healthcare Personnel Potentially Exposured to Hepatitis C Virus (HCV)

Recommended Testing and Follow-up
Test the source for HCV RNA *. If the source is HCV RNA (PCR test) positive, or if HCV infection status unknown, follow the algorithm below. After a needlestick or sharps exposure to HCV positive blood, the risk of HCV infection is approximately 1.8%.



- If it is not possible to test source for HCV RNA, then test for antibodies to HCV (anti-HCV) and screen HCW exposure to anti-hcv positive source.

Appendix C

Recommended Occupational HIV Post-Exposure Prophylaxis (PEP)

24 hour HIV PEPLINE 1-888-448-4911-(practitioners only)

The proper use of gloves and goggles, along with safety devices to prevent injuries from sharp medical devices, can help minimize the risk of exposure to HIV in the course of caring for patients with HIV. When workers are exposed, the Centers for Disease Control and Prevention (CDC) recommend immediate treatment with a short course of antiretroviral drugs to prevent infection.

As of December 31, 2013, 58 confirmed occupational transmissions of HIV and 150 possible transmissions had been reported in the United States. Of these, only one confirmed case has been reported since 1999. Underreporting of cases to CDC is possible, however, because case reporting is voluntary. Health care workers who are exposed to a needlestick involving HIV-infected blood at work have a 0.23% risk of becoming infected. In other words, 2.3 of every 1,000 such injuries, if untreated, will result in infection. Risk of exposure due to splashes with body fluids is thought to be near zero even if the fluids are overtly bloody. Fluid splashes to intact skin or mucous membranes are considered to be extremely low risk of HIV transmission, whether or not blood is involved.

From CDC website (table 4 & 5): Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis

TABLE 4. Recommended HIV postexposure prophylaxis for percutaneous injuries

	Infection status of source				
Exposure type	HIV-Positive Class 1*	HIV-Positive Class 2*	Source of unknown HIV status†	Unknown source§	HIV-Negative
Less severe¶	Recommend basic 2-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors††	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted
More severe§§	Recommend expanded 3-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP** for source with HIV risk factors††	Generally, no PEP warranted; however, consider basic 2-drug PEP** in settings where exposure to HIV-infected persons is likely	No PEP warranted

* HIV-Positive, Class 1 — asymptomatic HIV infection or known low viral load (e.g., <1,500 RNA copies/mL). HIV-Positive, Class 2 — symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load. If drug resistance is a concern, obtain expert consultation. Initiation of postexposure prophylaxis (PEP) should not be delayed pending expert consultation, and, because expert consultation alone cannot substitute for face-to-face counseling, resources should be available to provide immediate evaluation and follow-up care for all exposures.

† Source of unknown HIV status (e.g., deceased source person with no samples available for HIV testing).

§ Unknown source (e.g., a needle from a sharps disposal container).

¶ Less severe (e.g., solid needle and superficial injury).

** The designation "consider PEP" indicates that PEP is optional and should be based on an individualized decision between the exposed person and the treating clinician.

†† If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued.

§§ More severe (e.g., large-bore hollow needle, deep puncture, visible blood on device, or needle used in patient's artery or vein).

TABLE 5. Recommended HIV postexposure prophylaxis for mucous membrane exposures and nonintact skin* exposures

Exposure type	Infection status of source				
	HIV-Positive Class 1†	HIV-Positive Class 2†	Source of unknown HIV status§	Unknown source¶	HIV-Negative
Small volume**	Consider basic 2-drug PEP††	Recommend basic 2-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP†† for source with HIV risk factors§§	Generally, no PEP warranted; however, consider basic 2-drug PEP†† in settings where exposure to HIV-infected persons is likely	No PEP warranted
Large volume¶¶	Recommend basic 2-drug PEP	Recommend expanded 3-drug PEP	Generally, no PEP warranted; however, consider basic 2-drug PEP†† for source with HIV risk factors§§	Generally, no PEP warranted; however, consider basic 2-drug PEP†† in settings where exposure to HIV-infected persons is likely	No PEP warranted

* For skin exposures, follow-up is indicated only if there is evidence of compromised skin integrity (e.g., dermatitis, abrasion, or open wound).

† HIV-Positive, Class 1 — asymptomatic HIV infection or known low viral load (e.g., <1,500 RNA copies/mL). HIV-Positive, Class 2 — symptomatic HIV infection, AIDS, acute seroconversion, or known high viral load. If drug resistance is a concern, obtain expert consultation. Initiation of postexposure prophylaxis (PEP) should not be delayed pending expert consultation, and, because expert consultation alone cannot substitute for face-to-face counseling, resources should be available to provide immediate evaluation and follow-up care for all exposures.

§ Source of unknown HIV status (e.g., deceased source person with no samples available for HIV testing).

¶ Unknown source (e.g., splash from inappropriately disposed blood).

** Small volume (i.e., a few drops).

†† The designation, "consider PEP," indicates that PEP is optional and should be based on an individualized decision between the exposed person and the treating clinician.

§§ If PEP is offered and taken and the source is later determined to be HIV-negative, PEP should be discontinued.

¶¶ Large volume (i.e., major blood splash).

Preferred HIV PEP 3-drug Regimen Truvada, 1 PO once daily (2 drug regimen) (tenofovir DF 300 mg + emtricitabine 200 mg) Plus (combined with Truvada for 3 drug regimens) Isentress, 1 PO twice daily (raltegravir 400 mg)
Antiretroviral Agents Generally Not Recommended for Use as PEP Didanosine (Videx EC; ddI) Nelfinavir (Viracept; NFV) Tipranavir (Aptivus; TPV)
Antiretroviral Agents Contraindicated as PEP Nevirapine (Viramune; NVP)

APPENDIX D

Table: 1 Summary of suggested work restrictions for health care personnel exposed to or infected with infectious disease of importance in health care settings.

Disease/Condition	Mode of Transmission	Post Exposure	Vaccine	Work Restriction/Duration
Diptheria	Droplet and Contact spread with infected secretions (cutaneous-contact or pharyngeal-droplet)		If more than 5 years since last dose of vaccine booster diphtheria toxoid is needed	Exclude from duty until antimicrobial therapy is completed and 2 cultures obtained > 24 hours apart and are negative
Hepatitis A	Fecal-Oral	Only in common source outbreak from food handler, IG is given to other food handlers	Hepatitis A vaccine available	Restrict from patient contact, contact with patients environment and food handling Duration: Until 7 days after onset of jaundice
Hepatitis B	Parentally transmitted from infected blood or body fluids		Hepatitis vaccine available	No restrictions
Hepatitis C	Parentally transmitted from infected blood or body fluids		None	No restrictions
Herpes Simplex HSV1-Herpetic Whitlow (hands)	Contact with infected saliva		None	Exclude from patient contact and contact with patients environment until lesion is gone
Orofacial	Contact		None	Evaluate need to exclude from care of high risk patient, immune compromised patients, pregnant patients or infants until lesion is gone

Disease/Condition	Mode of Transmission	Post Exposure	Vaccine	Work Restriction/Duration
HIV/AIDS	Person to person sexual contact Parenterally from infected blood Infected tissues or organs			Do not perform exposure – prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and techniques of the worker; standard precaution should always be observed; refer to state regulations
Employee Exposed HIV/AIDS	Person to person sexual contact Parenteral from infected blood Infected tissues or organs			None
Lice (Pediculosis)	Direct contact with infected person and objects used by them especially shared clothing and head gear	Associated are evaluated, educated and counseled by Occupational Health Treatment if symptoms are apparent	None	Associates with lice should receive treatment Exclude from patient care duty Duration: Until after treatment has been completed and have been found by Occupational Health to be free of infestation
Measles (Rubeola)	Airborne spread-Highly contagious	Live virus vaccine should be given within 72 hours of exposure	MMR	Active disease: Exclude for duty until 7 days after rash appears Post exposure: Exclude from duty from 5th day after 1st exposure through 21st day after last exposure and/or 4 days after rash appears
Meningitis • Haemophilus H-flu (bacterial	Droplet spread from contact with oral or respiratory secretions	Exposure determination • Mouth to mouth resuscitation • Intensive unprotected contact (not wearing a mask) with an infected patient		Exclude from duty Duration until 24 hours after start of effective therapy

Disease/Condition	Mode of Transmission	Post Exposure	Vaccine	Work Restriction/Duration
		• Endotracheal intubation • Endotracheal management • Close examination or oropharynx of the patient • Direct care for 8 hours or more		
• Pneumococcal Bacterial	Droplet spread- Direct contact with infected person generally results in nasopharyngeal carriage not disease	No prophylactic medications are indicated		
• Neisseria meningitides • Meningitis encephalitis • Meningococcemia	Intimate contact with oral or respiratory secretions Patients are not contagious if they have been on appropriate antibiotics for over 24 hours	Exposure determination: • Mouth to mouth resuscitation • Intensive unprotected (not wearing a mask) with an infected patient • Endotracheal intubation • Endotracheal tube management • Close examination of oropharynx of patient Direct care for 8 hours or more	Vaccine available	Exclude from duty Duration until 24 hours after start of effective therapy

Disease	Mode of Transmission	Post Exposure	Vaccine	Work Restriction/Duration
• Viral (aseptic) meningitis	Fecal-Oral	None	None	No restrictions
Mumps	Droplet spread-Direct contact with respiratory secretions	None	MMR	Active disease: Exclude from duty until 9 days after onset of parotitis Post exposure: (Susceptible personnel) From 12 days after 1st exposure through 26th day after last exposure or until 9 days after onset of parotitis
Pertussis (Whooping cough)	Droplet spread from direct contact with respiratory secretions of infected person	Exposure prophylaxis with either: Erythromycin 500 mg 4 times/day for 14 days Azithromycin 500mg x 1 day and then 250 mg every day for 4 days Clarithromycin 500 mg twice a day for 7 days	Tdap	No restrictions unless symptomatic Symptomatic or active disease: Exclude from duty Duration: Until 5 days after start of effective antimicrobial therapy
Rubella	Droplet spread from direct contact with respiratory secretions of infected person		MMR	Active disease: Exclude from duty until 5 days after rash appears Post exposure: (susceptible personnel) Exclude from duty from 7th day after 1st exposure through 21st day after last exposure

Scabies	Transmission requires prolonged intimate contact; transmission to personnel has occurred during activities such as sponge bathing or applying lotions. It is very rare that transmission occurs with fomites (indirect transmission.	Symptoms will occur between 1-6 weeks after exposure. The definitive diagnosis is from microscopic examination of skin scrapings. Diagnosis can be suggested by the visual appearance of burrows, usually on hands wrist and elbows; intense itching that intensifies at night and a history of any contacts. Symptoms with re-exposure can occur as soon as 1-4 days. Associate will need to be evaluated, educated and counseled by Occupational Health. Prophylactic treatment for exposed but not infected health care workers is not generally indicated for scabies.	None	Employees are restricted from patient care until after they have completed treatment and have been examined and found to be free of infestation by Occupational Health. Itching may persist for up to 2 weeks after effective treatment for scabies.
Streptococcal infection group A	Droplet spread from direct contact with respiratory secretions from infected person or carriers. Anal, vaginal, skin and pharyngeal carriers have been responsible for nosocomial outbreaks of serious Streptococcal infection, particularly following surgical procedures.		None	Restrict from patient care, contact with patient's environment, or food handling until 24 hours after effective treatment. In cases of postsurgical or postpartum infections with Group A streptococcal infection associates will be cultured as part of an outbreak investigation. Cultures from pharynx, rectum and vagina and skin lesions will be taken by Occupational Health. A positive culture will require treatment and relief from duty as deemed appropriate by the Infection Prevention investigation.

Disease/Condition	Mode of Transmission	Post Exposure	Vaccine	Work Restriction/Duration
Tuberculosis Exposed Associate	Airborne spread-Exposure to tubercle bacilli in airborne droplet nuclei 1-5 microns in diameter from infected person coughing sneezing or singing.	An exposure may exist when a patient diagnosed with active pulmonary M. tuberculosis is not in Airborne isolation. Exposure will be determined by Occupational Health and Infection Prevention based on circumstances of each individual situation. After confirmation of M. tuberculosis a TST screen will be given in 8-10 weeks from the exposure date. A chest x-ray is done if the skin test is positive. Employees who have a history of a positive TST should not receive a skin test but will be assessed for baseline TB symptoms. A chest x-ray will be done if the employee develops pulmonary symptoms which could indicate the possibility of TB.	None	No restriction for exposed employees. If the employee develops active TB the employee will not be permitted to work until a noninfectious state is established by the Occupational Health physician. Other appropriate specialist consults may be obtained for this determination. Work-up of other potentially exposed employees or patients will be done as outlined in the TB plan.
Varicella (susceptible personnel)	Person-person by direct contact, droplet or airborne spread of vesicle fluid or secretions of the respiratory tract, indirect contact by articles freshly soiled by discharges from vesicles	An exposure occurs when a susceptible associate is exposed to a patient that was diagnosed with chickenpox and not appropriately placed in Airborne and Contact isolation.	**Varivax Varicella vaccine is effective in preventing illness or modifying severity if used within 3 days and possibly up to 5 days of exposure VZV immune globulin should be considered and/or may be given to an exposed employee that is immunosuppressed depending on the level of immunosuppression	Active Disease: Exclude from duty until lesions are dry and crusted. Post exposure: Exclude from duty from 10th day after 1st exposure through 21st day (28th day if VZIG given) after last exposure
Zoster • Post-exposure (susceptible personnel)				Restrict from patient contact from 10th day after 1st exposure through 21st day (28th day if VZIG given) after last exposure or if varicella occurs until all lesions dry and crusted.

Hancock Regional Hospital

POLICY MANUAL INFECTION CONTROL	POLICY #: IC 8010 REV. DATE: 1/2023 PAGE 1 of 13
TITLE: Associate Illness and Work Restrictions	
DEPARTMENT(S): All Departments	
APPROVED: Craig Felty, RN, BSN MBA EFF. DATE: 1/2023	
POSITION: Vice President/CNO	

PURPOSE: To monitor for communicable diseases/infections/infestations among hospital associates that could be transmitted to susceptible patients, coworkers and visitors.
To meet mandates set forth by the Indiana Department of Health (IDOH) and accrediting agencies.

POLICY: All hospital associates are responsible for reporting infectious illnesses which may possibly be transmitted to co-workers, patients, visitors, etc., to their department Directors/Managers and/or Shift Supervisors. Directors/Managers and/or Shift Supervisors or the associate are responsible for reporting infectious illnesses to Employee Health Services (EHS) and according to the guidelines set forth below.

PROCEDURE:

Illness Reporting

1. COVID illness must be reported to Employee Health. Access to the form can be found under the managed bookmarks tab and on the Hancock Hub resources and references section **(COVID Illness Reporting Form).**

- All other illnesses should also be reported as required by IDOH and accrediting agencies Employee Health documentation requirements which is accessible under the managed bookmarks tab and on the Hancock Hub resources and references section **(Illness Reporting Form).**
Other illnesses can include but are not limited to conjunctivitis, cytomegalovirus, diarrheal diseases, diphtheria, enteroviral infections, hepatitis A, B, or C, herpes simplex, HIV/AIDS, influenza, lice, measles, meningitis, mumps, non-intact skin, pertussis, poison ivy, rubella, scabies, staphylococcus aureus or MRSA, streptococcal infection, tetanus, tuberculosis, varicella, zoster (shingles), and viral respiratory infections/ acute febrile.

  You must report your illness at the time of your symptoms.
  You can access these forms online even if you are not at work so that reporting can be done in a timely manner.

2. All associate health information is confidential, and disclosure of this information must be maintained according to hospital policy as outlined in the Administrative Manual, "HIPAA" section.

3. Associates should also report any known exposures to contagious diseases occurring on or off the job. Reporting should be made to Employee Health Services as soon as the exposure is suspected.

COVID test results (both positive and negative) should be sent at the time of testing to employeehealth@hancockregional.org.

- If you take an at home test, just simply email a picture to employeehealth@hancockregional.org
- Yes, we are still providing COVID tests for symptomatic associates who need a test
  (*You must have Employee Health authorization for a test and can obtain that by calling 317-468-4383 or 317-468-4319)*
- Yes, we are still required to report these results for our associates whether positive or negative

4. Some infectious diseases are known for their potential to cause serious problems in hospital settings, either by causing excess absenteeism among staff or healthcare associated infections among patients. These diseases/infections have been identified by the Centers for Disease Control and Prevention (CDC) and are listed in the attached table. Since these conditions may require some level of work restrictions, prophylaxis, or treatment for the affected associate(s) to prevent spread of infection, they must be reported to Infection Prevention Manager or designee as soon as they are identified.

5. Contact Occupational Health Service (OHS) and the Infection Prevention Director for any questions regarding work restrictions or potential risk. The OHS Medical Director will consult the Infection Prevention Director or Infection Prevention Committee Chair and/or the Infectious Disease specialist when indicated.

6. OHS and the Infection Prevention Director have authority to place work restrictions on ill associates or pull them from work according to CDC guidelines or the recommendation of the OHS Medical Director, Infection Prevention Committee Chair, or Infectious Disease Specialist.

7. OHS provides prompt diagnosis and management of job-related illnesses and provides appropriate post-exposure prophylaxis after job-related exposures.

8. EHS, OHS, and the Infection Prevention Director collaborate to identify trends, initiate appropriate action for potential problems and report findings to the Infection Prevention Committee.

9. Refer to Policy # IC 8009, Associate Illnesses: Non-Work Related, for guidelines regarding associates who come to work ill or become ill while working.

Table: 1 Summary of suggested work restrictions for health care personnel exposed to or infected with infectious disease of importance in health care settings.

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Conjunctivitis	**Contact**	**N/A**		**Restrict from patient contact and contact with the patient's environment** **Duration: Until discharge ceases**
Cytomegalovirus		**N/A**		**No Restriction**
COVID-19 (SARS Co-V2)	**Enhanced Droplet**	**Yes**		**Refer to IC 8007 Occupational Health Policy for Exposures and Illness related to COVID-19**
Diarrheal Diseases				
Acute Stage (diarrhea with other symptoms)	**Contact**			**Restrict from patient contact, contact with patient's environment or food handling** **Duration: Until symptoms resolve**
Convalescent Stage, Salmonella spp.	**Contact**			**Restrict from care of high risk patients (immune compromised, infants and neonates)** **Duration: Until symptoms resolve; consult with local and state health authorities regarding the need for negative stool cultures**
Diphtheria	**Contact with infected secretion**			**Exclude from duty until antimicrobial therapy is completed and 2 cultures**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
				obtained ≥ 24 hours apart are negative
Enteroviral Infections	**Contact with nose and throat discharge and feces**	**N/A**		**Restrict from care of infants, neonates and immune compromised patients and their environment** **Duration: Until symptoms resolve**
Hepatitis A	**Fecal-oral route**	**N/A**		**Restrict from patient contact, contact with the patients environment and food handling** **Duration: Until 7 days after onset of jaundice**
Hepatitis B				
Associate with acute or chronic Hepatitis B surface antigen who do not perform exposure-prone procedures	**Percutaneous and mucosal exposure to infected blood and body fluids or blood products/tissue**			**No restrictions refer to state regulations; standard precautions should always be observed.**
Associate with acute or chronic Hepatitis B e antigen who perform exposure-prone procedures				**Do no perform exposure – prone invasive procedure until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and technique of worker, refer to state regulations** **Duration: Until Hepatitis B e antigen is negative**
Hepatitis C	**Parentally transmitted from infected blood or body fluids**	**None**		**Do not perform exposure prone invasive procedures**
Herpes Simplex				
HSV2 Genital	**Genital**	**None**		**No restrictions**
Associates Hands (Herpetic Whitlow) HSV1	**Contact with infected salvia**	**None**		**Restrict from patient contact and contact with the patient's environment** **Duration: Until lesion is healed**
Orofacial	**Contact**	**None**		**Evaluate for need to restrict from care of high risk patient, immune compromised**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
				patients, pregnant patients or infants. Duration: Until lesion is gone
HIV/AIDS	Person to person sexual contact Parenterally from infected blood Infected tissues or organs			Do not perform exposure – prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and techniques of the worker; standard precaution should always be observed; refer to state regulations
Influenza	Droplets from respiratory secretions	Yes, annual		Follow current guidelines: Exclude from work until at least 24 hours after they no longer have a fever (without the use of fever-reducing medicines such as acetaminophen) Those with ongoing respiratory symptoms should be considered for evaluation by Occupational Health to determine appropriateness of contact with patients
Lice	Direct contact with infected person and objects used by them, especially shared clothing and head gear. Sexual contact for Crab Lice	None		Associate with Lice should receive treatment. Employees are restricted from patient care until after they have completed treatment and have been examined and found to be free of infestation by Occupational Health
Measles (Rubeola) Active	Airborne droplets from respiratory secretions	Yes, childhood vaccination		Exclude from duty Duration: Until 7 days after the rash appears
Post exposure (susceptible personnel)				Exclude from duty Duration: From 5th day after 1st exposure through 21st day after last exposure and/or 4 days after rash appears

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Meningitis Haemophilis H-Flu Bacterial Listeria Monocytogenes Pneumococcal Bacterial Any Other Bacterial Employee Exposure	**Droplet spread from oral or respiratory secretions:** **Exposure determination** **-Mouth to mouth resuscitation** **-Intensive unprotected contact (not wearing a mask) with an infected patient** **-Endotracheal intubation** **-Endotracheal tube management** **-Close examination of the oropharynx of the patient** **-Direct care for 8 hours or more**	**Yes, childhood immunization**		**Exclude from duty until 24 hours after completion of effective antibiotic therapy**
Meningitis Neisseria Meningitidis Menigitis Encephalitis Meningococcemia	**Droplet spread from oral or respiratory secretions:** **Exposure determination** **-Mouth to mouth resuscitation** **-Intensive unprotected contact (not wearing a mask) with an infected patient** **-Endotracheal intubation** **-Endotracheal tube management** **-Close examination of the**	**Yes, childhood/ young adult immunization**		**Exclude from duty until 24 hours after completion of effective antibiotic therapy**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
	oropharynx of the patient -Direct care for 8 hours or more			
Meningitis Viral (Aseptic)Meningitis	Fecal-Oral	None		None for exposed employees
Mumps	Droplet spread from direct contact with respiratory secretions of infected person			
Active Infection				Exclude from duty Duration: Until 9 days after onset of parotitis
Post-Exposure (susceptible personnel)				Exclude from duty Duration: From the 12th day after 1st exposure through 26th day after last exposure or until 9 days after onset of parotitis uration: From the 12th day after
Non-Intact Skin (from rash, laceration, scratch, stiches etc.)				Need to be evaluated by Occupational Health to determine if duties could place employee at risk of a secondary infection Employees positive for blood borne pathogens will be evaluated for the potential of transmitting infection to patients
Pertussis (Whooping cough)	Droplet spread from cough or sneeze or direct contact with respiratory secretions from the infected person	Yes-Tdap		

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Active Infection				**Exclude from duty** **Duration: Until 5 days after start of effective antimicrobial therapy**
Post exposure (asymptomatic personnel)				**No restrictions. Prophylaxis recommended**
Post exposure (symptomatic personnel)				**Exclude from duty** **Duration: Until 5 days after the start of effective antimicrobial therapy**
Poison Ivy	**Only transmitted from oil from plant**	**None**		**Exclude from duty if non intact skin**
Rubella	**Droplet spread by contact with nasopharngeal secretions of infected person**	**MMR**		

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Active Disease				**Exclude from duty** **Duration: Until 5 days after rash appears**
Post Exposure (susceptible personnel)				**Exclude from duty** **Duration: From7th days after first exposure through 21st day after last exposure**
Scabies	**Transmission requires prolonged intimate contact; transmission to personnel has occurred during activities such as sponge bathing or applying lotions. It is very rare that transmission occurs with fomites (indirect transmission.** **Symptoms Will occur between 1-6 weeks after exposure.** **Definitive diagnosis is from skin scapings although diagnosis can be suggested by the visual apprearance of burrows, usually on hands, wrist, and elbows**	**None**		**Associates are restricted from patient care until after they have completed treatment and have been examined and found to be free of infestation by Occupational Health. Itching may persist for up to 2 weeks after effective treatment for scabies.**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Staphylococcus aureus or MRSA Active , draining skin lesions	**Contact direct and indirect**		**None**	**Restrict from contact with patients and patient's environment or food handling until lesions have resolved.**
Carrier State				**No restriction unless personnel are epidemiologically linked to transmission of the organism.**
Streptococcal infection group A	**Large respiratory droplets or direct contact with patients or carriers.** **Anal, vaginal, skin and pharyngeal carriers have been responsible for nosocomial outbreaks of serious Streptococcal infection, particularly following surgical procedures.**		**None**	**Restrict from patient care, contact with patient's environment, or food handling** **Duration: Until 24 hours after effective treatment.** **In cases of postsurgical or postpartum infections with Group A Strep associates will be cultured as part of an outbreak investigation. Cultures from pharynx, rectum and vagina and skin lesions will be taken by Occupational Health. A positive culture will require treatment and relief from duty as deemed appropriate by the Infection Prevention investigation.**
Tetanus **Associate injury**	**Infectious agent is Clostridium tetani** **Tetanus spores are introduced into the body through a puncture wound that has been contaminated with soil or other debris.**		**Tetanus is given with the diphtheria and pertussis (T-dap) in case of injury.**	**None**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Tuberculosis **Exposed Associate**	**Airbone droplet nuclei (1-5 microneS) in diamete form infected person coughing and sneezing**		**After confirmation of M tuberculosis a Quantiferon blood test will be given in 8-10 weeks from the exposure date. A chest xray is done if the Quantiferon is positive or if the associate develops pulmonary symptoms which could lead to active TB**	**If the associate develops active TB the associate will not be permitted to work until a noninfectious state us established by the Occupational Health physician.** **Other appropriate specialist consults may be obtained for this determination. Work up of other potentially exposed associates will be done as outlined in the TB Plan**
Varicella	**Person to person by direct contact with vesicle fluid or secretions or by airborne from respiratory secretions. Inderect contact with articles freshly soiled by discharges from vesicles**	**Varivax**	**An exposure occurs when a patient is not placed in Airborne and Contact isolation and is diagnosed with chickenpox**	
Active infection				**Exclude from duty until all lesions are dry and crusted**
Post exposure (susceptible personnel)				**From 10th day after 1st exposure through 21st day (28th day if VZIG given) after last exposure**

Disease/Condition	Mode of Transmission	Vaccine		Work Restriction/Duration
Zoster (Shingles)		**Yes**		
Localized in healthy person	**Lower rate of transmission**			**Cover lesions; restrict from care of high risk patients (ICU, Immune compromised, infants, neonates)** **Duration: Until lesions are dry and crusted**
Generalized or localized in immunosuppressed person	**Same as varicella**			**Exclude from duty** **Duration: Until lesions are dry and crusted**
Post exposure (Susceptible personnel)				**Exclude from duty** **Duration From 10th day after 1st exposure through 21st day (28th days if VZIG given) after last exposure or if, varicella occurs, until all lesions are dry and crusted**
Viral respiratory infections, acute febrile	**Droplets from respiratory secretions**			**Consider excluding from the care of high risk patients (ICU, immunosuppressed, infants) or contact with their environment during community outbreaks of RSV and influenza.** **COVID Refer to IC 8007 Occupational Health Policy for Exposures and Illness Related to COVID-19** **Duration: Until acute symptoms resolve**

REFERENCE: CDC, "Guideline for Infection Control in Healthcare Personnel, 1998."

INITIATED: January 1994

REVISED: April 1996, 12/15/98, 2-23-99, 3/12/03, 2/16/05, 2/14/07, 3/10/10, 3/13/13, 4/28/2016, 1/2019, 3/2022, 1/2023

REVIEWED: 3/14/01

RECOMMENDED:

[signature] 3-7-23

Chairperson, Infection Prevention Committee **Date**

Kelly Manning RN, BSN, CIC, FAPIC 3/7/23

Infection Prevention Director **Date**

The ASRT Practice Standards for Medical Imaging and Radiation Therapy

Table of Contents

Preface

These practice standards serve as a guide for the medical imaging and radiation therapy profession. These standards define the practice and establish general criteria to determine compliance. Practice standards are authoritative statements established by the profession, through evidentiary documentation, for evaluating the quality of practice, service and education provided by individuals within the profession.

Practice standards can be used by individual facilities to develop job descriptions and practice parameters. Those outside the profession can use the standards as an overview of the role and responsibilities of individuals within the profession.

The medical imaging and radiation therapy professional and any individual who is legally authorized to perform medical imaging or radiation therapy must be educationally prepared and clinically competent as a prerequisite to professional practice. The individual should, consistent with all applicable legal requirements and restrictions, exercise individual thought, judgment and discretion in the performance of the procedure. Federal and state statutes, regulations, accreditation standards and institutional policies could dictate practice parameters and may supersede these standards.

Format

The ASRT Practice Standards for Medical Imaging and Radiation Therapy are divided into five sections:

- *Introduction* – defines the practice and the minimum qualifications for the education and certification of individuals in addition to an overview of the specific practice.
- *Medical Imaging and Radiation Therapy Scope of Practice* – delineates the parameters of the specific practice.
- *Standards* – incorporate patient assessment and management with procedural analysis, performance and evaluation. The standards define the activities of the individual responsible for the care of patients and delivery of medical imaging and radiation therapy procedures; in the technical areas of performance, such as equipment and material assessment safety standards and total quality management; and in the areas of education, interpersonal relationships, self-assessment and ethical behavior.
- *Advisory Opinion Statements* – provide explanations of the practice standards and are intended for clarification and guidance for specific practice issues.
- *Glossary* – defines terms used in the practice standards document.

The standards are numbered and followed by a term or set of terms that describes the standards. The next statement is the expected performance of the individual when performing the procedure or treatment. A rationale follows and explains why an individual should adhere to the particular standard of performance.

- *Criteria* – used to evaluate an individual's performance. Each standard is divided into two parts: the general criteria and the specific criteria. Both should be used when evaluating performance.
- *General Criteria* – written in a style that applies to medical imaging and radiation therapy professionals and should be used for the appropriate area of practice.

- *Specific Criteria* – meet the needs of the individuals in the various areas of professional performance. Although many areas of performance within medical imaging and radiation therapy are similar, others are not. The specific criteria were developed with these differences in mind.

Within this document, all organizations are referenced by their abbreviation and spelled out within the glossary.

Introduction

Definition

The medical imaging and radiation therapy profession comprises health care professionals identified as a bone densitometry technologist, cardiac-interventional and vascular-interventional technologist, computed tomography technologist, limited x-ray machine operator, magnetic resonance technologist, mammographer, medical dosimetrist, nuclear medicine technologist, quality management technologist, radiation therapist, radiographer, radiologist assistant or sonographer who are educationally prepared and clinically competent as identified by these standards.

Furthermore, these standards apply to health care employees who are legally authorized to perform medical imaging or radiation therapy and who are educationally prepared and clinically competent as identified by these standards.

The complex nature of disease processes involves multiple imaging modalities. Medical imaging and radiation therapy professionals are vital members of a multidisciplinary team that forms a core of highly trained health care professionals, who each bring expertise to the area of patient care. They play a critical role in the delivery of health services as new modalities emerge and the need for medical imaging and radiation therapy procedures increases.

Medical imaging and radiation therapy integrates scientific knowledge, technical competence and patient interaction skills to provide safe and accurate procedures with the highest regard to all aspects of patient care. A medical imaging and radiation therapy professional recognizes elements unique to each patient, which is essential for the successful completion of the procedure.

Medical imaging and radiation therapy professionals are the primary liaison between patients, licensed practitioners and other members of the support team. These professionals must remain sensitive to the needs of the patient through good communication, patient assessment, patient monitoring and patient care skills. As members of the health care team, medical imaging and radiation therapy professionals participate in quality improvement processes and continually assess their professional performance.

Medical imaging and radiation therapy professionals think critically and use independent, professional and ethical judgment in all aspects of their work. They engage in continuing education to include their area of practice to enhance patient care, safety, public education, knowledge and technical competence.

Bone Densitometry

The practice of bone densitometry is performed by health care professionals responsible for the administration of ionizing radiation for diagnostic, therapeutic or research purposes. A bone densitometry technologist performs bone densitometry procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Bone densitometry technologists independently perform or assist the licensed practitioner in the completion of densitometric procedures.

Cardiac-Interventional and Vascular-Interventional

The practice of cardiac-interventional and vascular-interventional is performed by health care professionals responsible for the administration of ionizing radiation for diagnostic, therapeutic or research purposes. A cardiac-interventional and vascular-interventional technologist performs radiographic, fluoroscopic and other procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Cardiac-interventional and vascular-interventional technologists independently perform or assist the licensed practitioner in the completion of cardiac-interventional and vascular-interventional procedures. Cardiac-interventional and vascular-interventional technologists prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

Computed Tomography

The practice of computed tomography is performed by health care professionals responsible for the administration of ionizing radiation for diagnostic, therapeutic or research purposes. A computed tomography technologist performs computed tomography and molecular imaging procedures and acquires and analyzes data needed for diagnosis, interpretation and the performance of interventional and therapeutic procedures at the request of and for interpretation by a licensed practitioner.

Computed tomography technologists independently perform or assist the licensed practitioner in the completion of computed tomography and molecular imaging procedures. Computed tomography technologists prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

Limited X-ray Machine Operator

The operation of x-ray equipment in a limited scope is performed by health care employees responsible for the administration of ionizing radiation for diagnostic purposes. A limited x-ray machine operator performs radiographic procedures within the limited scope of practice and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Limited x-ray machine operators are individuals other than a radiographer who perform static diagnostic radiographic images on selected anatomical sites. Limited x-ray machine operators perform their duties under the direction of a licensed practitioner, radiographer or, when indicated, a medical physicist.

Magnetic Resonance

The practice of magnetic resonance is performed by health care professionals responsible for the use of radiofrequencies within a magnetic field for diagnostic, therapeutic or research purposes. A magnetic resonance technologist performs magnetic resonance and molecular imaging procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Magnetic resonance technologists independently perform or assist the licensed practitioner in the completion of magnetic resonance and molecular imaging procedures. Magnetic resonance technologists prepare, administer and document activities related to medications in accordance with federal and state laws, regulations or lawful institutional policy.

Mammography

The practice of mammography is performed by health care professionals responsible for the administration of ionizing radiation and multi-frequency sound waves for diagnostic, therapeutic or research purposes. A mammographer performs breast imaging procedures and acquires and analyzes data, including mammographic and sonographic images needed for diagnosis, at the request of and for interpretation by a licensed practitioner.

Mammographers independently perform or assist the licensed practitioner in the completion of mammographic and sonographic breast imaging procedures. Mammographers prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

Medical Dosimetry

The practice of medical dosimetry is performed by health care professionals responsible for designing a treatment plan for use in the administration of ionizing radiation for the purpose of treating diseases, primarily cancer. Medical dosimetrists independently perform duties and complete responsibilities under the supervision of qualified medical physicists and radiation oncologists. Medical dosimetrists generate an optimal treatment plan and ensure the appropriate transfer of data that the radiation therapist will use to treat the patient. Medical dosimetrists maintain a commitment to a high degree of accuracy, thoroughness and safety.

Medical dosimetrists must maintain a high degree of accuracy in treatment planning optimization, treatment techniques and positioning. Medical dosimetrists assist the radiation oncologist in localizing the treatment area, generate a treatment plan and communicate with the radiation oncology team to enable and ensure the appropriate transfer of information.

Nuclear Medicine

The practice of nuclear medicine is performed by health care professionals responsible for the administration of ionizing radiation (radioactive material and computed tomography), nonionizing radiation and adjunctive medications for diagnostic, therapeutic, radiotheranostics or research purposes. Radioactive materials, medications and imaging and nonimaging equipment are used in nuclear medicine and molecular imaging to study various organs, body systems and samples to aid in the diagnosis, treatment, radiotheranostics and treatment planning of various pathological conditions. A nuclear medicine technologist performs nuclear medicine and molecular imaging procedures, radiotheranostics or therapies, and acquires and analyzes data at the request of and for interpretation by a licensed practitioner and under the supervision of an authorized user. Nuclear medicine technologists also administer the prescribed radionuclide therapy to the patient at the request and under the supervision of an authorized user.

Nuclear medicine technologists independently perform or assist the licensed practitioner and authorized user in the completion of nuclear medicine and molecular imaging procedures, radiotheranostics and treatments. Nuclear medicine technologists prepare, administer and document activities related to ionizing radiation (radioactive material and computed tomography), nonionizing radiation, medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

Quality Management

The practice of quality management is performed by health care professionals responsible for the identification, measurement, control and improvement of the various core processes that will ultimately lead to improved medical imaging and radiation therapy department performance.

Today's medical imaging and radiation therapy departments involve multiple modalities, creating an interdisciplinary team. The quality management technologist is a member of the health care team, which includes clinicians, management, support staff and customers.

Quality management has four main components: quality planning, quality control, quality assurance and quality improvement. Quality management focuses on the means to achieve image and service quality. A quality management technologist combines all of these components to ensure efficient and effective patient care.

Quality management technologists independently perform or assist the medical physicist in the completion of quality control procedures. Quality management technologists prepare, administer and document activities related to all facets of quality management in accordance with federal and state laws, regulations or lawful institutional policy.

Radiation Therapy

The practice of radiation therapy is performed by health care professionals responsible for the administration of high doses of ionizing radiation for the purpose of treating diseases, primarily cancer. A radiation therapist acquires and analyzes data in preparation for patient treatment, uses various imaging technologies to localize the treatment area, participates in treatment planning and performs radiation therapy procedures as prescribed and supervised by a radiation oncologist.

Radiation therapists are the primary liaison between patients and other members of the radiation oncology team. They also provide a link to other health care providers, such as social workers and dietitians. Radiation therapists must remain sensitive to the needs of the patient through good communication, patient assessment, patient monitoring and patient care skills. Radiation therapy often involves daily treatments extending over several weeks using highly sophisticated equipment. It requires thorough initial planning as well as constant patient care and monitoring.

Radiography

The practice of radiography is performed by health care professionals responsible for the administration of ionizing radiation for diagnostic, therapeutic or research purposes. A radiographer performs a full scope of radiographic and fluoroscopic procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Radiographers independently perform or assist the licensed practitioner in the completion of radiographic and fluoroscopic procedures. Radiographers prepare, administer and document activities related to medications and radiation exposure in accordance with federal and state laws, regulations or lawful institutional policy.

Radiologist Assistant

A radiologist assistant is an advanced-practice radiographer who practices under the supervision of a radiologist and enhances patient care in radiology services. As a member of the radiologist-directed team, the radiologist assistant performs invasive and noninvasive procedures at the request of and for interpretation by a licensed practitioner.

Radiologist assistants act as liaisons between patients, radiographers, radiologists and other members of the health care team. Radiologist assistants remain sensitive to the physical, cultural and emotional needs of patients through good communication, comprehensive patient assessment, continuous patient monitoring and advanced patient care skills.

Radiologist assistants maintain their radiographer credentials; therefore, both the radiologist assistant and radiography sections of the practice standards should be consulted when seeking practice information for the radiologist assistant. The clinical activities are delegated by the supervising radiologist in accordance with federal and state laws, regulations and lawful institutional policies.

Sonography

The practice of sonography is performed by health care professionals responsible for the administration of multi-frequency sound waves and other techniques for diagnostic, therapeutic or research purposes. A sonographer performs sonographic and molecular imaging procedures and acquires and analyzes data needed for diagnosis at the request of and for interpretation by a licensed practitioner.

Sonographers independently perform or assist the licensed practitioner in the completion of sonographic and molecular imaging procedures. Sonographers prepare, administer and document activities related to medications in accordance with federal and state laws, regulations or lawful institutional policy.

Education and Certification

The individual must be educationally prepared and clinically competent as a prerequisite to professional practice. Only medical imaging and radiation therapy professionals who have completed the appropriate education and training as outlined in these standards should perform medical imaging and radiation therapy procedures.

Medical imaging and radiation therapy professionals performing multiple modality hybrid imaging should be registered by certification agencies recognized by the ASRT and be educationally prepared and clinically competent in the specific modality(ies) they are responsible to perform. Medical imaging and radiation therapy professionals performing diagnostic procedures in more than one imaging modality will adhere to the general and specific criteria for each area of practice.

To maintain certification(s), medical imaging and radiation therapy professionals must complete appropriate continuing education requirements to sustain their expertise and awareness of changes and advances in practice.

Bone Densitometry

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform bone densitometry procedures.

Bone densitometry technologists prepare for their roles on the interdisciplinary team by meeting postprimary examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT bone densitometry postprimary examination use the additional credential (BD).

The ISCD is another certifying agency. Individuals with a primary medical imaging or radiation therapy certification who have passed the ISCD certified bone densitometry technologist examination use the additional credential CBDT.

Cardiac-Interventional and Vascular-Interventional

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform cardiac-interventional and vascular-interventional procedures.

Cardiac-interventional and vascular-interventional technologists prepare for their roles on the interdisciplinary team by meeting postprimary examination eligibility criteria as determined by the ARRT or CCI.

Those who have passed the ARRT cardiac-interventional, cardiovascular-interventional or vascular-interventional radiography postprimary examinations use the additional credentials (CI), (CV) or (VI), respectively.

CCI is another certifying agency. Individuals with primary certification in radiography who have passed the CCI cardiovascular invasive specialist examination as a postprimary certification use the additional credential RCIS.

Computed Tomography

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform computed tomography and molecular imaging procedures.

Computed tomography technologists prepare for their roles on the interdisciplinary team by meeting postprimary examination eligibility criteria as determined by the ARRT or NMTCB.

Those who have passed the ARRT or NMTCB computed tomography postprimary examination use the additional credential (CT).

Limited X-ray Machine Operator

Limited x-ray machine operators prepare for their roles on the interdisciplinary team in several ways. Various education and training programs for limited x-ray machine operators exist throughout the United States.

Many states require the completion of a program of study prior to administering a state licensure exam for limited x-ray machine operators. Several states use some or all of the Limited Scope of Practice in Radiography state licensing exams developed by the ARRT. States that administer an exam and issue a license or certification may use various terminologies to designate a limited x-ray machine operator. Limited x-ray machine operators shall only perform ionizing radiation procedures within their limited scope of practice.

Magnetic Resonance

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform magnetic resonance and molecular imaging procedures.

Magnetic resonance technologists prepare for their role on the interdisciplinary team by meeting primary or postprimary examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT magnetic resonance primary examination use the credential R.T.(MR).

Those who have passed the ARRT magnetic resonance postprimary examination use the additional credential (MR).

Mammography

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform mammography and breast sonography procedures.

Mammographers prepare for their roles on the interdisciplinary team by meeting postprimary examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT mammography postprimary examination use the additional credential (M).

Those who have passed the ARRT breast sonography postprimary examination use the additional credential (BS).

Medical Dosimetry

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform medical dosimetry procedures.

Medical dosimetrists prepare for their roles on the interdisciplinary team by meeting the examination eligibility criteria established by the MDCB.

Those who have passed the medical dosimetry examination use the credential CMD.

Nuclear Medicine

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform nuclear medicine and molecular imaging procedures, radiotheranostics or therapies.

Nuclear medicine technologists prepare for their roles on the interdisciplinary team by meeting examination eligibility criteria as determined by the ARRT or NMTCB.

Those who have passed the ARRT examination use the credential R.T.(N).

Those who have passed the NMTCB examination use the credential CNMT.

Those who have passed the NMTCB nuclear cardiology, positron emission tomography or radiation safety specialty examinations use the additional credentials NCT, PET or NMTCB (RS), respectively.

Quality Management

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform quality management procedures.

Quality management technologists prepare for their roles on the interdisciplinary team by meeting postprimary examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT quality management postprimary examination use the additional credential (QM).

HQCC is another certifying agency. Individuals with a primary medical imaging or radiation therapy certification who have passed the Certified Professional in Healthcare Quality examination use the additional credential CPHQ.

Radiation Therapy

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform radiation therapy procedures.

Radiation therapists prepare for their roles on the interdisciplinary team by meeting examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT radiation therapy examination use the credential R.T.(T).

Radiography

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform radiographic and fluoroscopic procedures.

Radiographers prepare for their roles on the interdisciplinary team by meeting examination eligibility criteria as determined by the ARRT.

Those who have passed the ARRT radiography examination use the credential R.T.(R).

Radiologist Assistant

Only radiographers who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform radiologist assistant procedures.

Radiologist assistants prepare for their roles as advanced-practice radiographers in medical imaging by meeting examination eligibility criteria as determined by the ARRT.

Those who have passed the registered radiologist assistant examination use the additional credential R.R.A.

Sonography

Only medical imaging and radiation therapy professionals who have completed the appropriate education and obtained certification(s) as outlined in these standards should perform sonographic and molecular imaging procedures.

Sonographers prepare for their roles on the interdisciplinary team by meeting primary or postprimary examination eligibility criteria as determined by the ARDMS, ARRT or CCI.

Those who have passed the ARDMS examination(s) use the credentials RDCS, RDMS, RMSKS or RVT.

Those who have passed the ARRT primary examination use the credential R.T.(S) or R.T.(VS).

Those who have passed the CCI examination(s) use the credentials RCCS, RCS, RPhS or RVS.

Those who have passed the ARRT breast sonography, sonography or vascular sonography postprimary examinations use the additional credentials (BS), (S) or (VS), respectively.

Medical Imaging and Radiation Therapy Scope of Practice

Scopes of practice delineate the parameters of practice and identify the boundaries for practice. A comprehensive procedure list for the medical imaging and radiation therapy professional is impractical because clinical activities vary by the practice needs and expertise of the individual. As medical imaging and radiation therapy professionals gain more experience, knowledge and clinical competence, the clinical activities may evolve.

The scope of practice of the medical imaging and radiation therapy professional includes:

- Administering medications enterally, parenterally, through new or existing vascular or through other routes as prescribed by a licensed practitioner.*†
- Administering medications with an infusion pump or power injector as prescribed by a licensed practitioner.*†
- Applying principles of ALARA to minimize exposure to patient, self and others.
- Applying principles of patient safety during all aspects of patient care.
- Assisting in maintaining medical records while respecting confidentiality and established policy.
- Corroborating a patient's clinical history with the procedure and ensuring information is documented and available for use by a licensed practitioner.
- Educating and monitoring students and other health care providers.*
- Evaluating images for proper positioning and determining if additional images will improve the procedure or treatment outcome.
- Evaluating images for technical quality and ensuring proper identification is recorded.
- Identifying and responding to emergency situations.
- Identifying, calculating, compounding, preparing and/or administering medications as prescribed by a licensed practitioner.*†
- Performing ongoing quality assurance activities.
- Performing venipuncture as prescribed by a licensed practitioner.*†
- Postprocessing data.
- Preparing patients for procedures.
- Providing education.
- Providing input for equipment and software purchase and supply decisions when appropriate or requested.
- Providing optimal patient care.
- Receiving, relaying and documenting verbal, written and electronic orders in the patient's medical record.
- Selecting the appropriate protocol and optimizing technical factors while maximizing patient safety.
- Starting, maintaining and/or removing intravenous access as prescribed by a licensed practitioner.*†
- Verifying archival storage of data.
- Verifying informed consent for applicable procedures.*

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Bone Densitometry

- Performing bone densitometry procedures as prescribed by a licensed practitioner.

Cardiac-Interventional and Vascular-Interventional

- Assisting licensed practitioner with fluoroscopic and specialized interventional radiography procedures.
- Maintaining intra-arterial access as prescribed by a licensed practitioner.
- Panning the procedure table during image production.
- Participating in physiologic monitoring of patients.
- Performing diagnostic/interventional procedures as prescribed by a licensed practitioner.
- Performing manual and mechanical hemostasis, including the use of vascular closure devices, as prescribed by a licensed practitioner.
- Performing noninterpretive fluoroscopic procedures as prescribed by a licensed practitioner.
- Placing, maintaining and removing peripherally inserted central catheters as prescribed by a licensed practitioner.

Computed Tomography

- Assisting a licensed practitioner with interventional computed tomography procedures.
- Performing computed tomography and molecular imaging procedures as prescribed by a licensed practitioner.

Limited X-ray Machine Operator

- Assisting a licensed practitioner or radiographer during static radiographic procedures.
- Performing diagnostic radiographic procedures within the limited scope of practice as prescribed by a licensed practitioner.

Magnetic Resonance

- Applying principles of magnetic resonance safety to minimize risk to patient, self and others.
- Assisting the licensed practitioner with magnetic resonance interventional procedures.
- Performing magnetic resonance and molecular imaging procedures as prescribed by a licensed practitioner.
- Selecting appropriate pulse sequences with consideration given to established protocols and other factors influencing data acquisition parameters.

Mammography

- Imaging pathologic breast specimens as prescribed by a licensed practitioner.
- Performing breast ultrasound procedures as prescribed by a licensed practitioner.
- Performing mammographic procedures per facility policy or as prescribed by a licensed practitioner.
- Performing or assisting with clinical breast examination.

Medical Dosimetry

- Designing and generating optimal treatment plans in collaboration with a radiation oncologist.
- Evaluating treatment plans for accuracy.
- Monitoring doses to normal tissues within the irradiated volume to ensure tolerance levels are not exceeded.
- Obtaining and incorporating patient data from medical imaging procedures or manual methods to be used in simulation, treatment planning, treatment delivery and quality assurance.
- Participating in brachytherapy treatment planning and delivery.
- Participating in simulation under the supervision of a radiation oncologist.
- Performing dosimetric calculations.
- Performing or assisting with the fabrication of patient immobilization and other treatment devices.
- Transferring and documenting treatment planning data according to departmental policy.

Nuclear Medicine

- Applying principles of magnetic resonance safety to minimize risk to patient, self and others when performing PET-MR.
- Assembling, calibrating, maintaining, eluting and administering radiopharmaceuticals from the radionuclide infusion system and the generator while complying with standards and as prescribed by a licensed practitioner and under the supervision of an authorized user.
- Performing hybrid imaging, including PET-CT, PET-MR and SPECT-CT for emission, transmission, attenuation correction, anatomical location and for use in radiation therapy treatment planning when performed within hybrid imaging as prescribed by a licensed practitioner and under the supervision of an authorized user.
- Performing nuclear medicine and molecular imaging procedures, radiotheranostics or therapies as prescribed by a licensed practitioner and under the supervision of an authorized user.
- Procuring, identifying, calculating, preparing and/or administering ionizing radiation (radioactive material and computed tomography) and nonionizing radiation as prescribed by a licensed practitioner and under the supervision of an authorized user.

Quality Management

- Coordinating, performing and monitoring quality control procedures for all types of equipment.
- Creating policies and procedures to meet regulatory, accreditation and fiscal requirements.
- Ensuring adherence to accreditation, federal, state and local regulatory requirements.
- Facilitating change through appropriate management processes.
- Facilitating performance improvement processes.
- Facilitating the department's quality assessment and improvement plan.
- Monitoring exposure factors and/or procedural protocols in accordance with ALARA principles and age-specific considerations.
- Performing physics surveys independently on general radiographic and fluoroscopic equipment, with medical physicist oversight.
- Providing assistance to staff for image optimization, including patient positioning, proper equipment use and image critique.
- Providing practical information regarding techniques and tools for process improvement.
- Serving as a resource regarding regulatory, accreditation and fiscal requirements.
- Supporting and assisting a medical physicist with modality physics surveys.

Radiation Therapy

- Constructing/preparing immobilization, beam directional and beam-modification devices.
- Delivering radiation therapy treatments as prescribed by a radiation oncologist.
- Detecting and reporting significant changes in patients' conditions and determining when to withhold treatment until the radiation oncologist is consulted.
- Monitoring doses to normal tissues within the irradiated volume to ensure tolerance levels are not exceeded.
- Participating in brachytherapy procedures.
- Performing simulation, localization, treatment planning procedures and dosimetric calculations as prescribed by a radiation oncologist.
- Using imaging technologies for the explicit purpose of simulation, treatment planning and treatment delivery as prescribed by a radiation oncologist.

Radiography

- Assisting the licensed practitioner with fluoroscopic and specialized radiologic procedures.
- Performing diagnostic radiographic and noninterpretive fluoroscopic procedures as prescribed by a licensed practitioner.

Radiologist Assistant

- Assessing, monitoring and managing patient status, including patients under minimal and moderate sedation.
- Assisting with data collection and review for clinical trials or other research.
- Communicating the supervising radiologist's report to the appropriate health care provider consistent with the ACR Practice Guidelines for Communication of Diagnostic Imaging Findings.
- Completing patient history and physical.
- Emphasizing patient safety and verifying procedure appropriateness by analyzing and incorporating evidenced-based practices for optimal patient care.
- Evaluating images for completeness and diagnostic quality and recommending additional images.
- Obtaining images necessary for diagnosis and communicating initial observations to the supervising radiologist. The radiologist assistant does not provide image interpretation as defined by the ACR.
- Participating in or obtaining informed consent.
- Participating in quality assurance activities within the radiology practice.
- Performing or assisting with invasive or noninvasive imaging procedures as delegated by the radiologist who is licensed to practice and has privileges for the procedure being performed by the radiologist assistant.
- Providing follow-up patient evaluation.
- Reviewing variances identified through preprocedural evaluation that may influence the expected outcome with the supervising radiologist prior to the procedure.

Sonography

- Collaborating with a licensed practitioner in the performance of sonographic interventional procedures.
- Ensuring equipment parameters for diagnostic and interventional procedures are of optimal technical and administrative quality as requested by a licensed practitioner.
- Performing diagnostic, interventional and molecular imaging sonographic procedures as prescribed by a licensed practitioner or during appropriate educational activities.

Standards

Standard One – Assessment

The medical imaging and radiation therapy professional collects pertinent data about the patient, procedure, equipment and work environment.

Rationale
Information about the patient's health status is essential in providing appropriate imaging and therapeutic services. The planning and provision of safe and effective medical services relies on the collection of pertinent information about equipment, procedures and the work environment.

The medical imaging and radiation therapy professional:

General Criteria

- Assesses and maintains the integrity of medical supplies.
- Assesses any potential patient limitations for the procedure.
- Assesses factors that may affect the procedure.
- Assesses patient lab values, medication list and risk for allergic reaction(s) prior to procedure and administration of medication.*†
- Confirms that equipment performance, maintenance and operation comply with the manufacturer's specifications.
- Determines that services are performed in a safe environment, minimizing potential hazards.
- Maintains restricted access to controlled areas.
- Obtains and reviews relevant previous procedures and information from all available resources and the release of information as needed.
- Participates in ALARA, patient and personnel safety, risk management and quality assurance activities.
- Recognizes signs and symptoms of an emergency.
- Verifies appropriateness of the requested or prescribed procedure, in compliance with the clinical indication and protocol.
- Verifies patient identification.
- Verifies that protocol and procedure manuals include recommended criteria and are reviewed and revised.
- Verifies that the patient has consented to the procedure.
- Verifies the patient's pregnancy status.

Specific Criteria

Bone Densitometry

- Assesses patient compliance with prescribed treatment as it relates to the procedure.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Computed Tomography

- Verifies that a registered technologist is physically present at the CT console to perform a remote CT procedure.

Limited X-ray Machine Operator

- Develops and maintains standardized exposure technique guidelines for all equipment.
- Maintains and performs quality control on radiation safety equipment.

Magnetic Resonance

- Assesses patient for factors that may contribute to anxiety or claustrophobia.
- Identifies and removes items that may affect patient's safety, damage the equipment or affect the image quality.
- Screens patient and others for potential magnetic resonance contraindications, either within the body or on their person, prior to entering the magnet room.

Mammography

- Assesses the need for alternative procedures based on the patient's age, hormonal status and the presence of surgical implants.
- Assists in setting policy and procedures in the facility to meet certification and accreditation standards specific to breast imaging.
- Establishes all required quality assurance and quality control test criteria.

Medical Dosimetry

- Assesses the patient's need for information and reassurance.
- Reviews patient history for previous therapeutic treatments.

Nuclear Medicine

- Complies with regulations and federal and state laws to minimize radiation exposure levels.
- Maintains and performs quality control on radiation safety equipment, radionuclide infusion systems and generators according to regulatory agencies.
- Identifies and removes items that may affect patient's safety, damage the equipment or affect the image quality when performing PET-MR.
- Performs area monitoring and surveys to assess radiation exposure levels and contamination sites.
- Reviews theranostic protocol criteria and assesses contraindications and conditions that may affect the therapy.
- Screens patient and others for potential magnetic resonance contraindications, either within the body or on their person, prior to entering the magnet room when performing PET-MR.
- Verifies the patient's lactation or breastfeeding status.
- Verifies the patient's menstrual cycle.

Quality Management

- Assesses policies, protocols and guidelines to improve safety, efficiency and patient care, and identify the potential impact to the facility.
- Identifies the customers served by medical imaging and radiation therapy.
- Identifies the processes used in customer service.

Radiation Therapy

- Assesses the patient's need for information and reassurance.
- Identifies and/or removes objects that could interfere with prescribed treatment.
- Inspects beam modifying and immobilization devices prior to use.
- Monitors and assesses patients throughout the treatment course and follow-up visits.
- Monitors doses to normal tissues.
- Monitors side effects and reactions to treatment.
- Monitors treatment unit operation during use.
- Recognizes the patient's need for referral to other care providers, such as a social worker, nurse or dietitian.
- Reviews beam shaping devices prior to treatment delivery.
- Reviews treatment protocol criteria and assesses conditions affecting treatment delivery.
- Reviews treatment record prior to treatment or simulation.

Radiography

- Develops and maintains standardized exposure technique guidelines for all equipment.
- Maintains and performs quality control on radiation safety equipment.

Radiologist Assistant

- Assesses the patient's level of anxiety and pain and informs the supervising radiologist.
- Interviews patient to obtain, verify and update medical history.
- Observes and assesses a patient who has received minimal and moderate sedation.
- Performs and documents a radiology-focused physical examination, analyzes data and reports findings to the supervising radiologist.

Sonography

Refer to general criteria.

Standard Two – Analysis/Determination

The medical imaging and radiation therapy professional analyzes the information obtained during the assessment phase and develops an action plan for completing the procedure.

Rationale
Determining the most appropriate action plan enhances patient safety and comfort, optimizes diagnostic and therapeutic quality and improves efficiency.

The medical imaging and radiation therapy professional:

General Criteria

- Consults appropriate medical personnel to determine a modified action plan.
- Determines that all procedural requirements are in place to achieve a quality procedure.
- Determines the appropriate type and dose of contrast media to be administered based on established protocols.*†
- Determines the course of action for an emergent situation.
- Determines the need for and selects supplies, accessory equipment, shielding, positioning and immobilization devices.
- Develops methods for minimizing hazards associated with medical imaging and radiation therapy procedures.
- Employs professional judgment to adapt procedures to improve diagnostic quality or therapeutic outcomes.
- Evaluates and monitors services, procedures, equipment and the environment to determine if they meet or exceed established guidelines, and revises the action plan.
- Selects the most appropriate and efficient action plan after reviewing all pertinent data and assessing the patient's abilities and condition.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

- Analyzes and determines action plans in conjunction with the cardiovascular team.

Computed Tomography

- Reviews the patient's medical record and the licensed practitioner's request to determine optimal scanning protocol for clinical indication.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Limited X-ray Machine Operator

- Develops, maintains and makes available optimal exposure technique guidelines for all radiographic equipment.

Magnetic Resonance

- Reviews the patient's medical record and licensed practitioner's request to determine optimal imaging parameters for clinical indications.
- Selects appropriate imaging coil.

Mammography

Refer to general criteria.

Medical Dosimetry

- Gathers and analyzes pertinent data relevant to the treatment planning and delivery process.
- Participates in reviewing patient treatment parameters and dose records to ensure treatment does not exceed the prescribed dose or normal tissue tolerances.
- Recommends the appropriate immobilization devices and positioning aids for simulation and treatment.
- Recommends when to hold treatment until a radiation oncologist is notified.
- Reviews the treatment record and verifies calculations before and/or after treatment delivery.
- Verifies the treatment summary and the mathematical accuracy of the prescription.

Nuclear Medicine

- Determines radiopharmaceutical dosage based on protocol, patient's age, weight, medical and physical status.
- Evaluates results of quality control testing on radioactive material.
- Reviews the patient's medical record and the examination request to determine optimal procedure parameters for clinical indications.
- Selects appropriate data acquisition equipment and accessories to perform the procedure.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Quality Management

- Assesses and prioritizes the current processes to improve quality while focusing on issues needing immediate response.
- Assesses proposed changes to minimize organizational disruption during implementation.
- Clarifies current steps in a process to minimize redundancy, reordering and improving service flow.
- Creates an effective action plan after reviewing all pertinent data while assessing possible options, fiscal impact and ease of implementation.
- Develops monitoring metrics.
- Establishes benchmarks and quality indicators to assess quality management issues.
- Monitors and develops methods to improve customer satisfaction.

Radiation Therapy

- Determines when to contact the radiation oncologist or licensed practitioner regarding patient side effects or questions.
- Determines when to withhold treatment until a radiation oncologist is contacted.
- Ensures the appropriate imaging technique is chosen for image-guided radiation therapy procedures.
- Participates in decisions about appropriate simulation techniques and treatment positions.
- Reviews doses daily to ensure that treatment does not exceed prescribed dose, normal tissue tolerance or treatment protocol constraints.
- Reviews patient treatment plan and prescription prior to initial treatment delivery.
- Reviews patient treatment records prior to each treatment for prescription or treatment procedure changes.
- Reviews treatment record, calculations and/or treatment plan for accuracy prior to treatment delivery.
- Reviews verification images prior to treatment.
- Verifies the mathematical accuracy of the prescription and the daily treatment summary.
- Verifies treatment planning and machine quality assurance has been performed prior to each treatment.

Radiography

- Develops, maintains and makes available optimal exposure technique guidelines for all radiographic and fluoroscopic equipment.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Radiologist Assistant

- Reviews the patient's medical record and the licensed practitioner's request to determine optimal imaging procedure for clinical indications.

Sonography

- Monitors the patient's need for information and reassurance throughout the procedure.
- Selects appropriate equipment and scanning techniques to optimize the procedure.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Standard Three – Education

The medical imaging and radiation therapy professional provides information about the procedure and related health issues according to protocol; informs the patient, public and other health care providers about procedures, equipment and facilities; and acquires and maintains current knowledge in practice.

Rationale
Education and communication are necessary to establish a positive relationship and promote safe practices. Advancements in the profession and optimal patient care require additional knowledge and skills through education.

The medical imaging and radiation therapy professional:

General Criteria

- Advocates for and participates in continuing education related to area of practice to maintain and enhance clinical competency.
- Advocates for and participates in vendor specific applications training to maintain clinical competency.
- Educates the patient, public and other health care providers about procedures, the associated biological effects and radiation protection.
- Elicits confidence and cooperation from the patient, the public and other health care providers by providing timely communication and effective instruction.
- Explains effects and potential side effects of medications.*†
- Maintains credentials and certification related to practice.
- Maintains knowledge of the most current practices and technology used to optimize patient exposure while producing quality images.
- Provides accurate explanations and instructions at an appropriate time and at a level the patient and their care providers can understand; addresses questions and concerns regarding the procedure.
- Provides information on certification or accreditation to the patient, other health care providers and the public.
- Provides information to patients, health care providers, students and the public concerning the role and responsibilities of individuals in the profession.
- Provides pre-, peri- and post-procedure education.
- Refers questions about diagnosis, treatment or prognosis to a licensed practitioner.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

- Maintains competency in the use of diagnostic and interventional devices.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

- Provides magnetic resonance safety education to patient, health care providers and others.

Mammography

- Displays MQSA certificate(s) of compliance.
- Educates the patient about the need for adequate compression to achieve a quality mammogram and instructs the patient to communicate if the compression becomes intolerable.
- Educates the patient about the risk factors for breast cancer and the benefits of early detection.
- Educates the patient about the value and use of additional projections and alternative breast imaging procedures.

Medical Dosimetry

- Explains the role and function of the medical dosimetrist in the overall treatment course.
- Reviews the treatment plan with the patient as requested by a radiation oncologist.

Nuclear Medicine

- Ensures radiation safety instruction information and limitations are provided to the patient and others during and following radiotheranostics and therapeutic procedures.
- Provides instruction to the patient and others regarding the reduction of radiation exposure during and after the procedure.
- Provides magnetic resonance safety education to patient, health care providers and others when performing PET-MR.

Quality Management

Refer to general criteria.

Radiation Therapy

- Anticipates a patient's need for information and provides it throughout the treatment course.
- Instructs other health care providers about radiation protection procedures.
- Instructs patient in the maintenance of treatment markings.
- Provides information and instruction on proper skin care, diet and self-care procedures.

Radiography

Refer to general criteria.

Radiologist Assistant

- Provides precare and postcare instructions to the patient under the supervision of a radiologist.

Sonography

- Educates patients and other health care professionals of the potential exposure risks associated with nonmedical entrepreneurial or entertainment 2D/3D/4D sonographic procedures.
- Educates patients and other health care professionals that the use of 2D/3D/4D sonography for nonmedical entrepreneurial or entertainment purposes is an unethical practice.

Standard Four – Performance

The medical imaging and radiation therapy professional performs the action plan and quality assurance activities.

Rationale
Quality patient services are provided through the safe and accurate performance of a deliberate plan of action. Quality assurance activities provide valid and reliable information regarding the performance of equipment, materials and processes.

The medical imaging and radiation therapy professional:

General Criteria

- Adheres to radiation safety rules and standards.
- Administers contrast media and other medications only when a licensed practitioner is immediately available to ensure proper diagnosis and treatment of adverse events.*†
- Administers first aid or provides life support.†
- Applies principles of aseptic technique.†
- Assesses and monitors the patient's physical, emotional and mental status.
- Consults with medical physicist or engineer in performing and documenting quality control tests and in reviewing of quality assurance.
- Explains to the patient each step of the action plan as it occurs and elicits the cooperation of the patient.
- Immobilizes patient for procedure.
- Implements an action plan.
- Maintains current information on equipment, materials and processes.
- Modifies the action plan according to changes in the clinical situation.
- Monitors the patient for reactions to medications.*†
- Participates in safety and risk management activities.
- Performs ongoing quality assurance activities and quality control testing.
- Performs procedural timeout.
- Positions patient for anatomic area of interest, respecting patient ability and comfort.
- Uses accessory equipment.
- Uses an integrated team approach.
- When appropriate, uses personnel radiation monitoring device(s) as indicated by the RSO or designee.
- Works aseptically in the appropriate environment while preparing, compounding and dispensing sterile and nonsterile medication.*†

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Specific Criteria

Bone Densitometry

- Applies the concepts of accuracy and precision in bone densitometry.
- Confirms patient position matches the selected scan parameters.
- Scans alternate sites when indicated.

Cardiac-Interventional and Vascular-Interventional

- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Monitors ECG, blood pressure, respiration, oxygen saturation, level of consciousness and pain pre-, peri- and post-procedure.

Computed Tomography

- Adheres to protocol scan length to optimize patient dose.
- Confirms patient position matches the selected scanning orientation parameters.
- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Determines optimum placement of ECG electrodes and correctly identifies ECG wave trigger.
- Optimizes technical factors to minimize radiation exposure to the patient while maintaining diagnostic image quality.
- Performs a remote CT procedure when a registered technologist is physically present with the patient.
- Uses radiation shielding devices.
- Utilizes isocentering of the anatomy of interest to optimize dose.

Limited X-ray Machine Operator

- Reviews patient exposure records and reject analyses as part of the quality assurance program.
- Uses appropriate uniquely identifiable pre-exposure radiopaque markers for anatomical and procedural purposes.
- Uses pre-exposure collimation and proper field-of-view selection.

Magnetic Resonance

- Ensures that anyone who is pregnant is not in the magnetic resonance scanner bore or scan room during actual data acquisition or scanning, unless medically necessary.
- Identifies appropriate cardiac or respiratory triggers.
- Monitors the patient's specific absorption rate and other factors related to patient heating.
- Positions imaging coil.
- Provides hearing protection to patient and others.
- Uses appropriate positioning and/or insulation materials to protect the patient from excessive heating and burns.

Mammography

- Applies appropriate radiopaque markers to the breast to indicate anatomic landmarks, including nipples, scars and lumps.
- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Ensures correct annotation of images.
- Exercises clinical judgment in the application of adequate compression to acquire a quality mammographic image.
- Informs the patient of the right to receive a lay summary result in accordance with MQSA.

Medical Dosimetry

- Adheres to established best practice protocols, guidelines and radiation oncologist directives.
- Calculates treatment unit parameters and doses to treatment volumes and points of interest.
- Collaborates with the radiation therapist and medical physicist to fabricate individualized immobilization, custom blocks and other beam-modifying devices.
- Collaborates with the radiation therapist, medical physicist and radiation oncologist regarding the simulation process and procedures.
- Demonstrates safe handling, storing and disposal of brachytherapy sources.
- Develops a manual or computer-generated brachytherapy treatment plan as prescribed by a radiation oncologist.
- Develops a treatment plan as prescribed by a radiation oncologist.
- Ensures an independent machine-setting check is completed before treatment is delivered.
- Makes the recommendation to discontinue patient treatment until equipment is operating properly.
- Prepares and positions the patient for simulation and treatment using appropriate positioning aids and immobilization devices.
- Prepares or assists in preparing brachytherapy sources and equipment.
- Reviews simulation images with the radiation therapist, medical physicist and radiation oncologist.
- Reviews treatment planning data for accuracy and appropriateness prior to input into the patient’s treatment record and initial treatment.

Nuclear Medicine

- Administers radioactive material enterally, parenterally or through new or existing vascular access devices or through other routes as prescribed by a licensed practitioner and under the supervision of an authorized user.
- Coordinates and manages the collection and labeling of tissue and fluid specimens, including radiolabeling.
- Demonstrates safe handling, receipt, storage and disposal of radioactive materials.
- Determines optimum placement of ECG electrodes and correctly identifies ECG wave trigger and/or pattern.
- Ensures that anyone who is pregnant is not in the magnetic resonance scanner bore or scan room during actual data acquisition or scanning, unless medically necessary when performing PET-MR.
- Follows aseptic technique in the appropriate environments while preparing, compounding, dispensing and repackaging sterile and nonsterile radiopharmaceuticals in compliance with USP and FDA standards.
- Follows appropriate USP standards for beyond-use date and vial puncture standard.
- Follows USP standards for immediate use of sterile radiopharmaceuticals.
- Maintains security of radioactive material to reduce radiation exposure to patients, personnel and general public.
- Manipulates a radiopharmaceutical unit dose and performs dose pooling.
- Monitors for internal exposure when applicable including bioassays, blood and urine collection as directed by RSO or designee.
- Monitors shielding effectiveness.
- Provides hearing protection to patient and others when performing PET- MR.
- Uses appropriate positioning and/or insulation materials to protect the patient from excessive heating and burns when performing PET-MR.
- Uses radiation detecting equipment.
- Uses radiation shielding devices.
- Wears a ring badge on the dominant hand, with the label facing the radiation source.

Quality Management

- Assesses process flow.
- Collects and analyzes data using standard tools.
- Identifies variables and implements changes to improve performance.
- Investigates adverse events and continuously monitors outcomes to minimize risk.
- Uses knowledge to modify current practices.

Radiation Therapy

- Achieves precision patient alignment using imaging and external markings.
- Assists the radiation oncologist in determining the optimum treatment field to cover the target volume.
- Calculates monitor units and treatment times.
- Consults with medical physicist and/or engineer in performing and documenting the quality assurance checks.

- Creates and manages simulation and verification images.
- Demonstrates safe handling, storage and disposal of brachytherapy sources.
- Exports data to treatment planning systems.
- Makes the decision to discontinue patient treatment until equipment is operating properly.
- Monitors the patient visually and aurally during treatment.
- Monitors the treatment console during treatment.
- Obtains radiation oncologist's approval of simulation images prior to initiation of treatment.
- Performs clinically indicated treatment imaging and motion management techniques.
- Performs quality assurance checks on simulator, treatment unit and appropriate equipment.
- Prepares or assists in the preparation of brachytherapy sources and equipment.
- Uses knowledge of biological effects of ionizing radiation on tissue to minimize radiation dose to normal tissues.
- Verifies that only the patient is in the treatment room prior to initiating treatment or any imaging procedures.

Radiography

- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Reviews patient exposure records and reject analyses as part of the quality assurance program.
- Uses appropriate uniquely identifiable pre-exposure radiopaque markers for anatomical and procedural purposes.
- Uses pre-exposure collimation and proper field-of-view selection.

Radiologist Assistant

- Administers medications as approved by the supervising radiologist.
- Administers minimal and moderate sedation as prescribed by the supervising radiologist.
- Collects and documents tissue and fluid specimens.
- Monitors patient's physical condition during the procedure and responds to changes in patient vital signs, hemodynamics and level of consciousness.
- Participates in quality reporting measures for the purpose of improved patient care.
- Recognizes and responds to medical emergencies, activates emergency response systems and provides advanced life support intervention.

Sonography

- Coordinates and manages the collection and labeling of tissue and fluid specimens.
- Recognizes sonographic appearance of normal and abnormal tissue structures and physiological data.

Standard Five – Evaluation

The medical imaging and radiation therapy professional determines whether the goals of the action plan have been achieved, evaluates quality assurance results and establishes an appropriate action plan.

Rationale
Careful examination of the procedure is important to determine that expected outcomes have been met. Equipment, materials and processes depend on ongoing quality assurance activities that evaluate performance based on established guidelines.

The medical imaging and radiation therapy professional:

General Criteria

- Communicates the revised action plan to appropriate team members.
- Completes the evaluation process in a timely, accurate and comprehensive manner.
- Confirms data is accurate and complete.
- Develops a revised action plan to achieve the intended outcome.
- Evaluates images for optimal demonstration of anatomy of interest.
- Evaluates quality assurance results.
- Evaluates the patient, equipment and procedure to identify variances that might affect the expected outcome.
- Identifies exceptions to the expected outcome.
- Measures the procedure against established policies, protocols and benchmarks.
- Validates quality control testing conditions and results.

Specific Criteria

Bone Densitometry

- Evaluates and identifies unexpected serial bone mineral density changes.
- Reviews previous scan(s) and reanalyzes as necessary.
- Reviews T-scores and Z-scores to modify the action plan.

Cardiac-Interventional and Vascular-Interventional

- Evaluates access site for complications requiring intervention or further treatment.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

- Evaluates images for the purpose of monitoring radiation exposure.
- Evaluates images to determine the use of appropriate imaging parameters.
- Verifies that exposure indicator data for digital radiographic systems has not been altered or modified and is included in the DICOM header and on images exported to media.

Magnetic Resonance

Refer to general criteria.

Mammography

- Collaborates with the lead interpreting physician and medical physicist to maintain equipment and comply with federal and state regulations and guidelines.
- Evaluates required quality control tests before breast imaging is performed.
- Reviews the inspection and medical physicist's reports to assess the quality of the breast imaging equipment's performance.

Medical Dosimetry

- Acquires data necessary to perform accurate patient protocol plans and participates in implementation of the plan.
- Ensures treatment parameters have been transferred correctly to the oncology information system.
- Reviews treatment calculations and ensures the validity of the treatment plan.
- Reviews treatment variances and assists in determining possible causes and solutions.

Nuclear Medicine

- Consults with a licensed practitioner to confirm procedural completeness.
- Reviews procedure to determine if additional images or data will enhance the diagnostic value.

Quality Management

- Evaluates customer satisfaction.
- Evaluates measured processes and results against established policies, protocols, guidelines and benchmarks.
- Evaluates adverse events to minimize risk.

Radiation Therapy

- Checks treatment calculations and/or treatment plan.
- Compares verification images to simulation images using anatomical landmarks or fiducial markers.
- Evaluates the patient daily for any side effects, reactions and therapeutic responses.
- Performs treatment chart checks.
- Reviews treatment discrepancies, determines causes and assists with the action plan.
- Reviews verification images for quality and accuracy.
- Verifies the accuracy of the patient setup prior to treatment delivery.
- Verifies treatment console readouts and settings prior to initiating treatment and upon termination of treatment.

Radiography

- Evaluates images for the purpose of monitoring radiation exposure.

- Evaluates images to determine the use of appropriate imaging parameters.
- Verifies that exposure indicator data for digital radiographic systems has not been altered or modified and is included in the DICOM header and on images exported to media.

Radiologist Assistant

Refer to general criteria.

Sonography

Refer to general criteria.

Standard Six – Implementation

The medical imaging and radiation therapy professional implements the revised action plan based on quality assurance results.

Rationale
It may be necessary to make changes to the action plan based on quality assurance results to promote safe and effective services.

The medical imaging and radiation therapy professional:

General Criteria

- Adjusts imaging parameters, patient procedure or additional factors to improve the outcome.
- Bases the revised plan on the patient's condition and the most appropriate means of achieving the expected outcome.
- Implements the revised action plan.
- Notifies the appropriate health care provider when immediate clinical response is necessary, based on procedural findings and patient condition.
- Obtains assistance to support the quality assurance action plan.
- Takes action based on patient and procedural variances.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

Refer to general criteria.

Mammography

- Initiates procedures only when breast imaging equipment meets quality assurance and quality control requirements, and results are in compliance.

Medical Dosimetry

- Develops additional treatment plans to achieve an optimal dose distribution.
- Ensures accuracy in the transfer and documentation of treatment parameters, according to departmental policies.
- Reviews and implements treatment field changes indicated on simulation or verification images as directed by a radiation oncologist.

Nuclear Medicine

- Employs devices to minimize radiation levels.
- Manages radioactive contamination and uses decontamination procedures.
- Performs additional images or data collections as needed.

Quality Management

- Develops policies, protocols and guidelines in collaboration with other health care providers.

Radiation Therapy

- Collaborates with radiation oncologists, medical physicists and medical dosimetrists to compensate for treatment inaccuracies.
- Establishes congruence between verification images and simulation images, digitally reconstructed radiographs and/or treatment volumes as defined by the radiation oncologist.
- Formulates recommendations for process improvements to minimize treatment discrepancies.
- Implements treatment plan or treatment field changes as directed by the radiation oncologist.
- Reports deviations from the standard or planned treatment.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

Refer to general criteria.

Standard Seven – Outcomes Measurement

The medical imaging and radiation therapy professional reviews and evaluates the outcome of the procedure according to quality assurance standards.

Rationale
To evaluate the quality of care, the medical imaging and radiation therapy professional compares the actual outcome with the expected outcome. Outcomes assessment is an integral part of the ongoing quality management action plan to enhance services.

The medical imaging and radiation therapy professional:

General Criteria

- Assesses the patient's physical, emotional and mental status prior to discharge.
- Determines that actual outcomes are within established criteria.
- Evaluates the process and recognizes opportunities for future changes.
- Measures and evaluates the results of the revised action plan.
- Reviews all data for completeness and accuracy.
- Reviews and evaluates quality assurance processes and tools for effectiveness.
- Reviews the implementation process for accuracy and validity.
- Uses evidence-based practice to determine whether the actual outcome is within established criteria.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

Refer to general criteria.

Mammography

- Prepares the annual medical outcomes audit and provides results to the lead interpreting physician.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

Refer to general criteria.

Quality Management

- Assesses differences between expected and actual outcomes.
- Assesses implemented changes for improvement.
- Develops methods to demonstrate continuous improvement.
- Develops strategies for maintaining improvement.
- Evaluates the effectiveness of and supports changes to processes.
- Performs procedural analysis.

Radiation Therapy

- Monitors patient status during procedures, throughout the treatment course and for follow-up care.

Radiography

Refer to general criteria.

Radiologist Assistant

- Performs follow-up patient evaluation and communicates findings to the supervising radiologist.

Sonography

Refer to general criteria.

Standard Eight – Documentation

The medical imaging and radiation therapy professional documents information about patient care, procedures and outcomes.

Rationale
Clear and precise documentation is essential for continuity of care, accuracy of care and quality assurance.

The medical imaging and radiation therapy professional:

General Criteria

- Archives images or data.
- Documents diagnostic, treatment and patient data in the medical record in a timely, accurate and comprehensive manner.
- Documents medication administration in patient's medical record.*†
- Documents procedural timeout.
- Documents unintended outcomes or exceptions from the established criteria.
- Maintains documentation of quality assurance activities, procedures and results.
- Provides pertinent information to authorized individual(s) involved in the patient's care.
- Records information used for billing and coding procedures.
- Reports any out-of-tolerance deviations to the appropriate personnel.
- Verifies patient consent is documented.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

- Documents administered medications.
- Documents or assists in documenting patient medical history related to the procedure.
- Documents radiation exposure parameters and initiates further action as needed.
- Documents use of sedation.
- Maintains documentation for tracking implantable devices.

Computed Tomography

- Archives or documents radiation exposure.
- Documents the use of shielding devices and proper radiation safety practices.

Limited X-ray Machine Operator

- Documents radiation exposure.
- Documents the use of shielding devices and proper radiation safety practices.

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Magnetic Resonance

Refer to general criteria.

Mammography

- Documents and provides evidence of quality assurance and quality control outcomes according to established guidelines.

Medical Dosimetry

- Reports any treatment variances in accordance with departmental, institutional and national quality assurance guidelines.

Nuclear Medicine

- Documents dose and route of administered radiopharmaceutical or radionuclide therapy in the patient medical record.
- Documents instrumentation quality testing procedures and maintains results for review.
- Documents radioactive materials quality testing procedures and maintains results for inspection.
- Documents the implementation, evaluation and modification of the radiation safety plan under the authority of the RSO.
- Maintains records of the receipt, administration and disposal of radioactive materials.

Quality Management

- Documents goals and outcomes based on data analysis.
- Documents process flow variances and justifies exceptions.
- Documents steps used to improve processes.
- Updates institutional policies, protocols and guidelines to ensure continuous compliance with regulatory requirements.
- Provides reports as required by institutional policy, accrediting bodies and federal and state regulations.

Radiation Therapy

- Documents radiation exposure parameters.
- Maintains imaging and treatment records according to institutional policy.
- Reports any treatment discrepancies to appropriate personnel in accordance with departmental, institutional and regulatory requirements.

Radiography

- Documents fluoroscopic time.
- Documents radiation exposure.
- Documents the use of shielding devices and proper radiation safety practices.

Radiologist Assistant

- Communicates and documents radiologist's order to other health care providers.
- Documents administration of medications.
- Documents and assists radiologist in quality reporting measures for the purpose of improved patient care.
- Documents use of minimal and moderate sedation.
- Reports clinical and imaging observations and procedure details to the supervising radiologist.

Sonography

- Documents initial impressions and technical data.
- Records interval changes in sonographic findings compared to previous imaging.

Standard Nine – Quality

The medical imaging and radiation therapy professional strives to provide optimal care.

Rationale
Patients expect and deserve optimal care during diagnosis and treatment.

The medical imaging and radiation therapy professional:

General Criteria

- Adheres to standards, policies, statutes, regulations and established guidelines.
- Anticipates, considers and responds to the needs of a diverse patient population.
- Applies professional judgment and discretion while performing the procedure.
- Collaborates with others to elevate the quality of care.
- Participates in ongoing quality assurance programs.

Specific Criteria

Bone Densitometry

- Advocates that facilities determine precision error and calculate the least significant change.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

- Advocates that facilities performing remote CT require a registered technologist be physically present with the patient.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

- Advocates the need for a minimum of one registered magnetic resonance technologist and one trained magnetic resonance safety personnel as the standard for safe and efficient delivery of magnetic resonance procedures.

Mammography

Refer to general criteria.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

- Performs procedures in accordance with the NRC and/or in agreement with state regulations.

Quality Management

- Verifies the achievement of goals and identifies exceptions.

Radiation Therapy

- Performs procedures in accordance with the NRC and/or in agreement with state regulations.
- Promotes patient safety by performing external beam treatments with a minimum of two registered radiation therapists.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

Refer to general criteria.

Standard Ten – Self-Assessment

The medical imaging and radiation therapy professional evaluates personal performance.

Rationale
Self-assessment is necessary for personal growth and professional development.

The medical imaging and radiation therapy professional:

General Criteria

- Assesses personal work ethics, behaviors and attitudes.
- Evaluates performance, applies personal strengths and recognizes opportunities for educational growth and improvement.
- Recognizes hazards associated with their work environment and takes measures to mitigate them.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

- Investigates avenues to continue progress to become a registered radiographer.

Magnetic Resonance

Refer to general criteria.

Mammography

Refer to general criteria.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

Refer to general criteria.

Quality Management

Refer to general criteria.

Radiation Therapy

Refer to general criteria.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

Refer to general criteria.

Standard Eleven – Collaboration and Collegiality

The medical imaging and radiation therapy professional promotes a positive and collaborative practice atmosphere with other members of the health care team.

Rationale
To provide quality patient care, all members of the health care team must communicate effectively and work together efficiently.

The medical imaging and radiation therapy professional:

General Criteria

- Develops and maintains collaborative partnerships to enhance quality and efficiency.
- Informs and instructs others about radiation safety.
- Promotes understanding of the profession.
- Shares knowledge and expertise with others.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

Refer to general criteria.

Mammography

Refer to general criteria.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

Refer to general criteria.

Quality Management

Refer to general criteria.

Radiation Therapy

Refer to general criteria.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

Refer to general criteria.

Standard Twelve – Ethics

The medical imaging and radiation therapy professional adheres to the profession's accepted ethical standards.

Rationale
Decisions made and actions taken on behalf of the patient are based on a sound ethical foundation.

The medical imaging and radiation therapy professional:

General Criteria

- Accepts accountability for decisions made and actions taken.
- Acts as a patient advocate.
- Adheres to the established ethical standards of recognized certifying agencies.
- Adheres to the established practice standards of the profession.
- Delivers patient care and service free from bias or discrimination.
- Promotes radiation safety standards.
- Provides health care services with consideration for a diverse patient population.
- Reports unsafe practices to the RSO, regulatory agency or other appropriate authority.
- Respects the patient's right to privacy and confidentiality.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

- Opposes participation in remote CT without a registered technologist physically present with the patient.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

Refer to general criteria.

Mammography

Refer to general criteria.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

Refer to general criteria.

Quality Management

Refer to general criteria.

Radiation Therapy

Refer to general criteria.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

- Opposes participation in sonographic procedures for the purpose of nonmedical entrepreneurial application or entertainment contrary to the tenets of ethical medical practice.

Standard Thirteen – Research, Innovation and Professional Advocacy

The medical imaging and radiation therapy professional participates in the acquisition and dissemination of knowledge and the advancement of the profession.

Rationale
Participation in professional organizations and scholarly activities – such as research, scientific investigation, presentation and publication – advances the profession.

The medical imaging and radiation therapy professional:

General Criteria

- Adopts new best practices.
- Investigates innovative methods for application in practice.
- Monitors changes to federal and state law, regulations and accreditation standards affecting area(s) of practice.
- Participates in data collection.
- Participates in professional advocacy efforts.
- Participates in professional societies and organizations.
- Pursues lifelong learning.
- Reads and evaluates research relevant to the profession.
- Shares information through publication, presentation and collaboration.

Specific Criteria

Bone Densitometry

Refer to general criteria.

Cardiac-Interventional and Vascular-Interventional

Refer to general criteria.

Computed Tomography

Refer to general criteria.

Limited X-ray Machine Operator

Refer to general criteria.

Magnetic Resonance

Refer to general criteria.

Mammography

Refer to general criteria.

Medical Dosimetry

Refer to general criteria.

Nuclear Medicine

Refer to general criteria.

Quality Management

Refer to general criteria.

Radiation Therapy

Refer to general criteria.

Radiography

Refer to general criteria.

Radiologist Assistant

Refer to general criteria.

Sonography

- Advocates for an ergonomically safe working environment, based on evidence-based practices, to mitigate the risk of work-related musculoskeletal disorders.

Advisory Opinion Statements

Advisory opinion statements provide explanations of the practice standards.

ASRT issues advisory opinions to clarify what constitutes appropriate practice and offer guidance for specific practice issues.

The profession holds medical imaging and radiation therapy professionals responsible and accountable for rendering safe, effective clinical services to patients and for judgments exercised and actions taken in the course of providing those services. The advisory opinion statements assist medical imaging and radiation therapy professionals in safe practice.

The medical imaging and radiation therapy professional's performance should be evidence-based and consistent with federal and state laws, regulations, established standards of practice and facility policies and procedures.

The ASRT recognizes the use of GRADE for measuring the quality of evidence and strength in recommendations for the development of advisory opinion statements.

Each medical imaging and radiation therapy professional must exercise prudent judgment when determining whether the performance of a given act is within the scope of practice for which the individual is licensed, if applicable within the jurisdiction in which the person is employed, educationally prepared and clinically competent to perform.

Guidance for the Communication of Clinical and Imaging Observations and Procedure Details by Radiologist Assistants to Supervising Radiologists

After research of evidentiary documentation the ASRT issued opinions contained herein.

Advisory Opinion

It is the opinion of the ASRT based on evidentiary documentation and where federal or state law and/or institutional policy permits that:

1. Communication of clinical and imaging observations and procedure details by the radiologist assistant to the supervising radiologist is an integral part of radiologist assistant practice. Without clear, consistent and appropriate communication between members of the radiology team, there is a possibility of inadequate patient care, incomplete reports and diminished departmental productivity. To create a safe and productive radiology environment, communication between the radiologist assistant and supervising radiologist must be free-flowing, consistent and relevant to the patient examination or procedure. This communication can take many forms, including verbal, written and electronic correspondence. These communications may be included and taken into consideration by the radiologist in creating a final report. However, initial clinical and imaging observations and procedure details communicated from the radiologist assistant to the radiologist are only intended for the radiologist's use and do not substitute for the final report created by the radiologist. These communications should be considered and documented as "initial clinical and imaging observations or procedure details."
2. While assisting radiologists in the performance of imaging procedures or during the performance of procedures under radiologist supervision, the radiologist assistant must be able to communicate and document procedure notes, observations, patient responses and other types of information relevant to the radiologist's interpretation and creation of the final report. Radiologist assistants do not independently "report findings" or "interpret" by dictation or by any other means; and to avoid any confusion, these terms should not be used to refer to the activities of the radiologist assistant. However, radiologist assistants may add to the patient record (following the policies and procedures of the facility) in a manner similar to any other dependent nonphysician practitioner. Radiologist assistants who are authorized to communicate initial observations to the supervising radiologist using a voice recognition dictation system or other electronic means must adhere to institutional protocols ensuring that initial observations can be viewed or accessed only by the supervising radiologist. Initial clinical or imaging observations or procedure details created by the radiologist assistant resulting from the radiologist assistant's involvement in the performance of the procedure that are included in the final report should be carefully reviewed by the supervising radiologist and should be incorporated at the supervising radiologist's discretion.

GRADE: Strong

Definitions

See glossary.

Evidentiary Documentation

Current Literature
Not applicable

Curricula
- Radiologist Assistant Curriculum (ASRT, 2020)

QUALITY OF EVIDENCE: High

Certification Agency Entry-Level Clinical Activities
- Registered Radiologist Assistant Entry-Level Clinical Activities (ARRT, 2018)

  The document states that radiologist assistants may "Review imaging procedures, make initial observations, and communicate observations **ONLY** *[emphasis added]* to the radiologist; record initial observations of imaging procedures following radiologist approval; communicate radiologist's report to appropriate health care provider consistent with the ACR Practice Parameter for Communication of Diagnostic Imaging Findings."

Certification Agency Content Specifications
Not applicable

QUALITY OF EVIDENCE: High

Scopes of Practice and Practice Standards Reference
- Scope of Practice (radiologist assistant only)
  - Communicating the supervising radiologist's report to the appropriate health care provider consistent with the ACR Practice Guidelines for Communication of Diagnostic Imaging Findings.
  - Evaluating images for completeness and diagnostic quality and recommending additional images.
  - Obtaining images necessary for diagnosis and communicating initial observations to the supervising radiologist. The radiologist assistant does not provide image interpretation as defined by the ACR.
  - Providing follow-up patient evaluation.

- The ASRT Practice Standards for Medical Imaging and Radiation Therapy
  - Performs and documents a radiology-focused physical examination, analyzes data and reports findings to the supervising radiologist. (Standard One, radiologist assistant only)
  - Performs follow-up patient evaluation and communicates findings to the supervising radiologist. (Standard Seven, radiologist assistant only)
  - Documents diagnostic, treatment and patient data in the medical record in a timely, accurate and comprehensive manner. (Standard Eight, General Criteria)
  - Maintains documentation of quality assurance activities, procedures and results. (Standard Eight, General Criteria)
  - Communicates and documents a radiologist's order to other health care providers. (Standard Eight, radiologist assistant only)

- Documents and assists radiologist in quality reporting measures for the purpose of improved patient care. (Standard Eight, radiologist assistant only)
- Reports clinical and imaging observations and procedure details to the supervising radiologist. (Standard Eight, radiologist assistant only)

QUALITY OF EVIDENCE: High

Federal and State Statute References
Not applicable

Other
Not applicable

1

Medication Administration in Peripherally Inserted Central Catheter Lines or Ports With a Power Injector*†

After research of evidentiary documentation the ASRT issued the opinions contained herein.

Advisory Opinion

It is the opinion of the ASRT based on evidentiary documentation and where federal or state law and/or institutional policy permits that:

Medical imaging and radiation therapy professionals can access and/or use an FDA approved:

1. Peripherally inserted central catheter (PICC) line by inserting an approved connective device. The PICC line must be designated for use with power injectors. Manufacturer guidelines regarding infusion rate and pressure must be followed.
2. Port by inserting an approved non coring needle. The port must be designated for use with power injectors. Manufacturer guidelines regarding infusion rate and pressure must be followed.

GRADE: Strong

Definitions

See glossary.

Evidentiary Documentation

Current Literature
Not applicable

Curricula

- Computed Tomography Curriculum (ASRT, 2018)
- Magnetic Resonance Curriculum (ASRT, 2020)
- Nuclear Medicine Technology Competency-Based Curriculum Guide (SNMMI, 2015 Amended April 2020)
- Radiography Curriculum (ASRT, 2017)
- Radiologist Assistant Curriculum (ASRT, 2020)

QUALITY OF EVIDENCE: High

1

Certification Agency Content Specifications

- Components of Preparedness (NMTCB, 2020)
- Computed Tomography (ARRT, 2017)
- Positron Emission Tomography (PET) Specialty Examination Content Outline (NMTCB, 2021)
- Vascular Interventional Radiography (ARRT, 2017)

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

QUALITY OF EVIDENCE: High

Scopes of Practice and Practice Standards Reference

- Scope of Practice
  - Administering medications enterally, parenterally, through new or existing vascular access or through other routes as prescribed by a licensed practitioner.*†
  - Administering medications with an infusion pump or power injector as prescribed by a licensed practitioner.*†
  - Identifying, calculating, compounding, preparing and/or administering medications as prescribed by a licensed practitioner.*†

QUALITY OF EVIDENCE: High

Federal and State Statute References
Not applicable

Other
Not applicable

1

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Medication Administration Through New or Existing Vascular Access*†

After research of evidentiary documentation the ASRT issued opinions contained herein.

Advisory Opinion

It is the opinion of the ASRT based on evidentiary documentation and where federal or state law and/or institutional policy permits that:

1. It is within the scope of practice for medical imaging and radiation therapy professionals to access and administer medications through new or existing vascular access by an approved method of administration (e.g., hand injection, power injection, slow push, bolus, infusion) as prescribed by a licensed practitioner.

GRADE: Strong

Definitions

- access – The process of inserting an approved connective device through the access point of an existing vascular access device to deliver intravenous (IV) fluids or medication.
- existing vascular access – Peripheral or central vascular implanted devices or external access lines that include, but are not limited to, peripherally inserted central catheter lines, intravenous lines, central lines and ports.

Evidentiary Documentation

Current Literature

- ACR Committee on Contrast Media. *ACR Manual on Contrast Media.* American College of Radiology; 2021. Accessed Sept. 4, 2021.
- American College of Radiology. ACR practice parameter for performing and interpreting diagnostic computed tomography (CT). Revised 2017. Accessed Nov. 30, 2018.
- American College of Radiology. ACR practice parameter for performing and interpreting magnetic resonance imaging (MRI). Revised 2017. Accessed Nov. 30, 2018.
- American College of Radiology. ACR-SPR practice parameter for the use of intravascular contrast media. Revised 2017. Accessed Nov. 30, 2018.
- Rockwell D. A competency for central line use in radiology. *J Radiol Nurs*. 2008;27(2):84. doi:10.1016/j.jradnu.2008.04.016

QUALITY OF EVIDENCE: High

Curricula

- Cardiac-Interventional and Vascular-Interventional Curriculum (ASRT, 2019)
- Computed Tomography Curriculum (ASRT, 2018)
- Magnetic Resonance Curriculum (ASRT, 2020)
- Mammography Curriculum (ASRT, 2018)
- National Education Curriculum for Sonography (JRC-DMS, 2016)
- Nuclear Medicine Technology Competency-Based Curriculum Guide (SNMMI, 2015 Amended April 2020)
- Radiation Therapy Curriculum (ASRT, 2019)

* Excludes limited x-ray machine operator

† Excludes medical dosimetry

- Radiography Curriculum (ASRT, 2017)
- Radiologist Assistant Curriculum (ASRT, 2020)

QUALITY OF EVIDENCE: High

Certification Agency Content Specifications
- Components of Preparedness (NMTCB, 2020)
- Computed Tomography (ARRT, 2017)
- Examination Overview: Registered Cardiovascular Invasive Specialist (CCI, 2019)
- Magnetic Resonance Imaging (ARRT, 2020)
- Nuclear Medicine Technology (ARRT, 2022)
- Radiography (ARRT, 2022)
- Registered Radiologist Assistant (ARRT, 2018)
- Vascular-Interventional Radiography (ARRT, 2017)

QUALITY OF EVIDENCE: High

Scopes of Practice and Practice Standards Reference
- Scope of Practice
  - Administering medications enterally, parenterally, through new or existing vascular access or through other routes as prescribed by a licensed practitioner.*†
  - Identifying, calculating, compounding, preparing and/or administering medications as prescribed by a licensed practitioner.*†
  - Performing venipuncture as prescribed by a licensed practitioner.*†
  - Starting, maintaining and/or removing intravenous access as prescribed by a licensed practitioner.*†

QUALITY OF EVIDENCE: High

Federal and State Statute References
Not applicable

Other
Not applicable

* Excludes limited x-ray machine operator
† Excludes medical dosimetry

Placement of Personnel Radiation Monitoring Devices

After research of evidentiary documentation, the ASRT issued opinions contained herein.

Advisory Opinion

It is the opinion of the ASRT based on evidentiary documentation and where federal or state law and/or institutional policy permits that:

1. Radiation workers wear a personnel radiation monitoring device outside of protective apparel with the label facing the radiation source at the level of the collar.
2. In specific cases, a whole-body monitor may be indicated. This monitor should be worn at the waist inside of protective apparel, with the label facing the radiation source.
3. In some cases, a ring monitor may be indicated. This monitor should be worn on the hand likely to receive the highest exposure, with the label facing the radiation source.

GRADE: Strong

Definitions

See glossary.

Evidentiary Documentation

Current Literature

- Bushong S. Occupational radiation dose management. In: *Radiologic Science for Technologists: Physics, Biology, and Protection.* 12th ed. Elsevier; 2020: 547 - 549.
- By standards number: 1910.1096(d)(3)(i) – ionizing radiation. Occupational Safety and Health Administration website. Accessed Nov. 30, 2018.
- Gilmore D, Watersham-Rich K. Radiation safety in nuclear medicine. In: *Nuclear Medicine and PET/CT: Technology and Technique.* 8th edition. Elsevier; 2016:116.
- Statkiewicz-Sherer MA, Visconti PJ, Ritenour ER, Welch-Haynes K. Radiation monitoring. In: *Radiation Protection in Medical Radiography.* 9th ed. Elsevier; 2022:72-87.

QUALITY OF EVIDENCE: High

Curricula

- Bone Densitometry Curriculum (ASRT, 2019)
- Limited X-ray Machine Operator Curriculum (ASRT, 2020)
- Nuclear Medicine Technology Competency-Based Curriculum Guide (SNMMI, 2015 Amended April 2020)
- Radiation Therapy Curriculum (ASRT, 2019)
- Radiography Curriculum (ASRT, 2017)
- Radiologist Assistant Curriculum (ASRT, 2020)

QUALITY OF EVIDENCE: High

Certification Agency Content Specifications

- Cardiac-Interventional Radiography (ARRT, 2017)

- Components of Preparedness (NMTCB, 2020)
- Limited Scope of Practice in Radiography (ARRT, 2018)
- Nuclear Medicine Technology (ARRT, 2022)
- Radiation Therapy (ARRT, 2022)
- Radiography (ARRT, 2022)
- Registered Radiologist Assistant (ARRT, 2018)
- Vascular-Interventional Radiography (ARRT, 2017)

QUALITY OF EVIDENCE: High

Scopes of Practice and Practice Standards Reference

- When appropriate, uses personnel radiation monitoring devices(s) as indicated by the RSO or designee, (Standard Four, General Criteria)

Federal and State Statute References

- § 19.12 Instruction to Workers (NRC, 2021)
- § 20.1208 Dose Equivalent to an Embryo/Fetus (NRC, 2021)
- § 20.1502 Conditions Requiring Individual Monitoring of External and Internal Occupational Dose (NRC, 2021)
- Regulatory Guide 8.34: Monitoring Criteria and Methods to Calculate Occupational Radiation Doses (NRC, 1992)
- Regulatory Guide 8.36: Radiation Dose to the Embryo/Fetus (NRC, 2018)
- Regulatory Guide 8.7: Instructions for Recording and Reporting Occupational Radiation Exposure Data (NRC, 2016)

QUALITY OF EVIDENCE: High

Other

- AAPM Report No. 58: Managing the Use of Fluoroscopy in Medical Institutions. Appendix A: Radiation Safety/Quality Assurance Program

QUALITY OF EVIDENCE: High

Use of Postexposure Shuttering, Cropping and Electronic Masking in Radiography

After research of evidentiary documentation the ASRT issued opinions contained herein.

Advisory Opinion

It is the opinion of the ASRT based on evidentiary documentation and where federal or state law and/or institutional policy permits that:

1. It is within the scope of practice of a radiologic technologist to determine and apply appropriate pre-exposure collimation to individual projections of examinations to comply with the principle of ALARA. Postexposure shuttering, cropping, electronic collimation or electronic masking to eliminate the visibility of large regions of brightness are acceptable, where automatic processing fails to do so.
2. It is outside of the scope of practice of a radiologic technologist to use postexposure shuttering, cropping, electronic collimation or electronic masking to eliminate any anatomical information. This information is a part of the patient's permanent medical record and should therefore be presented to the licensed practitioner to determine whether the exposed anatomy obtained on any image is significant or of diagnostic value.
3. It is outside the scope of practice of a radiologic technologist to use postexposure shuttering, cropping, electronic collimation or electronic masking to duplicate and use any acquired image for more than one prescribed view or projection on any exam. Facilities acquiring digital images are legally required to retain information in the DICOM information of each image that identifies the selected view or projection at the time of image acquisition. Using the same acquired image to represent two different prescribed views or projections is a falsification of the information in the patient medical record and imaging study made available to the licensed practitioner.

GRADE: Strong

Definitions

See glossary.

Evidentiary Documentation

Current Literature

- American College of Radiology. ACR-AAPM-SIIM-SPR practice parameter for digital radiography. Revised 2017.
- Bomer J, Wiersma-Deijl L, Holscher HC. Electronic collimation and radiation protection in paediatric digital radiography: revival of the silver lining. *Insights Imaging.* 2013;4(5):723-727. doi:10.1007/s13244-013-0281-5
- Carroll QB. *Radiography in the Digital Age.* 3rd ed. Charles C Thomas; 2018.
- Carter C, Vealé B. *Digital Radiography and PACS.* 3rd ed. Elsevier; 2019.
- Chalazonitis AN, Koumarianos D, Tzovara J, Chronopoulos P. How to optimize radiological images captured from digital cameras, using the Adobe Photoshop 6.0 program. *J Digit Imaging.* 2003;16(2):216-229.
- DeMaio DN, Herrmann T, Noble LB, et al; American Society of Radiologic Technologists. Best practices in digital radiography. Published 2019.

- Don S, Macdougall R, Strauss K, et al. Image Gently campaign back to basics initiative: ten steps to help manage radiation dose in pediatric digital radiography. *AJR Am J Roentgenol.* 2013;200(5):W431-W436. doi:10.2214/AJR.12.9895
- Fauber TL, Dempsey MC. X-ray field size and patient dosimetry. *Radiol Technol.* 2013;85(2):155-161.
- Fauber TL. *Radiographic Imaging and Exposure*. 6th ed. Elsevier; 2021:120 and 176.
- Goske MJ, Charkot E, Herrmann T, et al. Image Gently: challenges for radiologic technologists when performing digital radiography in children. *Pediatr Radiol.* 2011;41(5):611-619. doi:10.1007/s00247-010-1957-3
- Lo WY, Puchalski SM. Digital image processing. *Vet Radiol Ultrasound*. 2008;49(1 suppl 1):S42-S47. doi:10.1111/j.1740-8261.2007.00333.x
- Russell J, Burbridge BE, Duncan MD, Tynan J. Adult fingers visualized on neonatal intensive care unit chest radiographs: what you don't see. *Can Assoc Radiol J.* 2013;64(3):236-239. doi:10.1016/j.carj.2012.04.004
- Seeram E. *Digital Radiography: An Introduction*. Cengage Learning; 2011.
- Uffmann M, Schaefer-Prokop C. Digital radiography: the balance between image quality and required radiation dose. *Eur J Radiol*. 2009;72(2):202-208. doi:10.1016/j.ejrad.2009.05.060
- Willis CE. Optimizing digital radiography of children. *Eur J Radiol*. 2009;72(2):266-273. doi:10.1016/j.ejrad.2009.03.003
- Zetterberg LG, Espeland A. Lumbar spine radiography—poor collimation practices after implementation of digital technology. *Br J Radiol*. 2011;84(1002):566-9. doi:10.1259/bjr/74571469

QUALITY OF EVIDENCE: High

Curricula

- Limited X-ray Machine Operator Curriculum (ASRT, 2020)
- Radiography Curriculum (ASRT, 2017)

Certification Agency Content Specifications

- Limited Scope of Practice in Radiography (ARRT, 2018)
- Radiography (ARRT, 2022)

Scopes of Practice and Practice Standards Reference

- Scope of Practice
  - Applying principles of ALARA to minimize exposure to patient, self and others.
  - Selecting the appropriate protocol and optimizing technical factors while maximizing patient safety.
- The ASRT Practice Standards for Medical Imaging and Radiation Therapy
  - Participates in ALARA, patient and personnel safety, risk management and quality assurance activities. (Standard One, General Criteria)
  - Employs professional judgment to adapt procedures to improve diagnostic quality or therapeutic outcomes. (Standard Two, General Criteria)
  - Adheres to radiation safety rules and standards. (Standard Four, General Criteria)
  - Positions patient for anatomic area of interest, respecting patient ability and comfort.

(Standard Four, General Criteria)
- Uses pre-exposure collimation and proper field-of-view selection. (Standard Four, limited x-ray machine operator and radiography only)
- Evaluates images for optimal demonstration of anatomy of interest. (Standard Five, General Criteria)
- Evaluates images to determine the use of appropriate imaging parameters. (Standard Five, limited x-ray machine operator and radiography only)
- Verifies that exposure indicator data for digital radiographic systems has not been altered or modified and is included in the DICOM header and on images exported to media. (Standard Five, limited x-ray machine operator and radiography only)
- Adheres to the established practice standards of the profession. (Standard Twelve, General Criteria)

QUALITY OF EVIDENCE: High

Federal and State Statute References
Not applicable

Other
Not applicable

Glossary

The glossary is an alphabetical list of defined terms or words specifically found in the ASRT Practice Standards for Medical Imaging and Radiation Therapy. The terms or words have meaning that might not be general knowledge. The definitions are formulated using evidentiary documentation and put into place following extensive review and subsequent approval. The glossary is not all-inclusive. New terms and new usage of existing terms will emerge with time and advances in technology.

AAPM – American Association of Physicists in Medicine

ACR – American College of Radiology

advanced-practice radiographer – A registered technologist who has gained additional knowledge and skills through the successful completion of an organized program or radiologic technology education that prepares radiologic technologists for advanced-practice roles and has been recognized by the national certification organization to engage in advanced-practice radiologic technology.

adverse event – Any undesirable experience associated with the use of a medical product in a patient.

ALARA – Acronym for "as low as (is) reasonably achievable," which means making every reasonable effort to maintain exposures to radiation as far below the dose limits as practical, consistent with the purpose for which the licensed activity is undertaken, while taking into account the state of technology, the economics of improvements in relation to state of technology, the economics of improvements in relation to benefits to the public health and safety and other societal and socioeconomic considerations, and in relation to the use of nuclear energy and licensed materials in the public interest. The ASRT recognizes the concept of ALARA to include energies used for magnetic resonance and sonographic imaging.

anatomic (anatomical) landmarks – Bones or other identifiable points that are visible or palpable and indicate the position of internal anatomy.

archive (archival) –The storage of data in either hard (film) or soft (digital) form.

ARDMS – American Registry for Diagnostic Medical Sonography

ARRT – American Registry of Radiologic Technologists

artifact – Extraneous information on the image that interferes with or distracts from image quality.

ASRT – American Society of Radiologic Technologists

authorized user – A physician, dentist or podiatrist who meets the requirements as defined by the United States Nuclear Regulatory Commission.

beam-modification devices – Devices that change the shape of the treatment field or distribution of the radiation at (tissue) depth.

brachytherapy – A method of treatment that involves the temporary or permanent placement of radiation source(s) (isotopic or electronic) inside or immediately adjacent to a tumor-bearing region.

CCI – Cardiovascular Credentialing International

change management – Systematic approach to preparing for, implementing and sustaining a change in process.

clinical – Pertaining to or founded on actual observations and treatments of patients.

clinically competent – The ability to perform a clinical procedure in a manner that satisfies the demands of a situation, as assessed and documented by a qualified individual.

compounding medication – The combining, mixing, pooling or otherwise altering of a conventionally manufactured drug in response to or anticipation of a medication order.

compounding radiopharmaceutical – The combining, mixing, pooling or otherwise altering of a conventionally manufactured radiopharmaceutical or synthesizing/formulating a radiopharmaceutical from bulk drug substances and radionuclides.

contrast media – A substance administered during a medical imaging procedure for the purpose of enhancing the contrast between an internal structure or fluid and the surrounding tissue.

cropping – The process of selecting and removing a portion of the image.

custom blocks – Devices designed to shape the radiation field.

DICOM – Acronym for "Digital Imaging and Communications in Medicine." The DICOM standards are a complex set of instructions to exchange and present medical image information.

dose distribution – Spatial representation of the magnitude of the dose produced by a source of radiation. It describes the variation of dose with position within an irradiated volume.

dose pooling – Combining unit doses of a radiopharmaceutical to meet the dosage requirements of a single patient.

dosimetric calculations – Computation of treatment unit settings, monitor units, treatment times and radiation doses to anatomical areas of interest.

ECG – electrocardiogram

educationally prepared – The successful completion of didactic and clinical education necessary to properly perform a procedure in accordance with accepted practice standards.

electronic masking – Electronic collimation or cropping of the digital radiographic image that occurs during postprocessing of the acquired image and does not alter the size of the irradiated field.

FDA – U.S. Food and Drug Administration

fiducial markers – Fixed reference points against which other objects can be measured. They may be placed internally, at skin surface or fixed externally to the patient.

GRADE – Grading of Recommendations Assessment, Development and Evaluation

HQCC – Healthcare Quality Certification Commission

hybrid imaging – The combination of imaging technologies that allows information from different modalities to be presented as a single set of images.

image-guided radiation therapy – A process of using various imaging technologies to localize

the target and critical tissues and, if needed, reposition the patient just before or during the delivery of radiotherapy.

imaging technologies – Technologies using ionizing and nonionizing radiation to visualize physiological processes, internal structures and fiducial markers, both anatomical and nonanatomical.

immediate use – Dose preparation, including one made using appropriate and necessary deviation, and/or the dispensing of a sterile radiopharmaceutical specific for a single patient.

immobilization device – Device that assists in maintaining or reproducing the position while limiting patient movement.

initial observation – Assessment of technical image quality with pathophysiology correlation communicated to a radiologist.

interpretation – The process of examining and analyzing all images within a given procedure and integration of the imaging data with appropriate clinical data in order to render an impression or conclusion set forth in a formal written report composed and signed by a licensed practitioner.

interventional procedures – Invasive medical imaging guidance methods used to diagnose and/or treat certain conditions.

ISCD – International Society for Clinical Densitometry

JRC-DMS – Joint Review Committee on Education in Diagnostic Medical Sonography

least significant change – The least amount of bone mineral densitometry change that can be considered statistically significant.

licensed practitioner – A medical or osteopathic physician, chiropractor, podiatrist or dentist who has education and specialist training in the medical or dental use of radiation and is deemed competent to perform independently or supervise medical imaging or radiation therapy procedures by the respective state licensure board.

MDCB – Medical Dosimetrist Certification Board

medical physicist – An individual who is competent to practice independently in the safe use of x-rays, gamma rays, electron and other charged particle beams, neutrons, radionuclides, sealed radionuclide sources, ultrasonic radiation, radiofrequency radiation and magnetic fields for diagnostic and therapeutic purposes. An individual is considered competent to practice in the field of medical physics if the individual is certified by the appropriate recognized certification organization.

medication – Any chemical substance intended for use in the medical diagnosis, cure, treatment or prevention of disease.

minimal sedation (anxiolysis) – A drug-induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilatory and cardiovascular functions are unaffected.

moderate sedation – A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous

ventilation is adequate. Cardiovascular function is usually maintained.

molecular imaging – A noninvasive, diagnostic imaging technology that enables visualization, characterization and measurement of biologic processes at the molecular and cellular levels. Molecular imaging techniques may be applied to computed tomography, magnetic resonance, nuclear medicine, optical imaging, PET-CT, sonography and spectroscopy.

monitor units – Unit of output measure used for linear accelerators, sometimes indicated with the abbreviation MU. Accelerators are calibrated so that 1 MU delivers 1 cGy for a standard reference field size at a standard reference depth at a standard source to calibration point.

MQSA – Mammography Quality Standards Act

NECS – National Education Curriculum for Sonography

NMTCB – Nuclear Medicine Technology Certification Board

noninterpretive fluoroscopic procedures – Use of fluoroscopic imaging under the direction of a licensed practitioner for purposes other than interpretation.

normal tissue tolerance – Radiation tolerance levels of healthy organs near or within the radiation treatment fields.

NRC – U.S. Nuclear Regulatory Commission

panning – Movement of the procedure table during image production to maintain visualization of an anatomic region of interest.

personnel radiation monitoring devices – Devices designed to be worn or carried by an individual for the purpose of measuring the dose of radiation received.

physics survey – Performing equipment testing, evaluating the testing results and completing a formal written report of results. The written survey report, validated by a medical physicist, contains sufficient information to document that each test was conducted according to local, federal or state requirements and includes an assessment of corrective actions and recommendations for improvements.

postprocessing – Computerized processing of data sets after acquisition to create a diagnostic or therapeutic image.

procedure – Specific course of action intended to result in an imaging study, treatment or other outcome.

processing – Manipulation of the raw data just after acquisition.

protocol – The plan for carrying out a procedure, scientific study or a patient's treatment regimen.

quality assurance – Activities and programs designed to achieve a desired degree or grade of care in a defined medical, nursing or health care setting or program. Sometimes indicated with the abbreviation QA.

quality control – The routine performance of techniques used in monitoring or testing and maintenance of components of medical imaging and radiation therapy equipment. This includes the interpretation of data regarding equipment function and confirmation that corrective actions are/were taken. Sometimes indicated with the abbreviation QC.

radiation oncologist – A physician who specializes in using radiation to treat cancer.

radiation protection – Prophylaxis against injury from ionizing radiation. The only effective preventive measures are shielding the operator, handlers and patients from the radiation source; maintaining appropriate distance from the source; and limiting the time and amount of exposure.

radioactive material – A substance composed of unstable atoms that decay with the spontaneous emission of radioactivity. Includes radiopharmaceuticals, unsealed sources (open, frequently in liquid or gaseous form) and sealed sources (permanently encapsulated, frequently in solid form).

radiobiology – The study of the effects of radiation on living organisms.

radiography – The process of obtaining an image for diagnostic examination using x-rays.

radiotheranostics – The use of radionuclides for the paired imaging and therapy agents.

RSO – Radiation Safety Officer

setup – Arrangement of treatment parameters used in preparation for delivering radiation therapy; includes patient positioning data, field alignment information and equipment configurations.

shuttering – A postprocessing technique that may be used to eliminate ambient light around an image for the sole purpose of improving the quality of the displayed image. It should not be used as a substitute for insufficient collimation of the irradiated field.

simulation – A process using imaging technologies to plan radiation therapy so that the target area is precisely located and marked; the mockup procedure of a patient treatment with medical imaging documentation of the treatment portals.

SNMMI – Society of Nuclear Medicine and Molecular Imaging

static – Any medical image that is fixed or frozen in time.

supervising radiologist – A board-certified or board-eligible radiologist who oversees duties of the radiologist assistant and has appropriate clinical privileges for the procedure performed by the radiologist assistant.

theranostics – The systematic integration of targeted diagnostics and therapeutics.

timeout – Preprocedural pause to conduct a final assessment that the correct patient, site and procedure are identified.

tolerance levels (doses) – The maximum radiation dose that may be delivered to a given biological tissue at a specified dose rate and throughout a specified volume without producing an unacceptable change in the tissue.

treatment calculations – *See dosimetric calculations*.

treatment field (portal) – Volume of tissue exposed to radiation from a single radiation beam.

treatment planning – The process by which dose delivery is optimized for a given patient and clinical situation. It encompasses procedures involved in planning a course of radiation treatment, including simulation through completion of the treatment summary.

treatment record – Documents the delivery of treatments, recording of fractional and

cumulative doses, machine settings, verification imaging and the ordering and implementation of prescribed changes.

T-score – Number of standard deviations the individual's bone mineral density is from the average bone mineral density for gender-matched young normal peak bone mass.

USP – United States Pharmacopeia

vascular access device – Apparatus inserted into the peripheral or central vasculature for diagnostic or therapeutic purposes.

vascular closure device – Active or passive medical devices used to achieve hemostasis after a cardiovascular or endovascular procedure that requires catheterization.

venipuncture – The transcutaneous puncture of a vein by a sharp rigid stylet or cannula carrying a flexible plastic catheter or by a steel needle attached to a syringe or catheter.

verification images – Images produced to confirm accurate treatment positioning and accurate treatment portals.

Z-score – Number of standard deviations the individual's bone mineral density is from the average bone mineral density for age- and gender-matched reference group.

Standards for an Accredited Educational Program in Radiography

Effective January 1, 2021

Adopted April 2020

JRCERT

Excellence in Education

Introductory Statement

The Joint Review Committee on Education in Radiologic Technology (JRCERT) **Standards for an Accredited Educational Program in Radiography** are designed to promote academic excellence, patient safety, and quality healthcare. The **Standards** require a program to articulate its purposes; to demonstrate that it has adequate human, physical, and financial resources effectively organized for the accomplishment of its purposes; to document its effectiveness in accomplishing these purposes; and to provide assurance that it can continue to meet accreditation standards.

The JRCERT is recognized by both the United States Department of Education (USDE) and the Council for Higher Education Accreditation (CHEA). The JRCERT **Standards** incorporate many of the regulations required by the USDE for accrediting organizations to assure the quality of education offered by higher education programs. Accountability for performance and transparency are also reflected in the **Standards** as they are key factors for CHEA recognition.

The JRCERT accreditation process offers a means of providing assurance to the public that a program meets specific quality standards. The process not only helps to maintain program quality but stimulates program improvement through outcomes assessment.

There are six (6) standards. Each standard is titled and includes a narrative statement supported by specific objectives. Each objective, in turn, includes the following clarifying elements:

- **Explanation** - provides clarification on the intent and key details of the objective.

- **Required Program Response** - requires the program to provide a brief narrative and/or documentation that demonstrates compliance with the objective.

- **Possible Site Visitor Evaluation Methods** - identifies additional materials that may be examined and personnel who may be interviewed by the site visitors at the time of the on-site evaluation in determining compliance with the particular objective. Review of supplemental materials and/or interviews is at the discretion of the site visit team.

Regarding each standard, the program must:

- Identify strengths related to each standard
- Identify opportunities for improvement related to each standard
- Describe the program's plan for addressing each opportunity for improvement
- Describe any progress already achieved in addressing each opportunity for improvement
- Provide any additional comments in relation to each standard

The self-study report, as well as the results of the on-site evaluation conducted by the site visit team, will determine the program's compliance with the Standards by the JRCERT Board of Directors.

Standards for an Accredited Educational Program in Radiography

Table of Contents

Standard One: Accountability, Fair Practices, and Public Information

The sponsoring institution and program promote accountability and fair practices in relation to students, faculty, and the public. Policies and procedures of the sponsoring institution and program must support the rights of students and faculty, be well-defined, written, and readily available.

Objectives:

1.1 The sponsoring institution and program provide students, faculty, and the public with policies, procedures, and relevant information. Policies and procedures must be fair, equitably applied, and readily available.

1.2 The sponsoring institution and program have faculty recruitment and employment practices that are nondiscriminatory.

1.3 The sponsoring institution and program have student recruitment and admission practices that are nondiscriminatory and consistent with published policies.

1.4 The program assures the confidentiality of student educational records.

1.5 The program assures that students and faculty are made aware of the JRCERT **Standards for an Accredited Educational Program in Radiography** and the avenue to pursue allegations of noncompliance with the **Standards**.

1.6 The program publishes program effectiveness data (credentialing examination pass rate, job placement rate, and program completion rate) on an annual basis.

1.7 The sponsoring institution and program comply with the requirements to achieve and maintain JRCERT accreditation.

1.1 The sponsoring institution and program provide students, faculty, and the public with policies, procedures, and relevant information. Policies and procedures must be fair, equitably applied, and readily available.

Explanation:
Institutional and program policies and procedures must be fair, equitably applied, and promote professionalism. Policies, procedures, and relevant information must be current, accurate, published, and made readily available to students, faculty, staff, and the public on the institution's or program's website to assure transparency and accountability of the educational program. For example, requiring the public to contact the institution or program to request program information is not fully transparent. Policy changes must be made known to students, faculty, and the public in a timely fashion. It is recommended that revision dates be identified on program publications.

At a minimum, the sponsoring institution and/or program must publish policies, procedures, and/or relevant information related to the following:

- ☐ admission and transfer of credit policies;
- ☐ tuition, fees, and refunds;
- ☐ graduation requirements;
- ☐ grading system;
- ☐ program mission statement, goals, and student learning outcomes;
- ☐ accreditation status;
- ☐ articulation agreement(s);
- ☐ academic calendar;
- ☐ clinical obligations;
- ☐ grievance policy and/or procedures.

Any policy changes to the above must be made known to students, faculty, and the public in a timely fashion.

In addition, programs must develop a contingency plan that addresses any type of catastrophic event that could affect student learning and program operations. Although the contingency plan does not need to be made readily available to the public, program faculty must be made aware of the contingency plan.

Required Program Response:

- Describe how institutional and program policies, procedures, and relevant information are made known to students, faculty, staff, and the public.
- Describe how policies and procedures are fair, equitably applied, and promote professionalism.
- Describe the nature of any formal grievance(s) and/or complaints(s) and their resolution.
- Provide publications that include the aforementioned policies, procedures, and relevant information, including the hyperlink for each.
- Provide a copy of the resolution of any formal grievance(s).

Possible Site Visitor Evaluation Methods:

- Review of institutional and program website
- Review of institutional and program materials
- Review of student handbook
- Review of student records
- Review of formal grievance(s) record(s), if applicable
- Interviews with institutional administration
- Interviews with faculty
- Interviews with staff
- Interviews with students

1.2 The sponsoring institution and program have faculty recruitment and employment practices that are nondiscriminatory.

Explanation:
Nondiscriminatory recruitment and employment practices assure fairness and integrity. Equal opportunity for employment must be offered to each applicant with respect to any legally protected status such as race, color, gender, age, disability, national origin, or any other protected class. Employment practices must be equitably applied.

Required Program Response:

- Describe how nondiscriminatory recruitment and employment practices are assured.
- Provide copies of employment policies and procedures that assure nondiscriminatory practices.

Possible Site Visitor Evaluation Methods:

- Review of employee/faculty handbook
- Review of employee/faculty application form
- Review of institutional catalog
- Interviews with faculty

1.3 The sponsoring institution and program have student recruitment and admission practices that are nondiscriminatory and consistent with published policies.

Explanation:

Nondiscriminatory recruitment practices assure applicants have equal opportunity for admission. Defined admission practices facilitate objective student selection. In considering applicants for admission, the program must follow published policies and procedures. Statistical information such as race, color, religion, gender, age, disability, national origin, or any other protected class may be collected; however, the student must voluntarily provide this information. Use of this information in the student selection process is discriminatory.

Required Program Response:

- Describe how institutional and program admission policies are implemented.
- Describe how admission practices are nondiscriminatory.
- Provide institutional and program admission policies.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of student records
- Interviews with faculty
- Interviews with admissions personnel, as appropriate
- Interviews with students

1.4 The program assures the confidentiality of student educational records.

Explanation:
Maintaining the confidentiality of educational records protects students' right to privacy. Educational records must be maintained in accordance with the Family Educational Rights and Privacy Act (FERPA). If educational records contain students' social security numbers, this information must be maintained in a secure and confidential manner. Space should be made available for the secure storage of files and records.

Required Program Response:
Describe how the program maintains the confidentiality of students' educational records.

Possible Site Visitor Evaluation Methods:

- Review of institution's/program's published policies/procedures
- Review of student academic and clinical records, including radiation monitoring reports
- Tour of program offices
- Tour of clinical setting(s)
- Interviews with faculty
- Interviews with clerical staff, if applicable
- Interviews with clinical preceptor(s)
- Interviews with clinical staff
- Interviews with students

1.5 The program assures that students and faculty are made aware of the JRCERT **Standards for an Accredited Educational Program in Radiography** and the avenue to pursue allegations of noncompliance with the **Standards**.

Explanation:
The program must assure students and faculty are cognizant of the **Standards** and must provide contact information for the JRCERT.

Any individual associated with the program has the right to submit allegations against a JRCERT-accredited program if there is reason to believe that the program has acted contrary to JRCERT accreditation standards and/or JRCERT policies. Additionally, an individual has the right to submit allegations against the program if the student believes that conditions at the program appear to jeopardize the quality of instruction or the general welfare of its students.

Contacting the JRCERT must not be a step in the formal institutional or program grievance policy/procedure. The individual must first attempt to resolve the complaint directly with institutional/program officials by following the grievance policy/procedures provided by the institution/program. If the individual is unable to resolve the complaint with institutional/program officials or believes that the concerns have not been properly addressed, the individual may submit allegations of noncompliance directly to the JRCERT.

Required Program Response:

- Describe how students and faculty are made aware of the **Standards**.
- Provide documentation that the **Standards** and JRCERT contact information are made known to students and faculty.

Possible Site Visitor Evaluation Methods:

- Review of program publications
- Review of program website
- Interviews with faculty
- Interviews with students

1.6 The program publishes program effectiveness data (credentialing examination pass rate, job placement rate, and program completion rate) on an annual basis.

Explanation:
Program accountability is enhanced, in part, by making its program effectiveness data available to the program's communities of interest, including the public. In an effort to increase accountability and transparency, the program must publish, at a minimum, its most recent five-year average credentialing examination pass rate data, five-year average job placement rate data, and annual program completion rate data on its website to allow the public access to this information. If the program cannot document five years of program effectiveness data, it must publish its available effectiveness data.

The program effectiveness data must clearly identify the sample size associated with each measure (i.e., number of first-time test takers, number of graduates actively seeking employment, and number of graduates).

Program effectiveness data is published on the JRCERT website. Programs must publish a hyperlink to the JRCERT website to allow students and the public access to this information.

Required Program Response:
- Provide the hyperlink for the program's effectiveness data webpage.
- Provide samples of publications that document the availability of program effectiveness data via the JRCERT URL address from the program's website.

Possible Site Visitor Evaluation Methods:
- Review of program website
- Review of program publications
- Interviews with faculty
- Interviews with students

1.7 The sponsoring institution and program comply with requirements to achieve and maintain JRCERT accreditation.

Explanation:
Programs must comply with all JRCERT policies and procedures to maintain accreditation. JRCERT policies are located at www.jrcert.org. In addition, substantive changes must be reviewed and approved by the JRCERT prior to implementation, with the exception of a change of ownership.

JRCERT accreditation requires that the sponsoring institution has the primary responsibility for the educational program and grants the terminal award. Sponsoring institutions may include educational programs established in colleges, universities, vocational/technical schools, hospitals, or military facilities. The JRCERT does not recognize a healthcare system as the program sponsor. A healthcare system consists of multiple institutions operating under a common governing body or parent corporation. A specific facility within the healthcare system must be identified as the sponsor. The JRCERT requires each program to have a separate accreditation award and does not recognize branch campuses. The JRCERT recognizes a consortium as an appropriate sponsor of an educational program.

The JRCERT requires programs to maintain a current and accurate database. The program must maintain documentation of all program official qualifications, including updated curricula vitae and current ARRT certification and registration, or equivalent documentation. This documentation is not required to be entered into the Accreditation Management System (AMS). Newly appointed institutional administrators, program officials, and clinical preceptors must be updated through the AMS within thirty (30) days of appointment.

No Required Program Response

Possible Site Visitor Evaluation Method:
Review of a representative sample of program official qualifications

Standard Two: Institutional Commitment and Resources

The sponsoring institution demonstrates a sound financial commitment to the program by assuring sufficient academic, fiscal, personnel, and physical resources to achieve the program's mission.

Objectives:

2.1 The sponsoring institution provides appropriate administrative support and demonstrates a sound financial commitment to the program.

2.2 The sponsoring institution provides the program with the physical resources needed to support the achievement of the program's mission.

2.3 The sponsoring institution provides student resources.

2.4 The sponsoring institution and program maintain compliance with United States Department of Education (USDE) Title IV financial aid policies and procedures, if the JRCERT serves as gatekeeper.

2.1 The sponsoring institution provides appropriate administrative support and demonstrates a sound financial commitment to the program.

Explanation:

The program must have sufficient institutional support and ongoing funding to operate effectively. The program's relative position in the organizational structure helps facilitate appropriate resources and enables the program to meet its mission.

The sponsoring institution should provide the program with administrative/clerical services as needed to assist in the achievement of its mission.

Required Program Response:

- Describe the sponsoring institution's level of commitment to the program.
- Describe the program's position within the sponsoring institution's organizational structure and how this supports the program's mission.
- Describe the adequacy of financial resources.
- Describe the availability and functions of administrative/clerical services, if applicable.
- Provide institutional and program organizational charts.

Possible Site Visitor Evaluation Methods:

- Review of organizational charts of institution and program
- Review of published program materials
- Review of meeting minutes
- Interviews with institutional administration
- Interviews with faculty
- Interviews with clerical staff, if applicable

2.2 The sponsoring institution provides the program with the physical resources needed to support the achievement of the program's mission.

Explanation:
Physical resources include learning environments necessary to conduct teaching and facilitate learning. The sponsoring institution must provide faculty with adequate office and classroom space needed to fulfill their responsibilities. Faculty office space should be conducive to course development and scholarly activities. Space must be made available for private student advisement and program meetings. Classrooms must be appropriately designed to meet the needs of the program's curriculum delivery methods.

Resources include, but are not limited to, access to computers, reliable and secure Internet service, instructional materials (computer hardware and/or software, technology-equipped classrooms, simulation devices, and other instructional aides), and library resources.

Laboratories must be conducive to student learning and sufficient in size. The sponsoring institution must provide the program with access to a fully energized laboratory. An energized laboratory on campus is recommended. The program may utilize laboratory space that is also used for patient care. In the event patient flow disallows use of the laboratory space, the program must assure that laboratory courses are made up in a timely manner. A mobile unit and/or simulation software cannot take the place of a stationary/fixed energized laboratory.

The JRCERT does not endorse any specific physical resources.

Required Program Response:
Describe how the program's physical resources, such as offices, classrooms, and laboratories, facilitate the achievement of the program's mission.

Possible Site Visitor Evaluation Methods:
- Tour of the classroom, laboratories, and faculty offices
- Review of learning resources
- Interviews with faculty
- Interviews with students

2.3 The sponsoring institution provides student resources.

Explanation:
Student resources refer to the variety of services and programs offered to promote academic success. The institution and/or program must provide access to information for personal counseling, requesting accommodations for disabilities, and financial aid.

The JRCERT does not endorse any specific student resources.

Required Program Response:

- Describe how students are provided with access to information on personal counseling, disability services, and financial aid.
- Describe how the program utilizes other student resources to promote student success.

Possible Site Visitor Evaluation Methods:

- Tour of facilities
- Review of published program materials
- Review of surveys
- Interviews with faculty
- Interviews with students

2.4 The sponsoring institution and program maintain compliance with United States Department of Education (USDE) Title IV financial aid policies and procedures, if the JRCERT serves as gatekeeper.

Explanation:
If the program has elected to participate in Title IV financial aid and the JRCERT is identified as the gatekeeper, the program must:

- maintain financial documents including audit and budget processes confirming appropriate allocation and use of financial resources;
- have a monitoring process for student loan default rates;
- have an appropriate accounting system providing documentation for management of Title IV financial aid and expenditures; and
- inform students of responsibility for timely repayment of Title IV financial aid.

The program must comply with all USDE requirements to participate in Title IV financial aid.

Required Program Response:

- Describe how the program informs students of their responsibility for timely repayment of financial aid.
- Provide evidence that Title IV financial aid is managed and distributed according to the USDE regulations to include:
    - recent student loan default data and
    - results of financial or compliance audits.

Possible Site Visitor Evaluation Methods:

- Review of records
- Interviews with administrative personnel
- Interviews with faculty
- Interviews with students

Standard Three: Faculty and Staff

The sponsoring institution provides the program adequate and qualified faculty that enable the program to meet its mission and promote student learning.

Objectives:

3.1 The sponsoring institution provides an adequate number of faculty to meet all educational, accreditation, and administrative requirements.

3.2 The sponsoring institution and program assure that all faculty and staff possess the academic and professional qualifications appropriate for their assignments.

3.3 The sponsoring institution and program assure the responsibilities of faculty and clinical staff are delineated and performed.

3.4 The sponsoring institution and program assure program faculty performance is evaluated and results are shared regularly to assure responsibilities are performed.

3.5 The sponsoring institution and/or program provide faculty with opportunities for continued professional development.

3.1 The sponsoring institution provides an adequate number of faculty to meet all educational, accreditation, and administrative requirements.

Explanation:

An adequate number of faculty promotes sound educational practices. Full- and part-time status is determined by, and consistent with, the sponsoring institution's definition. Institutional policies and practices for faculty workload and release time must be consistent with faculty in other comparable health sciences programs in the same institution. Faculty workload and release time practices must include allocating time and/or reducing teaching load for educational, accreditation, and administrative requirements expected of the program director and clinical coordinator.

A full-time program director is required. A full-time equivalent clinical coordinator is required if the program has more than fifteen (15) students enrolled in the clinical component of the program (e.g., the total number of students simultaneously enrolled in all clinical courses during a term). The clinical coordinator position may be shared by no more than four (4) appointees. If a clinical coordinator is required, the program director may not be identified as the clinical coordinator. The clinical coordinator may not be identified as the program director.

A minimum of one clinical preceptor must be designated at each recognized clinical setting. The same clinical preceptor may be identified at more than one site as long as a ratio of one full-time equivalent clinical preceptor for every ten (10) students is maintained. The program director and clinical coordinator may perform clinical instruction; however, they may not be identified as clinical preceptors.

Required Program Response:

- Describe faculty workload and release time in relation to institutional policies/practices and comparable health sciences programs within the sponsoring institution.
- Describe the adequacy of the number of faculty and clinical preceptors to meet identified accreditation requirements and program needs.
- Provide institutional policies for faculty workload and release time.

Possible Site Visitor Evaluation Methods:

- Review institutional policies for faculty workload and release time
- Review of faculty position descriptions, if applicable
- Review of clinical settings
- Interviews with faculty
- Interviews with clinical preceptor(s)
- Interviews with students

3.2 The sponsoring institution and program assure that all faculty and staff possess the academic and professional qualifications appropriate for their assignments.

Position	Qualifications
Program Director	Holds, at a minimum, a master's degree; For master's degree programs, a doctoral degree is preferred;
	Proficient in curriculum design, evaluation, instruction, program administration, and academic advising;
	Documents three years' clinical experience in the professional discipline;
	Documents two years' experience as an instructor in a JRCERT-accredited program;
	Holds current American Registry of Radiologic Technologists (ARRT) certification and registration, or equivalent[1], in radiography.
Clinical Coordinator	Holds, at a minimum, a bachelor's degree; For master's degree programs, holds, at a minimum, a master's degree;
	Proficient in curriculum development, supervision, instruction, evaluation, and academic advising;
	Documents two years' clinical experience in the professional discipline;
	Documents one year's experience as an instructor in a JRCERT-accredited program;
	Holds current American Registry of Radiologic Technologists (ARRT) certification and registration, or equivalent[1], in radiography.
Full-time Didactic Faculty	Holds, at a minimum, a bachelor's degree;
	Is qualified to teach the subject;
	Proficient in course development, instruction, evaluation, and academic advising;
	Documents two years' clinical experience in the professional discipline;
	Holds current American Registry of Radiologic Technologists (ARRT) certification and registration, or equivalent[1], in radiography.
Adjunct Faculty	Holds academic and/or professional credentials appropriate to the subject content area taught;
	Is knowledgeable of course development, instruction, evaluation, and academic advising.
Clinical Preceptor	Is proficient in supervision, instruction, and evaluation;
	Documents two years' clinical experience in the professional discipline;
	Holds current American Registry of Radiologic Technologists (ARRT) certification and registration, or equivalent[2], in radiography.
Clinical Staff	Holds current American Registry of Radiologic Technologists (ARRT) certification and registration, or equivalent[2], in radiography.

[1] Equivalent: an unrestricted state license for the state in which the program is located.

[2] Equivalent: an unrestricted state license for the state in which the clinical setting is located.

Explanation:
Faculty and clinical staff must possess academic and professional qualifications appropriate for their assignment. Clinical preceptors and clinical staff supervising students' performance in the clinical component of the program must document American Registry of Radiologic Technologists (ARRT) certification and registration (or equivalent) or other appropriate credentials. Health care professionals with credentials other than ARRT certification and registration (or equivalent) may supervise students in specialty areas (e.g., Registered Nurse supervising students performing patient care skills, phlebotomist supervising students performing venipuncture, etc.).

No Required Program Response.

3.3 The sponsoring institution and program assure the responsibilities of faculty and clinical staff are delineated and performed.

Position	Responsibilities must, at a minimum, include:
Program Director	Assuring effective program operations;
	Overseeing ongoing program accreditation and assessment processes;
	Participating in budget planning;
	Participating in didactic and/or clinical instruction, as appropriate;
	Maintaining current knowledge of the professional discipline and educational methodologies through continuing professional development;
	Assuming the leadership role in the continued development of the program.
Clinical Coordinator	Correlating and coordinating clinical education with didactic education and evaluating its effectiveness;
	Participating in didactic and/or clinical instruction;
	Supporting the program director to assure effective program operations;
	Participating in the accreditation and assessment processes;
	Maintaining current knowledge of the professional discipline and educational methodologies through continuing professional development;
	Maintaining current knowledge of program policies, procedures, and student progress.
Full-Time Didactic Faculty	Preparing and maintaining course outlines and objectives, instructing, and evaluating student progress;
	Participating in the accreditation and assessment process;
	Supporting the program director to assure effective program operations;
	Participating in periodic review and revision of course materials;
	Maintaining current knowledge of professional discipline;
	Maintaining appropriate expertise and competence through continuing professional development.
Adjunct Faculty	Preparing and maintaining course outlines and objectives, instructing and evaluating students, and reporting progress;
	Participating in the assessment process, as appropriate;
	Participating in periodic review and revision of course materials;
	Maintaining current knowledge of the professional discipline, as appropriate;
	Maintaining appropriate expertise and competence through continuing professional development.

Position	Responsibilities must, at a minimum, include:
Clinical Preceptor	Maintaining knowledge of program mission and goals;
	Understanding the clinical objectives and clinical evaluation system and evaluating students' clinical competence;
	Providing students with clinical instruction and supervision;
	Participating in the assessment process, as appropriate;
	Maintaining current knowledge of program policies, procedures, and student progress and monitoring and enforcing program policies and procedures.
Clinical Staff	Understanding the clinical competency system;
	Understanding requirements for student supervision;
	Evaluating students' clinical competence, as appropriate;
	Supporting the educational process;
	Maintaining current knowledge of program clinical policies, procedures, and student progress.

Explanation:

Faculty and clinical staff responsibilities must be clearly delineated and support the program's mission. The program director and clinical coordinator may have other responsibilities as defined by the sponsoring institution; however, these added responsibilities must not compromise the ability, or the time allocated, to perform the responsibilities identified in this objective. For all circumstances when a program director's and/or clinical coordinator's appointment is less than 12 months and students are enrolled in didactic and/or clinical courses, the program director and/or clinical coordinator must assure that all program responsibilities are fulfilled.

Required Program Response:

- Describe how faculty and clinical staff responsibilities are delineated.
- Describe how the delegation of responsibilities occurs to assure continuous coverage of program responsibilities, if appropriate.
- Provide documentation that faculty and clinical staff positions are clearly delineated.
- Provide assurance that faculty responsibilities are fulfilled throughout the year.

Possible Site Visitor Evaluation Methods:

- Review of position descriptions
- Review of handbooks
- Interviews with institutional administration
- Interviews with faculty
- Interviews with clinical preceptors
- Interviews with clinical staff
- Interviews with students

3.4 The sponsoring institution and program assure program faculty performance is evaluated and results are shared regularly to assure responsibilities are performed.

Explanation:
Evaluating program faculty, including but not limited to program directors and clinical coordinators, assures that responsibilities are performed, promotes proper teaching methodology, and increases program effectiveness. The performance of program faculty must be evaluated and shared minimally once per year. Any evaluation results that identify concerns must be discussed with the respective individual(s) as soon as possible.

It is the prerogative of the program to evaluate the performance of clinical preceptors who are employees of clinical settings. If the program elects to evaluate the clinical preceptors, a description of the evaluation process should be provided to the clinical preceptors, along with the mechanism to incorporate feedback into professional growth and development.

Required Program Response:
- Describe the evaluation process.
- Describe how evaluation results are shared with program faculty.
- Describe how evaluation results are shared with clinical preceptors, if applicable.
- Provide samples of evaluations of program faculty.
- Provide samples of evaluations of clinical preceptors, if applicable.

Possible Site Visitor Evaluation Methods:
- Review of program evaluation materials
- Review of faculty evaluation(s)
- Review of clinical preceptor evaluation(s), if applicable
- Interviews with institutional administration
- Interviews with faculty
- Interviews with clinical preceptor(s), if applicable
- Interviews with students

3.5 The sponsoring institution and/or program provide faculty with opportunities for continued professional development.

Explanation:
Opportunities that enhance and advance educational, technical, and professional knowledge must be available to program faculty. Faculty should take advantage of the available resources provided on an institutional campus. Program faculty should not be expected to use personal leave time in order to attend professional development activities external to the sponsoring institution.

Required Program Response:

- Describe how professional development opportunities are made available to faculty.
- Describe how professional development opportunities have enhanced teaching methodologies.

Possible Site Visitor Evaluation Methods:

- Review of institutional and/or program policies for professional development
- Interviews with institutional administration
- Interviews with faculty

Standard Four: Curriculum and Academic Practices

The program's curriculum and academic practices prepare students for professional practice.

Objectives:

4.1 The program has a mission statement that defines its purpose.

4.2 The program provides a well-structured curriculum that prepares students to practice in the professional discipline.

4.3 All clinical settings must be recognized by the JRCERT.

4.4 The program provides timely, equitable, and educationally valid clinical experiences for all students.

4.5 The program provides learning opportunities in advanced imaging and/or therapeutic technologies.

4.6 The program assures an appropriate relationship between program length and the subject matter taught for the terminal award offered.

4.7 The program measures didactic, laboratory, and clinical courses in clock hours and/or credit hours through the use of a consistent formula.

4.8 The program provides timely and supportive academic and clinical advisement to students enrolled in the program.

4.9 The program has procedures for maintaining the integrity of distance education courses.

4.1 The program has a mission statement that defines its purpose.

Explanation:

The program's mission statement should clearly define the purpose or intent toward which the program's efforts are directed. The mission statement should support the mission of the sponsoring institution. The program must evaluate the mission statement, at a minimum every three years, to assure it is effective. The program should engage faculty and other communities of interest in the reevaluation of its mission statement.

Required Program Response:

- Describe how the program's mission supports the mission of the sponsoring institution.
- Describe how the program reevaluates its mission statement.
- Provide documentation of the reevaluation of the mission statement.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of meeting minutes
- Interviews with institutional administration
- Interviews with faculty

4.2 The program provides a well-structured curriculum that prepares students to practice in the professional discipline.

Explanation:
A well-structured curriculum must be comprehensive, current, appropriately sequenced, and provide for evaluation of student achievement. This allows for effective student learning by providing a knowledge foundation in didactic and laboratory courses prior to competency achievement. Continual refinement of the competencies achieved is necessary so that students can demonstrate enhanced performance in a variety of situations and patient conditions. The well-structured curriculum is guided by a master plan of education.

At a minimum, the curriculum should promote qualities that are necessary for students/graduates to practice competently, make ethical decisions, assess situations, provide appropriate patient care, communicate effectively, and keep abreast of current advancements within the profession. Expansion of the curricular content beyond the minimum is required of programs at the bachelor's degree or higher levels.

Use of a standard curriculum promotes consistency in radiography education and prepares the student to practice in the professional discipline. All programs must follow a JRCERT-adopted curriculum. An adopted curriculum is defined as:

- the most recent American Society of Radiologic Technologists (ASRT) Radiography curriculum and/or
- another professional curriculum adopted by the JRCERT Board of Directors.

The JRCERT encourages innovative approaches to curriculum delivery methods that provide students with flexible and creative learning opportunities. These methods may include, but are not limited to, distance education courses, part-time/evening curricular tracks, service learning, and/or interprofessional development.

Required Program Response:

- Describe how the program's curriculum is structured.
- Describe the program's clinical competency-based system.
- Describe how the program's curriculum is delivered, including the method of delivery for distance education courses. Identify which courses, if any, are offered via distance education.
- Describe alternative learning options, if applicable (e.g., part-time, evening and/or weekend curricular track(s)).
- Describe any innovative approaches to curriculum delivery methods.
- Provide the Table of Contents from the master plan of education.
- Provide current curriculum analysis grid.
- Provide samples of course syllabi.

Possible Site Visitor Evaluation Methods:

- Review of the master plan of education
- Review of didactic and clinical curriculum sequence
- Review of input from communities of interest
- Review of part-time, evening and/or weekend curricular track(s), if applicable
- Review of course syllabi
- Observation of a portion of any course offered via distance delivery
- Interviews with faculty
- Interviews with students

4.3 All clinical settings must be recognized by the JRCERT.

Explanation:
All clinical settings must be recognized by the JRCERT. Clinical settings must be recognized prior to student assignment. Ancillary medical facilities and imaging centers that are owned, operated, and on the same campus of a recognized setting do not require JRCERT recognition. A minimum of one (1) clinical preceptor must be identified for each recognized clinical setting.

If a facility is used as an observation site, JRCERT recognition is not required. An observation site is used for student observation of equipment operation and/or procedures that may not be available at recognized clinical settings. Students may not assist in, or perform, any aspects of patient care during observational assignments. Facilities where students participate in community-based learning do not require recognition.

Required Program Response:
- Assure all clinical settings are recognized by the JRCERT.
- Provide a listing of ancillary facilities under one clinical setting recognition.
- Describe how observation sites, if used, enhance student clinical education.

Possible Site Visitor Evaluation Methods:
- Review of JRCERT database
- Review of clinical records
- Interviews with faculty
- Interviews with clinical preceptors
- Interviews with clinical staff
- Interviews with students

4.4 The program provides timely, equitable, and educationally valid clinical experiences for all students.

Explanation:

Programs must have a process in place to assure timely, appropriate, and educationally valid clinical experiences to all admitted students. A meaningful clinical education plan assures that activities are equitable, as well as prevents the use of students as replacements for employees. Students must have sufficient access to clinical settings that provide a wide range of procedures for competency achievement, including mobile, surgical, and trauma examinations. The maximum number of students assigned to a clinical setting must be supported by sufficient human and physical resources. The number of students assigned to the clinical setting must not exceed the number of assigned clinical staff. The student to clinical staff ratio must be 1:1; however, it is acceptable that more than one student may be temporarily assigned to one technologist during infrequently performed procedures.

Clinical placement must be nondiscriminatory in nature and solely determined by the program. Students must be cognizant of clinical policies and procedures including emergency preparedness and medical emergencies.

Programs must assure that clinical involvement for students is limited to not more than ten (10) hours per day. If the program utilizes evening and/or weekend assignments, these assignments must be equitable, and program total capacity must not be increased based on these assignments. Students may not be assigned to clinical settings on holidays that are observed by the sponsoring institution. Programs may permit students to make up clinical time during the term or scheduled breaks; however, appropriate supervision must be maintained. Program faculty need not be physically present; however, students must be able to contact program faculty during makeup assignments. The program must also assure that its liability insurance covers students during these makeup assignments.

Required Program Response:

- Describe the process for student clinical placement including, but not limited to:
    - assuring equitable learning opportunities,
    - assuring access to a sufficient variety and volume of procedures to achieve program competencies, and
    - orienting students to clinical settings.
- Describe how the program assures a 1:1 student to radiography clinical staff ratio at all clinical settings.
- Provide current clinical student assignment schedules in relation to student enrollment.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of clinical placement process
- Review of course objectives
- Review of student clinical assignment schedules
- Review of clinical orientation process/records
- Review of student records
- Interviews with faculty
- Interviews with clinical preceptors
- Interviews with clinical staff
- Interviews with students

4.5 The program provides learning opportunities in advanced imaging and/or therapeutic technologies.

Explanation:
The program must provide learning opportunities in advanced imaging and/or therapeutic technologies. It is the program's prerogative to decide which advanced imaging and/or therapeutic technologies should be included in the didactic and/or clinical curriculum.

Programs are not required to offer clinical rotations in advanced imaging and/or therapeutic technologies; however, these clinical rotations are strongly encouraged to enhance student learning.

Students assigned to imaging modalities such as computed tomography, magnetic resonance, interventional procedures, and sonography, are not included in the calculation of the approved clinical capacity unless the clinical setting is recognized exclusively for advanced imaging modality rotations. Once the students have completed the imaging assignments, the program must assure that there are sufficient physical and human resources to support the students upon reassignment to the radiography department.

Required Program Response:
Describe how the program provides opportunities in advanced imaging and/or therapeutic technologies in the didactic and/or clinical curriculum.

Possible Site Visitor Evaluation Methods:

- Review of clinical rotation schedules, if applicable
- Interviews with faculty
- Interviews with students

4.6 The program assures an appropriate relationship between program length and the subject matter taught for the terminal award offered.

Explanation:
Program length must be consistent with the terminal award. The JRCERT defines program length as the duration of the program, which may be stated as total academic or calendar year(s), total semesters, trimesters, or quarters.

Required Program Response:
Describe the relationship between the program length and the terminal award offered.

Possible Site Visitor Evaluation Methods:

- Review of course catalog
- Review of published program materials
- Review of class schedules
- Interviews with faculty
- Interviews with students

4.7 The program measures didactic, laboratory, and clinical courses in clock hours and/or credit hours through the use of a consistent formula.

Explanation:
Defining the length of didactic, laboratory, and clinical courses facilitates the transfer of credit and the awarding of financial aid. The formula for calculating assigned clock/credit hours must be consistently applied for all didactic, laboratory, and clinical courses, respectively.

Required Program Response:

- Describe the method used to award credit hours for didactic, laboratory, and clinical courses.
- Provide a copy of the program's policies and procedures for determining credit hours and an example of how such policies and procedures have been applied to the program's coursework.
- Provide a list of all didactic, laboratory, and clinical courses with corresponding clock or credit hours.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of class schedules
- Interviews with institutional administration
- Interviews with faculty
- Interviews with students

4.8 The program provides timely and supportive academic and clinical advisement to students enrolled in the program.

Explanation:
Appropriate academic and clinical advisement promotes student achievement and professionalism. Student advisement should be both formative and summative and must be shared with students in a timely manner. Programs are encouraged to develop written advisement procedures.

Required Program Response:

- Describe procedures for student advisement.
- Provide sample records of student advisement.

Possible Site Visitor Evaluation Methods:

- Review of students' records
- Interviews with faculty
- Interviews with clinical preceptor(s)
- Interviews with students

4.9 The program has procedures for maintaining the integrity of distance education courses.

Explanation:

Programs that offer distance education courses must have processes in place that assure that the students who register in the distance education courses are the same students that participate in, complete, and receive the credit. Programs must verify the identity of students by using methods such as, but not limited to, secure logins, passcodes, proctored exams, and/or video monitoring. These processes must protect the student's privacy.

Required Program Response:

- Describe the process for assuring the integrity of distance education courses.
- Provide published institutional/program materials that outline procedures for maintaining the integrity of distance education courses.

Possible Site Visitor Evaluation Methods:

- Review of published institutional/program materials
- Review the process of student identification
- Review of student records
- Interviews with institutional administration
- Interviews with faculty
- Interviews with students

Standard Five: Health and Safety

The sponsoring institution and program have policies and procedures that promote the health, safety, and optimal use of radiation for students, patients, and the public.

Objectives:

5.1 The program assures the radiation safety of students through the implementation of published policies and procedures.

5.2 The program assures each energized laboratory is in compliance with applicable state and/or federal radiation safety laws.

5.3 The program assures that students employ proper safety practices.

5.4 The program assures that medical imaging procedures are performed under the appropriate supervision of a qualified radiographer.

5.5 The sponsoring institution and/or program have policies and procedures that safeguard the health and safety of students.

5.1 The program assures the radiation safety of students through the implementation of published policies and procedures.

Explanation:
Appropriate policies and procedures help assure that student radiation exposure is kept as low as reasonably achievable (ALARA). The program must monitor and maintain student radiation exposure data. All students must be monitored for radiation exposure when using equipment in energized laboratories as well as in the clinical environment during, but not limited to, simulation procedures, image production, or quality assurance testing.

Students must be provided their radiation exposure report within thirty (30) school days following receipt of the data. The program must have a published protocol that identifies a threshold dose for incidents in which student dose limits are exceeded. Programs are encouraged to identify a threshold dose below those identified in federal regulations.

The program's radiation safety policies must also include provisions for the declared pregnant student in an effort to assure radiation exposure to the student and fetus are kept as low as reasonably achievable (ALARA). The pregnancy policy must be made known to accepted and enrolled female students, and include:

- a written notice of voluntary declaration,
- an option for written withdrawal of declaration, and
- an option for student continuance in the program without modification.

The program may offer clinical component options such as clinical reassignments and/or leave of absence. Pregnancy policies should also be in compliance with Title IX regulations. The program should work with the Title IX coordinator and/or legal counsel to discuss and resolve any specific circumstances.

Required Program Response:

- Describe how the policies and procedures are made known to enrolled students.
- Describe how the radiation exposure report is made available to students.
- Provide copies of appropriate policies.
- Provide copies of radiation exposure reports.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of student records
- Review of student radiation exposure reports
- Interviews with faculty
- Interviews with clinical preceptor(s)
- Interviews with students

5.2 The program assures each energized laboratory is in compliance with applicable state and/or federal radiation safety laws.

Explanation:
Compliance with applicable laws promotes a safe environment for students and others. Records of compliance must be maintained for the program's energized laboratories.

Required Program Response:
Provide certificates and/or letters for each energized laboratory documenting compliance with state and/or federal radiation safety laws.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of compliance records
- Interviews with faculty

5.3 The program assures that students employ proper safety practices.

Explanation:
The program must assure that students are instructed in the utilization of imaging equipment, accessories, optimal exposure factors, and proper patient positioning to minimize radiation exposure to patients, selves, and others. These practices assure radiation exposures are kept as low as reasonably achievable (ALARA).

Students must understand basic safety practices prior to assignment to clinical settings. As students progress in the program, they must become increasingly proficient in the application of radiation safety practices.

- Students must not hold image receptors during any radiographic procedure.
- Students should not hold patients during any radiographic procedure when an immobilization method is the appropriate standard of care.
- Programs must develop policies regarding safe and appropriate use of energized laboratories by students. Students' utilization of energized laboratories must be under the supervision of a qualified radiographer who is available should students need assistance. If a qualified radiographer is not readily available to provide supervision, the radiation exposure mechanism must be disabled.

Programs must establish a magnetic resonance imaging (MRI) safety screening protocol and students must complete MRI orientation and screening which reflect current American College of Radiology (ACR) MR safety guidelines prior to the clinical experience. This assures that students are appropriately screened for magnetic field or radiofrequency hazards. Policies should reflect that students are mandated to notify the program should their status change.

Required Program Response:
- Describe how the curriculum sequence and content prepares students for safe radiation practices.
- Describe how the program prepares students for magnetic resonance safe practices.
- Provide the curriculum sequence.
- Provide policies/procedures regarding radiation safety.
- Provide the MRI safety screening protocol and screening tool.

Possible Site Visitor Evaluation Methods:
- Review of program curriculum
- Review of radiation safety policies/procedures
- Review of magnetic resonance safe practice and/or screening protocol
- Review of student handbook
- Review of student records
- Interviews with faculty
- Interviews with clinical preceptor(s)
- Interviews with clinical staff
- Interviews with students

5.4 The program assures that medical imaging procedures are performed under the appropriate supervision of a qualified radiographer.

Explanation:
Appropriate supervision assures patient safety and proper educational practices. The program must develop and publish supervision policies that clearly delineate its expectations of students, clinical preceptors, and clinical staff.

The JRCERT defines direct supervision as student supervision by a qualified radiographer who:

- reviews the procedure in relation to the student's achievement,
- evaluates the condition of the patient in relation to the student's knowledge,
- is physically present during the conduct of the procedure, and
- reviews and approves the procedure and/or image.

Students must be directly supervised until competency is achieved. Once students have achieved competency, they may work under indirect supervision. The JRCERT defines indirect supervision as student supervision provided by a qualified radiographer who is immediately available to assist students regardless of the level of student achievement.

Repeat images must be completed under direct supervision. The presence of a qualified radiographer during the repeat of an unsatisfactory image assures patient safety and proper educational practices.

Students must be directly supervised during surgical and all mobile, including mobile fluoroscopy, procedures regardless of the level of competency.

Required Program Response:

- Describe how the supervision policies are made known to students, clinical preceptors, and clinical staff.
- Describe how supervision policies are enforced and monitored in the clinical setting.
- Provide policies/procedures related to supervision.
- Provide documentation that the program's supervision policies are made known to students, clinical preceptors, and clinical staff.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of student records
- Review of meeting minutes
- Interviews with faculty
- Interviews with clinical preceptor(s)
- Interviews with clinical staff
- Interviews with students

5.5 The sponsoring institution and/or program have policies and procedures that safeguard the health and safety of students.

Explanation:

Appropriate health and safety policies and procedures assure that students are part of a safe, protected environment. These policies must, at a minimum, address campus safety, emergency preparedness, harassment, communicable diseases, and substance abuse. Enrolled students must be informed of policies and procedures.

Required Program Response:

- Describe how institutional and/or program policies and procedures are made known to enrolled students.
- Provide institutional and/or program policies and procedures that safeguard the health and safety of students.

Possible Site Visitor Evaluation Methods:

- Review of published program materials
- Review of student records
- Interviews with faculty
- Interviews with students

Standard Six: Programmatic Effectiveness and Assessment:
Using Data for Sustained Improvement

The extent of a program's effectiveness is linked to the ability to meet its mission, goals, and student learning outcomes. A systematic, ongoing assessment process provides credible evidence that enables analysis and critical discussions to foster ongoing program improvement.

Objectives:

6.1 The program maintains the following program effectiveness data:

- five-year average credentialing examination pass rate of not less than 75 percent at first attempt within six months of graduation,
- five-year average job placement rate of not less than 75 percent within twelve months of graduation, and
- annual program completion rate.

6.2 The program analyzes and shares its program effectiveness data to facilitate ongoing program improvement.

6.3 The program has a systematic assessment plan that facilitates ongoing program improvement.

6.4 The program analyzes and shares student learning outcome data to facilitate ongoing program improvement.

6.5 The program periodically reevaluates its assessment process to assure continuous program improvement.

6.1 The program maintains the following program effectiveness data:

- **five-year average credentialing examination pass rate of not less than 75 percent at first attempt within six months of graduation,**
- **five-year average job placement rate of not less than 75 percent within twelve months of graduation, and**
- **annual program completion rate.**

Explanation:
Program effectiveness outcomes focus on issues pertaining to the overall curriculum such as admissions, retention, completion, credentialing examination performance, and job placement.

The JRCERT has developed the following definitions and criteria related to program effectiveness outcomes:

Credentialing examination pass rate: The number of graduates who pass, on first attempt, the American Registry of Radiologic Technologists (ARRT) certification examination, or an unrestricted state licensing examination, compared with the number of graduates who take the examination within six months of graduation.

Job placement rate: The number of graduates employed in the radiologic sciences compared to the number of graduates actively seeking employment in the radiologic sciences. The JRCERT has defined not actively seeking employment as: 1) graduate fails to communicate with program officials regarding employment status after multiple attempts, 2) graduate is unwilling to seek employment that requires relocation, 3) graduate is unwilling to accept employment, for example, due to salary or hours, 4) graduate is on active military duty, and/or 5) graduate is continuing education.

Program completion rate: The number of students who complete the program within the stated program length. The program specifies the entry point (e.g., required orientation date, final drop/add date, final date to drop with 100% tuition refund, official class roster date, etc.) used in calculating the program's completion rate. When calculating the total number of students enrolled in the program (denominator), programs need not consider students who attrite due to nonacademic reasons such as: 1) financial, medical/mental health, or family reasons, 2) military deployment, 3) a change in major/course of study, and/or 4) other reasons an institution may classify as a nonacademic withdrawal.

Credentialing examination, job placement, and program completion data must be reported annually via the JRCERT Annual Report.

No Required Program Response.

Possible Site Visitor Evaluation Methods:

- Review of program effectiveness data
- Interviews with faculty

6.2 The program analyzes and shares its program effectiveness data to facilitate ongoing program improvement.

Explanation:
Analysis of program effectiveness data allows the program to determine if it is meeting its mission. This analysis also provides a means of accountability to faculty, students, and other communities of interest. Faculty should assure all data have been analyzed and discussed prior to sharing results with an assessment committee or other communities of interest. Sharing the program effectiveness data results should take place in a timely manner.

Programs must use assessment results to promote student success and maintain and improve program effectiveness outcomes. Analysis of program effectiveness data must occur at least annually, and results of the evidence-based decisions must be documented.

In sum, the data analysis process must, at a minimum, include:

- program effectiveness data that is compared to expected achievement; and
- documentation of discussion(s) of data analysis including trending/comparing of results over time to maintain and improve student learning.
    - If the program does not meet its benchmark for a specific program effectiveness outcome, the program must implement an action plan that identifies the issue/problem, allows for data trending, and identifies areas for improvement. The action plan must be reassessed annually until the performance concern(s) is/are appropriately addressed.

Required Program Response:

- Describe examples of evidence-based changes that have resulted from the analysis of program effectiveness data and discuss how these changes have maintained or improved program effectiveness outcomes.
- Provide actual program effectiveness data since the last accreditation award.
- Provide documentation of an action plan for any unmet benchmarks.
- Provide documentation that program effectiveness data is shared in a timely manner.

Possible Site Visitor Evaluation Methods:

- Review of aggregated data
- Review of data analysis and actions taken
- Review of documentation that demonstrates the sharing of results with communities of interest
- Review of representative samples of measurement tools used for data collection
- Interviews with faculty
- Interview with institutional assessment coordinator, if applicable

6.3 The program has a systematic assessment plan that facilitates ongoing program improvement.

Explanation:

A formalized written assessment plan allows programs to gather useful data to measure the goals and student learning outcomes to facilitate program improvement. Student learning outcomes must align with the goals and be explicit, measurable, and state the learning expectations. The development of goals and student learning outcomes allows the program to measure the attainment of its mission. It is important for the program to engage faculty and other communities of interest in the development or revision of its goals and student learning outcomes.

The program must have a written systematic assessment plan that, at a minimum, contains:

- goals in relation to clinical competency, communication, and critical thinking;
- two student learning outcomes per goal;
- two assessment tools per student learning outcome;
- benchmarks for each assessment method to determine level of achievement; and
- timeframes for data collection.

Programs may consider including additional goals in relation to ethical principles, interpersonal skills, professionalism, etc.

Programs at the bachelor's and higher degree levels should consider the additional professional content when developing their goals and student learning outcomes.

The program must also assess graduate and employer satisfaction. Graduate and employer satisfaction may be measured through a variety of methods. The methods and timeframes for collection of the graduate and employer satisfaction data are the prerogatives of the program.

Required Program Response:

- Describe how the program determined the goals and student learning outcomes to be included in the systematic assessment plan.
- Describe the program's cycle of assessment.
- Describe how the program uses feedback from communities of interest in the development of its assessment plan.
- Provide a copy of the program's current assessment plan.

Possible Site Visitor Evaluation Methods:

- Review of assessment plan
- Review of assessment methods
- Interviews with faculty
- Interview with institutional assessment coordinator, if applicable

6.4 The program analyzes and shares student learning outcome data to facilitate ongoing program improvement.

Explanation:
Analysis of student learning outcome data allows the program to determine if it is meeting its mission, goals, and student learning outcomes. This analysis also provides a means of accountability to faculty, students, and other communities of interest. Faculty should assure all data have been analyzed and discussed prior to sharing results with an assessment committee or other communities of interest. Sharing the student learning data results must take place in a timely manner.

Programs must use assessment results to promote student success and maintain and improve student learning outcomes. Analysis of student learning outcome data must occur at least annually, and results of the evidence-based decisions must be documented.

In sum, the data analysis process must, at a minimum, include:

- student learning outcome data that is compared to expected achievement; and
- documentation of discussion(s) of data analysis including trending/comparing of results over time to maintain and improve student learning.
    - If the program does meet its benchmark for a specific student learning outcome, the program should identify how student learning was maintained or improved and describe how students achieved program-level student learning outcomes.
    - If the program does not meet its benchmark for a specific student learning outcome, the program must implement an action plan that identifies the issue/problem, allows for data trending, and identifies areas for improvement. The action plan must be reassessed annually until the performance concern(s) is/are appropriately addressed.

Required Program Response:

- Describe examples of changes that have resulted from the analysis of student learning outcome data and discuss how these changes have maintained or improved student learning outcomes.
- Describe the process and timeframe for sharing student learning outcome data results with its communities of interest.
- Provide actual student learning outcome data and analysis since the last accreditation award.
- Provide documentation of an action plan for any unmet benchmarks.
- Provide documentation that student learning outcome data and analysis is shared in a timely manner.

Possible Site Visitor Evaluation Methods:

- Review of aggregated/disaggregated data
- Review of data analysis and actions taken
- Review of documentation that demonstrates the sharing of results with communities of interest
- Review of representative samples of measurement tools used for data collection
- Interviews with faculty
- Interview with institutional assessment coordinator, if applicable

6.5 The program periodically reevaluates its assessment process to assure continuous program improvement.

Explanation:
Identifying and implementing needed improvements in the assessment process leads to program improvement and renewal. As part of the assessment process, the program must review its mission statement, goals, student learning outcomes, and assessment plan to assure that assessment methods are providing credible information to make evidence-based decisions.

The program must assure the assessment process is effective in measuring student learning outcomes. At a minimum, this evaluation must occur at least every three years and be documented. In order to assure that student learning outcomes have been achieved and that curricular content is well-integrated across the curriculum, programs may consider the development and evaluation of a curriculum map. Programs may wish to utilize assessment rubrics to assist in validating the assessment process.

Required Program Response:

- Describe how assessment process reevaluation has occurred.
- Discuss changes to the assessment process that have occurred since the last accreditation award.
- Provide documentation that the assessment process is evaluated at least once every three years.

Possible Site Visitor Evaluation Methods:

- Review of documentation related to the assessment process reevaluation
- Review of curriculum mapping documentation, if applicable
- Interviews with faculty
- Interview with institutional assessment coordinator, if applicable

Glossary of Terms

Academic calendar: the official institutional/program document that, at a minimum, identifies specific start and end dates for each term, holidays recognized by the sponsoring institution, and breaks.

Accreditation status: a statement of the program's current standing with the JRCERT. Per JRCERT Policies 10.000 and 10.700, accreditation status is categorized as one of the following: Accredited, Probationary Accreditation, and Administrative Probationary Accreditation. The program must also identify its current length of accreditation award (i.e., 8-year, 5-year, 3-year, probation). The JRCERT publishes each program's current accreditation status at www.jrcert.org.

Administrator: individual(s) that oversee student activities, academic personnel, and programs.

Articulation agreement: a formal partnership between two (2) or more institutions of higher education. Typically, this type of agreement is formed between a hospital-based program and a community college or a community college and a four (4) year academic institution with the goal of creating a seamless transfer process for students.

Campus: the buildings and grounds of a school, college, university, or hospital. A campus does not include geographically dispersed locations.

Clinical capacity: the maximum number of students that can partake in clinical experiences at a clinical setting at any given time. Clinical capacity is determined by the availability of human and/or physical resources. Students assigned to imaging modalities such as computed tomography, magnetic resonance, interventional procedures, and sonography, are not included in the calculation of the approved clinical capacity unless the clinical setting is recognized exclusively for advanced imaging modality rotations.

Clinical obligations: relevant requirements for completion of a clinical course including, but not limited to, background checks, drug screening, travel to geographically dispersed clinical settings, evening and/or weekend clinical assignments, and documentation of professional liability.

Communities of interest: the internal and external stakeholders, as defined by the program, who have a keen interest in the mission, goals, and outcomes of the program and the subsequent program effectiveness. The communities of interest may include current students, faculty, graduates, institutional administration, employers, clinical staff, or other institutions, organizations, regulatory groups, and/or individuals interested in educational activities in medical imaging and radiation oncology.

Comparable health sciences programs: health science programs established in the same sponsoring institution that are similar to the radiography program in curricular structure as well as in the number of faculty, students, and clinical settings.

Consortium: two or more academic or clinical institutions that have formally agreed to sponsor the development and continuation of an education program. A consortium must be structured to recognize and perform the responsibilities and functions of a sponsoring institution.

Curriculum map (-ping): process/matrix used to indicate where student learning outcomes are covered in each course. Level of instructional emphasis or assessment of where the student learning outcome takes place may also be indicated.

Distance education: refer to the Higher Education Opportunity Act of 2008, Pub. L. No. 110-315, §103(a)(19) and JRCERT Policy 10.800 - Alternative Learning Options.

Asynchronous distance learning: learning and instruction that do not occur in the same place or at the same time.

Distance education: an educational process characterized by the separation, in time and/or place, between instructor and student. Distance education supports regular and substantive interaction synchronously or asynchronously between the instructor and student through one or more interactive distance delivery technologies.

Distance (Delivery) technology: instructional/delivery methods that may include the use of TV, audio, or computer transmissions (broadcast, closed-circuit, cable, microwave, satellite transmissions); audio, computer, or Internet-based conferencing; and/or methodologies.

Hybrid radiography course: a professional level radiography course that uses a mix of face-to-face traditional classroom instruction along with synchronous or asynchronous distance education instruction. Regardless of institutional definition, the JRCERT defines a hybrid radiography course as one that utilizes distance education for more than 50% of instruction and learning.

Online radiography course: a professional level radiography course that primarily uses asynchronous distance education instruction. Typically, the course instruction and learning is 100% delivered via the Internet. Often used interchangeably with Internet-based learning, web-based learning, or distance learning.

Synchronous distance learning: learning and instruction that occur at the same time and in the same place.
[Definitions based on Accrediting Commission of Education in Nursing (ACEN) Accreditation Manual glossary]

Equivalent: with regards to certification and registration, an unrestricted state license for the state in which the program and/or clinical setting is located.

Faculty: the teaching staff for didactic and clinical instruction. These individuals may also be known as academic personnel.

Faculty workload: contact/credit hours or percentages of time that reflect the manner in which the sponsoring institution characterizes, structures, and documents the nature of faculty members' teaching and non-teaching responsibilities. Workload duties include, but are not limited to, teaching, advisement, administration, committee activity, service, clinical practice, research, and other scholarly activities.

Gatekeeper: the agency responsible for oversight of the distribution, record keeping, and repayment of Title IV financial aid.

Grievance policy and/or procedure: a grievance is defined as a claim by a student that there has been a violation, misinterpretation, or inequitable application of any existing policy, procedure, or regulation. The program must have a policy/procedure to provide individuals an avenue to pursue grievances. If the institutional policy/procedure is to be followed, this must be clearly identified and provided to students. The policy/procedure must outline the steps for formal resolution of any grievance. The final step in the process must not include any individual(s) directly associated with the program (e.g., program director, clinical coordinator, faculty, administrator). The procedure must assure timely resolution. The program must maintain a record of all formal grievances and their resolution. Records must be retained in accordance with the institution's/program's retention policies/procedures. Additionally, the program must have a procedure to address any complaints apart from those that require invoking the grievance procedure (e.g., cleanliness of classroom). The program must determine if a pattern of any grievance or complaint exists that could negatively affect the quality of the educational program.

Master plan of education: an overview of the program and documentation of all aspects of the program. In the event of new faculty and/or leadership to the program, a master plan of education provides the information needed to understand the program and its operations. At a minimum, a master plan of education must include course syllabi (didactic and clinical courses), program policies and procedures, and the curricular sequence calendar. If the program utilizes an electronic format, the components must be accessible by all program faculty.

Meeting minutes: a tangible record of a meeting of individuals, groups, and/or boards that serve as a source of attestation of a meeting's outcome(s) and a reference for members who were unable to attend. The minutes should include decisions made, next steps planned, and identification and tracking of action plans.

Program effectiveness outcomes/data: the specific program outcomes established by the JRCERT. The JRCERT has developed the following definitions and criteria related to program effectiveness outcomes:

> **Credentialing examination pass rate:** the number of graduates who pass, on first attempt, the American Registry of Radiologic Technologists (ARRT) certification examination, or an unrestricted state licensing examination, compared with the number of graduates who take the examination within six months of graduation.
>
> **Job placement rate**: the number of graduates employed in the radiologic sciences compared to the number of graduates actively seeking employment in the radiologic sciences. The JRCERT has defined not actively seeking employment as: 1) graduate fails to communicate with program officials regarding employment status after multiple attempts, 2) graduate is unwilling to seek employment that requires relocation, 3) graduate is unwilling to accept employment due to salary or hours, 4) graduate is on active military duty, and/or 5) graduate is continuing education.
>
> **Program completion rate:** the number of students who complete the program within the stated program length. The program specifies the entry point (e.g., required orientation date, final drop/add date, final date to drop with 100% tuition refund, official class roster date, etc.) used in calculating the program's completion rate. When calculating the total number of students enrolled in the program (denominator), programs need not consider graduates who attrite due to nonacademic reasons such as: 1) financial, medical/mental health, or family reasons, 2) military deployment, 3) a change in major/course of study, and/or 4) other reasons an institution may classify as a nonacademic withdrawal.

Program total capacity: the maximum number of students that can be enrolled in the educational program at any given time. Program total capacity is dependent on the availability of human and physical resources of the sponsoring institution. It is also dependent on the program's clinical rotation schedule and the clinical capacities of recognized clinical settings.

Release time (reassigned workload): a reduction in the teaching workload to allow for the administrative functions associated with the responsibilities of the program director or clinical coordinator or other responsibilities as assigned.

Sponsoring institution: the facility or organization that has primary responsibility for the educational program and grants the terminal award. A recognized institutional accreditor must accredit a sponsoring institution. Educational programs may be established in: community and junior colleges; senior colleges and universities; hospitals; medical schools; postsecondary vocational/technical schools and institutions; military/governmental facilities; proprietary schools; and consortia. Consortia must be structured to recognize and perform the responsibilities and functions of a sponsoring institution.

Awarding, Maintaining, and Administering Accreditation

A. Program/Sponsoring Institution Responsibilities

1. Applying for Accreditation

The accreditation review process conducted by the Joint Review Committee on Education in Radiologic Technology (JRCERT) is initiated by a program through the written request for accreditation sent to the JRCERT, on program/institutional letterhead. The request must include the name of the program, the type of program, and the address of the program. The request is to be submitted, with the applicable fee, to:

Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850
Chicago, IL 60606-3182

Submission of such information will allow the program access to the JRCERT's Accreditation Management System (AMS). The initial application and self-study report will then be available for completion and submission through the AMS.

2. Administrative Requirements for Maintaining Accreditation

a. Submitting the self-study report or a required progress report within a reasonable period of time, as determined by the JRCERT.

b. Agreeing to a reasonable site visit date before the end of the period for which accreditation was awarded.

c. Informing the JRCERT, within a reasonable period of time, of changes in the institutional or program officials, program director, clinical coordinator, full-time didactic faculty, and clinical preceptor(s).

d. Paying JRCERT fees within a reasonable period of time. Returning, by the established deadline, a completed Annual Report.

e. Returning, by the established deadline, any other information requested by the JRCERT.

Programs are required to comply with these and other administrative requirements for maintaining accreditation. Additional information on policies and procedures is available at www.jrcert.org.

Program failure to meet administrative requirements for maintaining accreditation will lead to Administrative Probationary Accreditation and potentially result in Withdrawal of Accreditation.

B. JRCERT Responsibilities

1. Administering the Accreditation Review Process

The JRCERT reviews educational programs to assess compliance with the **Standards for an Accredited Educational Program in Radiography**.

The accreditation process includes a site visit.

Before the JRCERT takes accreditation action, the program being reviewed must respond to the report of findings.

The JRCERT is responsible for recognition of clinical settings.

2. Accreditation Actions

Consistent with JRCERT policy, the JRCERT defines the following as accreditation actions:

> Accreditation, Probationary Accreditation, Administrative Probationary Accreditation, Withholding Accreditation, and Withdrawal of Accreditation (Voluntary and Involuntary).

For more information regarding these actions, refer to JRCERT Policy 10.200.

A program or sponsoring institution may, at any time prior to the final accreditation action, withdraw its request for initial or continuing accreditation.

Educators may wish to contact the following organizations for additional information and materials:

Accreditation:
Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850
Chicago, IL 60606-3182
(312) 704-5300
www.jrcert.org

Curriculum:
American Society of Radiologic Technologists
15000 Central Avenue, S.E.
Albuquerque, NM 87123-3909
(505) 298-4500
www.asrt.org

Certification:
American Registry of Radiologic Technologists
1255 Northland Drive
St. Paul, MN 55120-1155
(651) 687-0048
www.arrt.org

JRCERT
20 North Wacker Drive
Suite 2850
Chicago, IL 60606-3182
(312) 704-5300
(312) 704-5304 (fax)
mail@jrcert.org (e-mail)
www.jrcert.org

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Suggested **General Guidelines for the Pregnant Worker**

Occupation	Restrictions	Allowed Tasks
Diagnostic X-Ray	• No restrictions	• General radiography • Portable radiography • Fluoroscopy • Special Procedures
Nursing	• Care of patients undergoing treatment of thyroid carcinoma with NaI-131 • Care of patients undergoing treatment with brachytherapy sources	• Care of patients following • Nuclear Medicine diagnostic procedures • Diagnostic x-ray procedures
Radiation Therapy	• Handling of brachytherapy or HDR sources • Care of patients undergoing NaI-131 therapy • Care of patients undergoing Lu-177 therapy	• External beam treatments • Simulations
Nuclear Medicine	• Radiopharmaceutical therapy	• Preparation of radiopharmaceuticals • Injection of patients • Imaging • QA procedures
PET	• No restrictions	• Preparation of Radiopharmaceuticals • Injection of patients • Imaging • QA procedures

10 INSTRUCTIONS CONCERNING PREGNANT WORKER

I. Sensitivity of Fetus to Radiation

A number of studies have suggested that the embryo/fetus may be more sensitive to ionizing radiation than an adult, especially during the first three months of gestation. The National Council on Radiation Protection and Measurements (NCRP) has recommended (NCRP No. 53 & 91) that special precautions be taken to limit exposure when an occupationally exposed woman could be pregnant. The maximum permissible dose to the fetus from occupational exposure of the expectant mother should not exceed 500 mrem during the entire gestation period without substantial variation. This is approximately one-tenth of the occupational dose limit.

II. What to do if You Become Pregnant and are Exposed to Ionizing Radiation in Your Work

When you learn you are pregnant, you may wish to but are not required to inform your supervisor and Radiation Safety Officer. Once contacted, the Radiation Safety Officer or a RSO delegate will review radiation protection and the facility's policy regarding pregnant radiation workers with you. This process is termed a declaration of your pregnancy. There is no reason to become alarmed.

III. If You Have Questions or Want Additional Information

The Nuclear Regulatory Guide 8.13 ("Instruction Concerning Prenatal Radiation Exposures") will be made available to you for informational purposes, if you request.

The radiation safety officer or RSO delegate is available for discussion regarding levels of exposure from sources of ionizing radiation in the work environment and the risks to the developing embryo/fetus as a result of prenatal exposure. You will be asked to acknowledge in writing that the radiation safety officer or RSO delegate gave you instruction.

References:

(1) U.S. Nuclear Regulatory Commission, 1996, *INSTRUCTION CONCERNING RISKS FROM OCCUPATIONAL RADIATION EXPOSURE*, Regulatory Guide 8.29, February 1996.

(2) National Council on Radiation Protection and Measurements, *IONIZING RADIATION EXPOSURE OF THE POPULATION OF THE UNITED STATES*, NCRP Report No. 93, September 1987.

(3) National Research Council, *HEALTH EFFECTS OF EXPOSURE TO LOW LEVELS OF IONIZING RDIATION*, Report of the Committee on the Biological Effects of Ionizing Radiation (BEIR V), National Academy Press, Washington, D.C.

(4) B.L. Cohen and I.S. Lee, *CATALOG OF RISKS EXTENDED AND UPDATED*, Health Physics, Vol. 61, September 1991.

(5) U.S. Nuclear Regulatory Commission, 1994, *INSTRUCTION CONCERNING PRENATAL RADIATION EXPOSURE*, Regulatory Guide 8.13, October 1994

IV. Facility Policy

A. A facility can adopt a conservative policy of restricting the dose of ionizing radiation to the fetus during the entire period of gestation to no more than 500 mrem during the entire gestation period without substantial variation.

B. If you work in an area where the anticipated dose is less than 500 mrem during the entire gestation period without substantial variation, you are able to continue to work in this area with no restrictions. Your work assignments will be under the direction of your supervisor. However, the radiation safety officer may make certain recommendations regarding your work assignments to further reduce the dose to the fetus.

C. If a situation is identified in which the anticipated dose to the fetus over the gestation period would be more than 500 mrem, the following three alternatives listed below are possible:

1. You may be assigned to another area involving less exposure to ionizing radiation.

2. You may continue to work in the area with certain restrictions to limit exposure of the fetus to less than 500 mrem (based on recommendations made by the radiation safety officer). In nearly all cases, the work environment will require slight modifications to ensure that the dose to the fetus does not exceed 500 mrem during the entire gestation period without substantial variation.

3. You may, at your option and with the full awareness of a slight increased risk for the unborn child, decide to continue working in this area. It is likely, under these circumstances, that the fetus could receive a dose of more than 500 mrem. If you choose this option, you must sign a statement acknowledging your willingness to work in the area where the dose to the fetus might exceed 500 mrem. You are not encouraged to select this option.

D. If you are unwilling to accept the increased risk to your unborn child due to your current level of radiation exposure, you may request reassignment to an area involving less exposure to ionizing radiation. The facility should make a good faith effort to accommodate your request in accordance with the general policy for reassignments. If it is not possible or practicable to grant your request, after a good faith effort has been made, then you may be laid-off or placed on a leave of absence in accordance with the facilities general policies.

E. Individuals who are pregnant are not prohibited from working in or frequenting radiation areas. These individuals may also operate sources of ionizing radiation (diagnostic x-ray equipment, cobalt-60 teletherapy units, and linear accelerators) and handle radioactive materials such as those that are present in Nuclear Medicine.

F. During your pregnancy, you are expected to perform your assigned duties as a radiation worker, unless certain restrictions are placed upon you by the radiation safety officer.

G. During your pregnancy, you are encouraged to monitor your radiation exposure via the dosimeter readings, which are made available to radiation workers. Contact the radiation safety officer if any unusual readings occur.

H. As noted above your verbal and written "Declaration" of your pregnancy is optional and once made it can be rescinded by you and you alone. If you choose to rescind your declaration this facility is not required to restrict your fetal exposure to 500 mrem, but you will return to the normal adult exposure limits.

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INSTRUCTION CONCERNING RISKS FROM OCCUPATIONAL RADIATION EXPOSURE

A. INTRODUCTION

Section 19.12 of 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," requires that all individuals who in the course of their employment are likely to receive in a year an occupational dose in excess of 100 mrem (1 mSv) be instructed in the health protection issues associated with exposure to radioactive materials or radiation. Section 20.1206 of 10 CFR Part 20, "Standards for Protection Against Radiation," requires that before a planned special exposure occurs the individuals involved are, among other things, to be informed of the estimated doses and associated risks.

This regulatory guide describes the information that should be provided to workers by licensees about health risks from occupational exposure. This revision conforms to the revision of 10 CFR Part 20 that became effective on June 20, 1991, to be implemented by licensees no later than January 1, 1994. The revision of 10 CFR Part 20 establishes new dose limits based on the effective dose equivalent (EDE), requires the summing of internal and external dose, establishes a requirement that licensees use procedures and engineering controls to the extent practicable to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA), provides for planned special exposures, establishes a dose limit for the embryo/fetus of an occupationally exposed declared pregnant woman, and explicitly states that Part 20 is not to be construed as limiting action that may be necessary to protect health and safety during emergencies.

Any information collection activities mentioned in this regulatory guide are contained as requirements in 10 CFR Part 19 or 10 CFR Part 20. These regulations provide the regulatory bases for this guide. The information collection requirements in 10 CFR Parts 19 and 20 have been cleared under OMB Clearance Nos. 3150–0044 and 3150–0014, respectively.

B. DISCUSSION

It is important to qualify the material presented in this guide with the following considerations.

The coefficient used in this guide for occupational radiation risk estimates, 4×10^{-4} health effects per rem, is based on data obtained at much higher doses and dose rates than those encountered by workers. The risk coefficient obtained at high doses and dose rates was reduced to account for the reduced effectiveness of lower doses and dose rates in producing the stochastic effects observed in studies of exposed humans.

The assumption of a linear extrapolation from the lowest doses at which effects are observable down to

the occupational range has considerable uncertainty. The report of the Committee on the Biological Effects of Ionizing Radiation (Ref. 1) states that

> "... departure from linearity cannot be excluded at low doses below the range of observation. Such departures could be in the direction of either an increased or decreased risk. Moreover, epidemiologic data cannot rigorously exclude the existence of a threshold in the 100 mrem dose range. Thus, the possibility that there may be no risk from exposures comparable to external natural background radiation cannot be ruled out. At such low doses and dose rates, it must be acknowledged that the lower limit of the range of uncertainty in the risk estimates extends to zero."

The issue of beneficial effects from low doses, or hormesis, in cellular systems is addressed by the United Nations Scientific Committee on the Effects of Atomic Radiation (Ref. 2). UNSCEAR states that "... it would be premature to conclude that cellular adaptive responses could convey possible beneficial effects to the organism that would outweigh the detrimental effects of exposures to low doses of low-LET radiation."

In the absence of scientific certainty regarding the relationship between low doses and health effects, and as a conservative assumption for radiation protection purposes, the scientific community generally assumes that any exposure to ionizing radiation can cause biological effects that may be harmful to the exposed person and that the magnitude or probability of these effects is directly proportional to the dose. These effects may be classified into three categories:

> *Somatic Effects:* Physical effects occurring in the exposed person. These effects may be observable after a large or acute dose (e.g., 100 rems[1] (1 Sv) or more to the whole body in a few hours); or they may be effects such as cancer that may occur years after exposure to radiation.
>
> *Genetic Effects:* Abnormalities that may occur in the future children of exposed individuals and in subsequent generations (genetic effects exceeding normal incidence have not been observed in any of the studies of human populations).
>
> *Teratogenic Effects:* Effects such as cancer or congenital malformation that may be observed in children who were exposed during the fetal and embryonic stages of development (these effects have been observed from high, i.e., above 20 rems (0.2 Sv), acute exposures).

The normal incidence of effects from natural and manmade causes is significant. For example, approximately 20% of people die from various forms of cancer whether or not they ever receive occupational exposure to radiation. To avoid increasing the incidence of such biological effects, regulatory controls are imposed on occupational doses to adults and minors and on doses to the embryo/fetus from occupational exposures of declared pregnant women.

Radiation protection training for workers who are occupationally exposed to ionizing radiation is an essential component of any program designed to ensure compliance with NRC regulations. A clear understanding of what is presently known about the biological risks associated with exposure to radiation will result in more effective radiation protection training and should generate more interest on the part of the workers in complying with radiation protection standards. In addition, pregnant women and other occupationally exposed workers should have available to them relevant information on radiation risks to enable them to make informed decisions regarding the acceptance of these risks. It is intended that workers who receive this instruction will develop respect for the risks involved, rather than excessive fear or indifference.

C. REGULATORY POSITION

Instruction to workers performed in compliance with 10 CFR 19.12 should be given prior to occupational exposure and periodically thereafter. The frequency of retraining might range from annually for licensees with complex operations such as nuclear power plants, to every three years for licensees who possess, for example, only low-activity sealed sources. If a worker is to participate in a planned special exposure, the worker should be informed of the associated risks in compliance with 10 CFR 20.1206.

In providing instruction concerning health protection problems associated with exposure to radiation, all occupationally exposed workers and their supervisors should be given specific instruction on the risk of biological effects resulting from exposure to radiation. The extent of these instructions should be commensurate with the radiological risks present in the workplace.

The instruction should be presented orally, in printed form, or in any other effective communication media to workers and supervisors. The appendix to this guide provides useful information for demonstrating compliance with the training requirements in 10 CFR Parts 19 and 20. Individuals should be given an opportunity to discuss the information and to ask questions. Testing is recommended, and each trainee should be asked to acknowledge in writing that the instruction has been received and understood.

[1] In the International System of Units (SI), the rem is replaced by the sievert; 100 rems is equal to 1 sievert (Sv).

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC staff's plans for using this regulatory guide.

Except in those cases in which an applicant or licensee proposes acceptable alternative methods for complying with specified portions of the Commission's regulations, the guidance and instructional materials in this guide will be used in the evaluation of applications for new licenses, license renewals, and license amendments and for evaluating compliance with 10 CFR 19.12 and 10 CFR Part 20.

REFERENCES

1. National Research Council, *Health Effects of Exposure to Low Levels of Ionizing Radiation*, Report of the Committee on the Biological Effects of Ionizing Radiation (BEIR V), National Academy Press, Washington, DC, 1990.

2. United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), *Sources and Effects of Ionizing Radiation*, United Nations, New York, 1993.

APPENDIX

INSTRUCTION CONCERNING RISKS FROM OCCUPATIONAL RADIATION EXPOSURE

This instructional material is intended to provide the user with the best available information about the health risks from occupational exposure to ionizing radiation. Ionizing radiation consists of energy or small particles, such as gamma rays and beta and alpha particles, emitted from radioactive materials, which can cause chemical or physical damage when they deposit energy in living tissue. A question and answer format is used. Many of the questions or subjects were developed by the NRC staff in consultation with workers, union representatives, and licensee representatives experienced in radiation protection training.

This Revision 1 to Regulatory Guide 8.29 updates the material in the original guide on biological effects and risks and on typical occupational exposure. Additionally, it conforms to the revised 10 CFR Part 20, "Standards for Protection Against Radiation," which was required to be implemented by licensees no later than January 1, 1994. The information in this appendix is intended to help develop respect by workers for the risks associated with radiation, rather than unjustified fear or lack of concern. Additional guidance concerning other topics in radiation protection training is provided in other NRC regulatory guides.

1. What is meant by health risk?

A health risk is generally thought of as something that may endanger health. Scientists consider health risk to be the statistical probability or mathematical chance that personal injury, illness, or death may result from some action. Most people do not think about health risks in terms of mathematics. Instead, most of us consider the health risk of a particular action in terms of whether we believe that particular action will, or will not, cause us some harm. The intent of this appendix is to provide estimates of, and explain the bases for, the risk of injury, illness, or death from occupational radiation exposure. Risk can be quantified in terms of the probability of a health effect per unit of dose received.

When x-rays, gamma rays, and ionizing particles interact with living materials such as our bodies, they may deposit enough energy to cause biological damage. Radiation can cause several different types of events such as the very small physical displacement of molecules, changing a molecule to a different form, or ionization, which is the removal of electrons from atoms and molecules. When the quantity of radiation energy deposited in living tissue is high enough, biological damage can occur as a result of chemical bonds being broken and cells being damaged or killed. These effects can result in observable clinical symptoms.

The basic unit for measuring absorbed radiation is the rad. One rad (0.01 gray in the International System of units) equals the absorption of 100 ergs (a small but measurable amount of energy) in a gram of material such as tissue exposed to radiation. To reflect biological risk, rads must be converted to rems. The new international unit is the sievert (100 rems = 1 Sv). This conversion accounts for the differences in the effectiveness of different types of radiation in causing damage. The rem is used to estimate biological risk. For beta and gamma radiation, a rem is considered equal to a rad.

2. What are the possible health effects of exposure to radiation?

Health effects from exposure to radiation range from no effect at all to death, including diseases such as leukemia or bone, breast, and lung cancer. Very high (100s of rads), short-term doses of radiation have been known to cause prompt (or early) effects, such as vomiting and diarrhea,[1] skin burns, cataracts, and even death. It is suspected that radiation exposure may be linked to the potential for genetic effects in the children of exposed parents. Also, children who were exposed to high doses (20 or more rads) of radiation prior to birth (as an embryo/fetus) have shown an increased risk of mental retardation and other congenital malformations. These effects (with the exception of genetic effects) have been observed in various studies of medical radiologists, uranium miners, radium workers, radiotherapy patients, and the people exposed to radiation from atomic bombs dropped on Japan. In addition, radiation effects studies with laboratory animals, in which the animals were given relatively high doses, have provided extensive data on radiation-induced health effects, including genetic effects.

It is important to note that these kinds of health effects result from high doses, compared to occupational levels, delivered over a relatively short period of time.

Although studies have not shown a consistent cause-and-effect relationship between current levels of occupational radiation exposure and biological effects, it is prudent from a worker protection perspective to assume that some effects may occur.

[1]These symptoms are early indicators of what is referred to as the acute radiation syndrome, caused by high doses delivered over a short time period, which includes damage to the blood-forming organs such as bone marrow, damage to the gastrointestinal system, and, at very high doses, can include damage to the central nervous system.

3. What is meant by early effects and delayed or late effects?

EARLY EFFECTS

Early effects, which are also called immediate or prompt effects, are those that occur shortly after a large exposure that is delivered within hours to a few days. They are observable after receiving a very large dose in a short period of time, for example, 300 rads (3 Gy) received within a few minutes to a few days. Early effects are not caused at the levels of radiation exposure allowed under the NRC's occupational limits.

Early effects occur when the radiation dose is large enough to cause extensive biological damage to cells so that large numbers of cells are killed. For early effects to occur, this radiation dose must be received within a short time period. This type of dose is called an acute dose or acute exposure. The same dose received over a long time period would not cause the same effect. Our body's natural biological processes are constantly repairing damaged cells and replacing dead cells; if the cell damage is spread over time, our body is capable of repairing or replacing some of the damaged cells, reducing the observable adverse conditions.

For example, a dose to the whole body of about 300–500 rads (3–5 Gy), more than 60 times the annual occupational dose limit, if received within a short time period (e.g., a few hours) will cause vomiting and diarrhea within a few hours; loss of hair, fever, and weight loss within a few weeks; and about a 50 percent chance of death if medical treatment is not provided. These effects would not occur if the same dose were accumulated gradually over many weeks or months (Refs. 1 and 2). Thus, one of the justifications for establishing annual dose limits is to ensure that occupational dose is spread out in time.

It is important to distinguish between whole body and partial body exposure. A localized dose to a small volume of the body would not produce the same effect as a whole body dose of the same magnitude. For example, if only the hand were exposed, the effect would mainly be limited to the skin and underlying tissue of the hand. An acute dose of 400 to 600 rads (4–6 Gy) to the hand would cause skin reddening; recovery would occur over the following months and no long-term damage would be expected. An acute dose of this magnitude to the whole body could cause death within a short time without medical treatment. Medical treatment would lessen the magnitude of the effects and the chance of death; however, it would not totally eliminate the effects or the chance of death.

DELAYED EFFECTS

Delayed effects may occur years after exposure. These effects are caused indirectly when the radiation changes parts of the cells in the body, which causes the normal function of the cell to change, for example, normal healthy cells turn into cancer cells. The potential for these delayed health effects is one of the main concerns addressed when setting limits on occupational doses.

A delayed effect of special interest is genetic effects. Genetic effects may occur if there is radiation damage to the cells of the gonads (sperm or eggs). These effects may show up as genetic defects in the children of the exposed individual and succeeding generations. However, if any genetic effects (i.e., effects in addition to the normal expected number) have been caused by radiation, the numbers are too small to have been observed in human populations exposed to radiation. For example, the atomic bomb survivors (from Hiroshima and Nagasaki) have not shown any significant radiation-related increases in genetic defects (Ref. 3). Effects have been observed in animal studies conducted at very high levels of exposure and it is known that radiation can cause changes in the genes in cells of the human body. However, it is believed that by maintaining worker exposures below the NRC limits and consistent with ALARA, a margin of safety is provided such that the risk of genetic effects is almost eliminated.

4. What is the difference between acute and chronic radiation dose?

Acute radiation dose usually refers to a large dose of radiation received in a short period of time. Chronic dose refers to the sum of small doses received repeatedly over long time periods, for example, 20 mrem (or millirem, which is 1-thousandth of a rem) (0.2 mSv) per week every week for several years. It is assumed for radiation protection purposes that any radiation dose, either acute or chronic, may cause delayed effects. However, only large acute doses cause early effects; chronic doses within the occupational dose limits do not cause early effects. Since the NRC limits do not permit large acute doses, concern with occupational radiation risk is primarily focused on controlling chronic exposure for which possible delayed effects, such as cancer, are of concern.

The difference between acute and chronic radiation exposure can be shown by using exposure to the sun's rays as an example. An intense exposure to the sun can result in painful burning, peeling, and growing of new skin. However, repeated short exposures provide time for the skin to be repaired between exposures. Whether exposure to the sun's rays is long term or spread over short periods, some of the injury may not be repaired and may eventually result in skin cancer.

Cataracts are an interesting case because they can be caused by both acute and chronic radiation. A certain threshold level of dose to the lens of the eye is required before there is any observable visual impairment, and the impairment remains after the exposure is stopped. The threshold for cataract development

from acute exposure is an acute dose on the order of 100 rads (1 Gy). Further, a cumulative dose of 800 rads (8 Gy) from protracted exposures over many years to the lens of the eye has been linked to some level of visual impairment (Refs. 1 and 4). These doses exceed the amount that may be accumulated by the lens from normal occupational exposure under the current regulations.

5. What is meant by external and internal exposure?

A worker's occupational dose may be caused by exposure to radiation that originates outside the body, called "external exposure," or by exposure to radiation from radioactive material that has been taken into the body, called "internal exposure." Most NRC-licensed activities involve little, if any, internal exposure. It is the current scientific consensus that a rem of radiation dose has the same biological risk regardless of whether it is from an external or an internal source. The NRC requires that dose from external exposure and dose from internal exposure be added together, if each exceeds 10% of the annual limit, and that the total be within occupational limits. The sum of external and internal dose is called the total effective dose equivalent (TEDE) and is expressed in units of rems (Sv).

Although unlikely, radioactive materials may enter the body through breathing, eating, drinking, or open wounds, or they may be absorbed through the skin. The intake of radioactive materials by workers is generally due to breathing contaminated air. Radioactive materials may be present as fine dust or gases in the workplace atmosphere. The surfaces of equipment and workbenches may be contaminated, and these materials can be resuspended in air during work activities.

If any radioactive material enters the body, the material goes to various organs or is excreted, depending on the biochemistry of the material. Most radioisotopes are excreted from the body in a few days. For example, a fraction of any uranium taken into the body will deposit in the bones, where it remains for a longer time. Uranium is slowly eliminated from the body, mostly by way of the kidneys. Most workers are not exposed to uranium. Radioactive iodine is preferentially deposited in the thyroid gland, which is located in the neck.

To limit risk to specific organs and the total body, an annual limit on intake (ALI) has been established for each radionuclide. When more than one radionuclide is involved, the intake amount of each radionuclide is reduced proportionally. NRC regulations specify the concentrations of radioactive material in the air to which a worker may be exposed for 2,000 working hours in a year. These concentrations are termed the derived air concentrations (DACs). These limits are the total amounts allowed if no external radiation is received. The resulting dose from the internal radiation sources (from breathing air at 1 DAC) is the maximum allowed to an organ or to the worker's whole body.

6. How does radiation cause cancer?

The mechanisms of radiation-induced cancer are not completely understood. When radiation interacts with the cells of our bodies, a number of events can occur. The damaged cells can repair themselves and permanent damage is not caused. The cells can die, much like the large numbers of cells that die every day in our bodies, and be replaced through the normal biological processes. Or a change can occur in the cell's reproductive structure, the cells can mutate and subsequently be repaired without effect, or they can form precancerous cells, which may become cancerous. Radiation is only one of many agents with the potential for causing cancer, and cancer caused by radiation cannot be distinguished from cancer attributable to any other cause.

Radiobiologists have studied the relationship between large doses of radiation and cancer (Refs. 5 and 6). These studies indicate that damage or change to genes in the cell nucleus is the main cause of radiation-induced cancer. This damage may occur directly through the interaction of the ionizing radiation in the cell or indirectly through the actions of chemical products produced by radiation interactions within cells. Cells are able to repair most damage within hours; however, some cells may not be repaired properly. Such misrepaired damage is thought to be the origin of cancer, but misrepair does not always cause cancer. Some cell changes are benign or the cell may die; these changes do not lead to cancer.

Many factors such as age, general health, inherited traits, sex, as well as exposure to other cancer-causing agents such as cigarette smoke can affect susceptibility to the cancer-causing effects of radiation. Many diseases are caused by the interaction of several factors, and these interactions appear to increase the susceptibility to cancer.

7. Who developed radiation risk estimates?

Radiation risk estimates were developed by several national and international scientific organizations over the last 40 years. These organizations include the National Academy of Sciences (which has issued several reports from the Committee on the Biological Effects of Ionizing Radiations, BEIR), the National Council on Radiation Protection and Measurements (NCRP), the International Commission on Radiological Protection (ICRP), and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). Each of these organizations continues to review new research findings on radiation health risks.

Several reports from these organizations present new findings on radiation risks based upon revised estimates of radiation dose to survivors of the atomic bombing at Hiroshima and Nagasaki. For example, UNSCEAR published risk estimates in 1988 and 1993 (Refs. 5 and 6). The NCRP also published a report in 1988, "New Dosimetry at Hiroshima and Nagasaki and Its Implications for Risk Estimates" (Ref. 7). In January 1990, the National Academy of Sciences released the fifth report of the BEIR Committee, "Health Effects of Exposure to Low Levels of Ionizing Radiation" (Ref. 4). Each of these publications also provides extensive bibliographies on other published studies concerning radiation health effects for those who may wish to read further on this subject.

8. What are the estimates of the risk of fatal cancer from radiation exposure?

We don't know exactly what the chances are of getting cancer from a low-level radiation dose, primarily because the few effects that may occur cannot be distinguished from normally occurring cancers. However, we can make estimates based on extrapolation from extensive knowledge from scientific research on high dose effects. The estimates of radiation effects at high doses are better known than are those of most chemical carcinogens (Ref. 8).

From currently available data, the NRC has adopted a risk value for an occupational dose of 1 rem (0.01 Sv) Total Effective Dose Equivalent (TEDE) of 4 in 10,000 of developing a fatal cancer, or approximately 1 chance in 2,500 of fatal cancer per rem of TEDE received. The uncertainty associated with this risk estimate does not rule out the possibility of higher risk, or the possibility that the risk may even be zero at low occupational doses and dose rates.

The radiation risk incurred by a worker depends on the amount of dose received. Under the linear model explained above, a worker who receives 5 rems (0.05 Sv) in a year incurs 10 times as much risk as another worker who receives only 0.5 rem (0.005 Sv). Only a very few workers receive doses near 5 rems (0.05 Sv) per year (Ref. 9).

According to the BEIR V report (Ref. 4), approximately one in five adults normally will die from cancer from all possible causes such as smoking, food, alcohol, drugs, air pollutants, natural background radiation, and inherited traits. Thus, in any group of 10,000 workers, we can estimate that about 2,000 (20%) will die from cancer without any occupational radiation exposure.

To explain the significance of these estimates, we will use as an example a group of 10,000 people, each exposed to 1 rem (0.01 Sv) of ionizing radiation. Using the risk factor of 4 effects per 10,000 rem of dose, we estimate that 4 of the 10,000 people might die from delayed cancer because of that 1-rem dose (although the actual number could be more or less than 4) in addition to the 2,000 normal cancer fatalities expected to occur in that group from all other causes. This means that a 1-rem (0.01 Sv) dose may increase an individual worker's chances of dying from cancer from 20 percent to 20.04 percent. If one's lifetime occupational dose is 10 rems, we could raise the estimate to 20.4 percent. A lifetime dose of 100 rems may increase chances of dying from cancer from 20 to 24 percent. The average measurable dose for radiation workers reported to the NRC was 0.31 rem (0.0031 Sv) for 1993 (Ref. 9). Today, very few workers ever accumulate 100 rems (1 Sv) in a working lifetime, and the average career dose of workers at NRC-licensed facilities is 1.5 rems (0.015 Sv), which represents an estimated increase from 20 to about 20.06 percent in the risk of dying from cancer.

It is important to understand the probability factors here. A similar question would be, "If you select one card from a full deck of cards, will you get the ace of spades?" This question cannot be answered with a simple yes or no. The best answer is that your chance is 1 in 52. However, if 1000 people each select one card from full decks, we can predict that about 20 of them will get an ace of spades. Each person will have 1 chance in 52 of drawing the ace of spades, but there is no way we can predict which persons will get that card. The issue is further complicated by the fact that in a drawing by 1000 people, we might get only 15 successes, and in another, perhaps 25 correct cards in 1000 draws. We can say that if you receive a radiation dose, you will have increased your chances of eventually developing cancer. It is assumed that the more radiation exposure you get, the more you increase your chances of cancer.

The normal chance of dying from cancer is about one in five for persons who have not received any occupational radiation dose. The additional chance of developing fatal cancer from an occupational exposure of 1 rem (0.01 Sv) is about the same as the chance of drawing any ace from a full deck of cards three times in a row. The additional chance of dying from cancer from an occupational exposure of 10 rem (0.1 Sv) is about equal to your chance of drawing two aces successively on the first two draws from a full deck of cards.

It is important to realize that these risk numbers are only estimates based on data for people and research animals exposed to high levels of radiation in short periods of time. There is still uncertainty with regard to estimates of radiation risk from low levels of exposure. Many difficulties are involved in designing research studies that can accurately measure the projected small increases in cancer cases that might be caused by low exposures to radiation as compared to the normal rate of cancer.

These estimates are considered by the NRC staff to be the best available for the worker to use to make an informed decision concerning acceptance of the risks associated with exposure to radiation. A worker who decides to accept this risk should try to keep exposure to radiation as low as is reasonably achievable (ALARA) to avoid unnecessary risk.

9. If I receive a radiation dose that is within occupational limits, will it cause me to get cancer?

Probably not. Based on the risk estimates previously discussed, the risk of cancer from doses below the occupational limits is believed to be small. Assessment of the cancer risks that may be associated with low doses of radiation are projected from data available at doses larger than 10 rems (0.1 Sv) (Ref. 3). For radiation protection purposes, these estimates are made using the straight line portion of the linear quadratic model (Curve 2 in Figure 1). We have data on cancer probabilities only for high doses, as shown by the solid line in Figure 1. Only in studies involving radiation doses above occupational limits are there dependable determinations of the risk of cancer, primarily because below the limits the effect is small compared to differences in the normal cancer incidence from year to year and place to place. The ICRP, NCRP, and other standards-setting organizations assume for radiation protection purposes that there is some risk, no matter how small the dose (Curves 1 and 2). Some scientists believe that the risk drops off to zero at some low dose (Curve 3), the threshold effect. The ICRP and NCRP endorse the linear quadratic model as a conservative means of assuring safety (Curve 2).

For regulatory purposes, the NRC uses the straight line portion of Curve 2, which shows the number of effects decreasing linearly as the dose decreases. Because the scientific evidence does not conclusively demonstrate whether there is or is not an effect at low doses, the NRC assumes for radiation protection purposes, that even small doses have some chance of causing cancer. Thus, a principle of radiation protection is to do more than merely meet the allowed regulatory limits; doses should be kept as low as is reasonably achievable (ALARA). This is as true for natural carcinogens such as sunlight and natural radiation as it is for those that are manmade, such as cigarette smoke, smog, and x-rays.

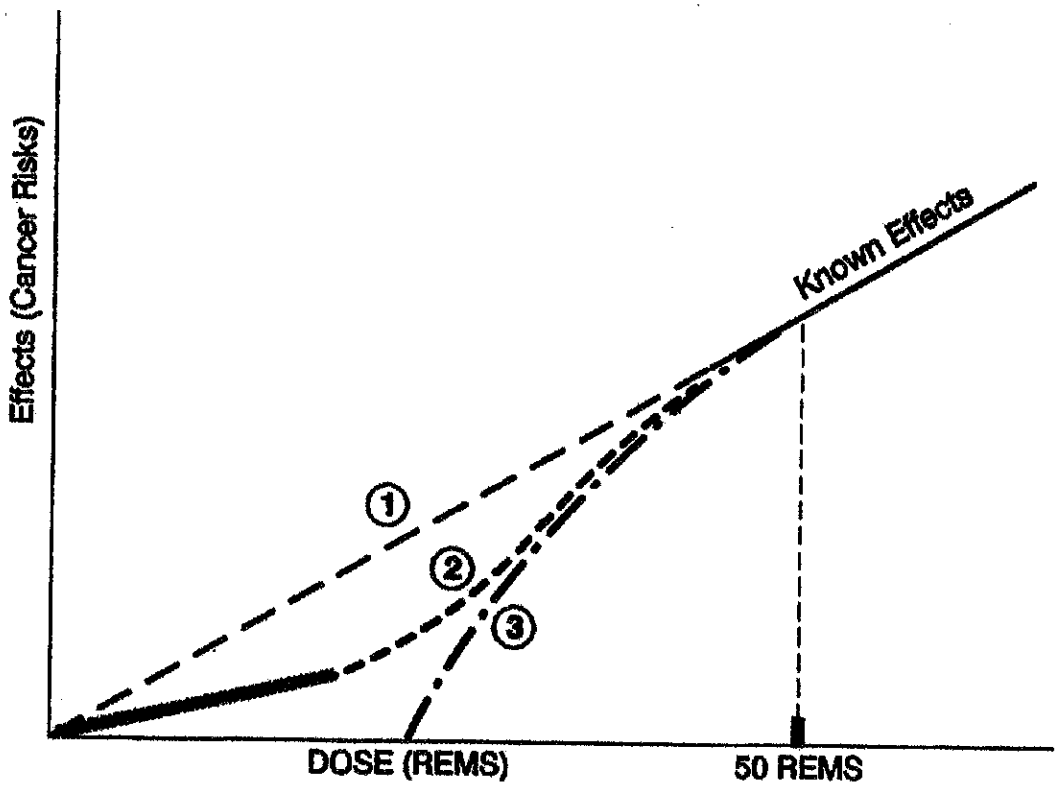

Figure 1. Some Proposed Models for How the Effects of Radiation Vary With Doses at Low Levels

10. How can we compare the risk of cancer from radiation to other kinds of health risks?

One way to make these comparisons is to compare the average number of days of life expectancy lost because of the effects associated with each particular health risk. Estimates are calculated by looking at a large number of persons, recording the age when death occurs from specific causes, and estimating the average number of days of life lost as a result of these early deaths. The total number of days of life lost is then averaged over the total observed group.

Several studies have compared the average days of life lost from exposure to radiation with the number of days lost as a result of being exposed to other health risks. The word "average" is important because an individual who gets cancer loses about 15 years of life expectancy, while his or her coworkers do not suffer any loss.

Some representative numbers are presented in Table 1. For categories of NRC-regulated industries with larger doses, the average measurable occupational dose in 1993 was 0.31 rem (0.0031 Sv). A simple calculation based on the article by Cohen and Lee (Ref. 10) shows that 0.3 rem (0.003 Sv) per year from age 18 to 65 results in an average loss of 15 days. These estimates indicate that the health risks from occupational radiation exposure are smaller than the risks associated with many other events or activities we encounter and accept in normal day-to-day activities.

It is also useful to compare the estimated average number of days of life lost from occupational exposure to radiation with the number of days lost as a result of working in several types of industries. Table 2 shows average days of life expectancy lost as a result of fatal work-related accidents. Table 2 does not include non-accident types of occupational risks such as occupational disease and stress because the data are not available.

These comparisons are not ideal because we are comparing the possible effects of chronic exposure to radiation to different kinds of risk such as accidental death, in which death is inevitable if the event occurs. This is the best we can do because good data are not available on chronic exposure to other workplace carcinogens. Also, the estimates of loss of life expectancy for workers from radiation-induced cancer do not take into consideration the competing effect on the life expectancy of the workers from industrial accidents.

11. What are the health risks from radiation exposure to the embryo/fetus?

During certain stages of development, the embryo/fetus is believed to be more sensitive to radiation damage than adults. Studies of atomic bomb survivors exposed to acute radiation doses exceeding 20 rads (0.2 Gy) during pregnancy show that children born after receiving these doses have a higher risk of mental retardation. Other studies suggest that an association exists between exposure to diagnostic x-rays before birth and carcinogenic effects in childhood and in adult life. Scientists are uncertain about the magnitude of the risk. Some studies show the embryo/fetus to be more sensitive to radiation-induced cancer than adults, but other studies do not. In recognition of the possibility of increased radiation sensitivity, and because dose to the

Table 1 Estimated Loss of Life Expectancy from Health Risks[a]

Health Risk	*Estimate of Life Expectancy Lost (average)*	
Smoking 20 cigarettes a day		6 years
Overweight (by 15%)		2 years
Alcohol consumption (U.S. average)		1 year
All accidents combined		1 year
Motor vehicle accidents	207 days	
Home accidents	74 days	
Drowning	24 days	
All natural hazards (earthquake, lightning, flood, etc.)		7 days
Medical radiation		6 days
Occupational Exposure		
0.3 rem/y from age 18 to 65	15 days	
1 rem/y from age 18 to 65	51 days	

[a]Adapted from Reference 10.

Table 2 Estimated Loss of Life Expectancy from Industrial Accidents[a]

Industry Type	*Estimated Days of Life Expectancy Lost (Average)*
All industries	60
Agriculture	320
Construction	227
Mining and Quarrying	167
Transportation and Public Utilities	160
Government	60
Manufacturing	40
Trade	27
Services	27

[a]Adapted from Reference 10.

embryo/fetus is involuntary on the part of the embryo/fetus, a more restrictive dose limit has been established for the embryo/fetus of a declared pregnant radiation worker. See Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure."

If an occupationally exposed woman declares her pregnancy in writing, she is subject to the more restrictive dose limits for the embryo/fetus during the remainder of the pregnancy. The dose limit of 500 mrems (5 mSv) for the total gestation period applies to the embryo/fetus and is controlled by restricting the exposure to the declared pregnant woman. Restricting the woman's occupational exposure, if she declares her pregnancy, raises questions about individual privacy rights, equal employment opportunities, and the possible loss of income. Because of these concerns, the declaration of pregnancy by a female radiation worker is voluntary. Also, the declaration of pregnancy can be withdrawn for any reason, for example, if the woman believes that her benefits from receiving the occupational exposure would outweigh the risk to her embryo/fetus from the radiation exposure.

12. Can a worker become sterile or impotent from normal occupational radiation exposure?

No. Temporary or permanent sterility cannot be caused by radiation at the levels allowed under NRC's occupational limits. There is a threshold below which these effects do not occur. Acute doses on the order of 10 rems (0.1 Sv) to the testes can result in a measurable but temporary reduction in sperm count. Temporary sterility (suppression of ovulation) has been observed in women who have received acute doses of 150 rads (1.5 Gy). The estimated threshold (acute) radiation dose for induction of permanent sterility is about 200 rads (2 Gy) for men and about 350 rads (3.5 Gy) for women (Refs. 1 and 4). These doses are far greater than the NRC s occupational dose limits for workers.

Although acute doses can affect fertility by reducing sperm count or suppressing ovulation, they do not have any direct effect on one's ability to function sexually. No evidence exists to suggest that exposures within the NRC's occupational limits have any effect on the ability to function sexually.

13. What are the NRC occupational dose limits?

For adults, an annual limit that does not exceed:

- 5 rems (0.05 Sv) for the total effective dose equivalent (TEDE), which is the sum of the deep dose equivalent (DDE) from external exposure to the whole body and the committed effective dose equivalent (CEDE) from intakes of radioactive material.
- 50 rems (0.5 Sv) for the total organ dose equivalent (TODE), which is the sum of the DDE from external exposure to the whole body and the committed dose equivalent (CDE) from intakes of radioactive material to any individual organ or tissue, other than the lens of the eye.
- 15 rems (0.15 Sv) for the lens dose equivalent (LDE), which is the external dose to the lens of the eye.
- 50 rems (0.5 Sv) for the shallow dose equivalent (SDE), which is the external dose to the skin or to any extremity.

For minor workers, the annual occupational dose limits are 10 percent of the dose limits for adult workers.

For protection of the embryo/fetus of a declared pregnant woman, the dose limit is 0.5 rem (5 mSv) during the entire pregnancy.

The occupational dose limit for adult workers of 5 rems (0.05 Sv) TEDE is based on consideration of the potential for delayed biological effects. The 5-rem (0.05 Sv) limit, together with application of the concept of keeping occupational doses ALARA, provides a level of risk of delayed effects considered acceptable by the NRC. The limits for individual organs are below the dose levels at which early biological effects are observed in the individual organs.

The dose limit for the embryo/fetus of a declared pregnant woman is based on a consideration of the possibility of greater sensitivity to radiation of the embryo/fetus and the involuntary nature of the exposure.

14. What is meant by ALARA?

ALARA means "as low as is reasonably achievable." In addition to providing an upper limit on an individual's permissible radiation dose, the NRC requires that its licensees establish radiation protection

programs and use procedures and engineering controls to achieve occupational doses, and doses to the public, as far below the limits as is reasonably achievable. "Reasonably achievable" also means "to the extent practicable." What is practicable depends on the purpose of the job, the state of technology, the costs for averting doses, and the benefits. Although implementation of the ALARA principle is a required integral part of each licensee's radiation protection program, it does not mean that each radiation exposure must be kept to an absolute minimum, but rather that "reasonable" efforts must be made to avert dose. In practice, ALARA includes planning tasks involving radiation exposure so as to reduce dose to individual workers and the work group.

There are several ways to control radiation doses, e.g., limiting the time in radiation areas, maintaining distance from sources of radiation, and providing shielding of radiation sources to reduce dose. The use of engineering controls, from the design of facilities and equipment to the actual set-up and conduct of work activities, is also an important element of the ALARA concept.

An ALARA analysis should be used in determining whether the use of respiratory protection is advisable. In evaluating whether or not to use respirators, the goal should be to achieve the optimal sum of external and internal doses. For example, the use of respirators can lead to increased work time within radiation areas, which increases external dose. The advantage of using respirators to reduce internal exposure must be evaluated against the increased external exposure and related stresses caused by the use of respirators. Heat stress, reduced visibility, and reduced communication associated with the use of respirators could expose a worker to far greater risks than are associated with the internal dose avoided by use of the respirator. To the extent practical, engineering controls, such as containments and ventilation systems, should be used to reduce workplace airborne radioactive materials.

15. What are background radiation exposures?

The average person is constantly exposed to ionizing radiation from several sources. Our environment and even the human body contain naturally occurring radioactive materials (e.g., potassium-40) that contribute to the radiation dose that we receive. The largest source of natural background radiation exposure is terrestrial radon, a colorless, odorless, chemically inert gas, which causes about 55 percent of our average, nonoccupational exposure. Cosmic radiation originating in space contributes additional exposure. The use of x-rays and radioactive materials in medicine and dentistry adds to our population exposure. As shown below in Table 3, the average person receives an annual radiation dose of about 0.36 rem (3.6 mSv). By age 20, the average person will accumulate over 7 rems (70 mSv) of dose. By age 50, the total dose is up to 18 rems (180 mSv). After 70 years of exposure this dose is up to 25 rems (250 mSv).

Table 3 Average Annual Effective Dose Equivalent to Individuals in the U.S.[a]

Source	*Effective Dose Equivalent (mrems)*	
Natural		
Radon	200	
Other than Radon	100	
Total		300
Nuclear Fuel Cycle		0.05
Consumer Products[b]		9
Medical		
Diagnostic X-rays	39	
Nuclear Medicine	14	
Total		53
Total		about 360 mrems/year

[a]Adapted from Table 8.1, NCRP 93 (Ref. 11).

[b]Includes building material, television receivers, luminous watches, smoke detectors, etc. (from Table 5.1, NCRP 93, Ref. 11).

16. What are the typical radiation doses received by workers?

For 1993, the NRC received reports on about a quarter of a million people who were monitored for occupational exposure to radiation. Almost half of those monitored had no measurable doses. The other half had an average dose of about 310 mrem (3.1 mSv) for the year. Of these, 93 percent received an annual dose of less than 1 rem (10 mSv); 98.7 percent received less than 2 rems (20 mSv); and the highest reported dose was for two individuals who each received between 5 and 6 rems (50 and 60 mSv).

Table 4 lists average occupational doses for workers (persons who had measurable doses) in various occupations based on 1993 data. It is important to note that beginning in 1994, licensees have been required to sum external and internal doses and certain licensees are required to submit annual reports. Certain types of licensees such as nuclear fuel fabricators may report a significant increase in worker doses because of the exposure to long-lived airborne radionuclides and the requirement to add the resultant internal dose to the calculation of occupational doses.

Table 4 Reported Occupational Doses for 1993[a]

Occupational Subgroup	Average Measurable Dose per Worker (millirems)
Industrial Radiography	540
Commercial Nuclear Power Reactors	310
Manufacturing and Distribution of Radioactive Materials	300
Low-Level Radioactive Waste Disposal	270
Independent Spent Nuclear Fuel Storage	260
Nuclear Fuel Fabrication	130

[a]From Table 3.1 in NUREG–0713 (Ref. 9).

17. How do I know how much my occupational dose (exposure) is?

If you are likely to receive more than 10 percent of the annual dose limits, the NRC requires your employer, the NRC licensee, to monitor your dose, to maintain records of your dose, and, at least on an annual basis for the types of licensees listed in 10 CFR 20.2206, "Reports of Individual Monitoring," to inform both you and the NRC of your dose. The purpose of this monitoring and reporting is so that the NRC can be sure that licensees are complying with the occupational dose limits and the ALARA principle.

External exposures are monitored by using individual monitoring devices. These devices are required to be used if it appears likely that external exposure will exceed 10 percent of the allowed annual dose, i.e., 0.5 rem (5 mSv). The most commonly used monitoring devices are film badges, thermoluminescence dosimeters (TLDs), electronic dosimeters, and direct reading pocket dosimeters.

With respect to internal exposure, your employer is required to monitor your occupational intake of radioactive material and assess the resulting dose if it appears likely that you will receive greater than 10 percent of the annual limit on intake (ALI) from intakes in 1 year. Internal exposure can be estimated by measuring the radiation emitted from the body (for example, with a "whole body counter") or by measuring the radioactive materials contained in biological samples such as urine or feces. Dose estimates can also be made if one knows how much radioactive material was in the air and the length of time during which the air was breathed.

18. What happens if a worker exceeds the annual dose limit?

If a worker receives a dose in excess of any of the annual dose limits, the regulations prohibit any occupational exposure during the remainder of the year in which the limit is exceeded. The licensee is also required to file an overexposure report with the NRC and provide a copy to the individual who received the dose. The licensee may be subject to NRC enforcement action such as a fine (civil penalty), just as individuals are subject to a traffic fine for exceeding a speed limit. The fines and, in some serious or repetitive cases, suspension of a license are intended to encourage licensees to comply with the regulations.

Radiation protection limits do not define safe or unsafe levels of radiation exposure. Exceeding a limit does not mean that you will get cancer. For radiation protection purposes, it is assumed that risks are related to the size of the radiation dose. Therefore, when your dose is higher your risk is also considered to be higher. These limits are similar to highway speed limits. If you drive at 70 mph, your risk is higher than at 55 mph, even though you may not actually have an accident. Those who set speed limits have determined that the risks of driving in excess of the speed limit are not acceptable. In the same way, the revised 10 CFR Part 20 establishes a limit for normal occupational exposure of 5 rems (0.05 Sv) a year. Although you will not necessarily get cancer or some other radiation effect at doses above the limit, it does mean that the licensee's safety program has failed in some way. Investigation is warranted to determine the cause and correct the conditions leading to the dose in excess of the limit.

19. What is meant by a "planned special exposure"?

A "planned special exposure" (PSE) is an infrequent exposure to radiation, separate from and in addition to the radiation received under the annual occupational limits. The licensee can authorize additional dose in any one year that is equal to the annual occupational dose limit as long as the individual's total dose from PSEs does not exceed five times the annual dose limit during the individual's lifetime. For example, licensees may authorize PSEs for an adult radiation worker to receive doses up to an additional 5 rems (0.05 Sv) in a year above the 5-rem (0.05–Sv) annual TEDE occupational dose limit. Each worker is limited to no more than 25 rems (0.25 Sv) from planned special exposures in his or her lifetime. Such exposures are only allowed in exceptional situations when alternatives for avoiding the additional exposure are not available or are impractical.

Before the licensee authorizes a PSE, the licensee must ensure that the worker is informed of the purpose and circumstances of the planned operation, the estimated doses expected, and the procedures to keep the doses ALARA while considering other risks that may

be present. (See Regulatory Guide 8.35, "Planned Special Exposures.")

20. Why do some facilities establish administrative control levels that are below the NRC limits?

There are two reasons. First, the NRC regulations state that licensees must take steps to keep exposures to radiation ALARA. Specific approval from the licensee for workers to receive doses in excess of administrative limits usually results in more critical risk-benefit analyses as each additional increment of dose is approved for a worker. Secondly, an administrative control level that is set lower than the NRC limit provides a safety margin designed to help the licensee avoid doses to workers in excess of the limit.

21. Why aren't medical exposures considered as part of a worker's allowed dose?

NRC rules exempt medical exposure, but equal doses of medical and occupational radiation have equal risks. Medical exposure to radiation is justified for reasons that are quite different from the reasons for occupational exposure. A physician prescribing an x-ray, for example, makes a medical judgment that the benefit to the patient from the resulting medical information justifies the risk associated with the radiation. This judgment may or may not be accepted by the patient. Similarly, each worker must decide on the benefits and acceptability of occupational radiation risk, just as each worker must decide on the acceptability of any other occupational hazard.

Consider a worker who receives a dose of 3 rems (0.03 Sv) from a series of x-rays in connection with an injury or illness. This dose and any associated risk must be justified on medical grounds. If the worker had also received 2 rems (0.02 Sv) on the job, the combined dose of 5 rems (0.05 Sv) would in no way incapacitate the worker. Restricting the worker from additional job exposure during the remainder of the year would not have any effect on the risk from the 3 rems (0.03 Sv) already received from the medical exposure. If the individual worker accepts the risks associated with the x-rays on the basis of the medical benefits and accepts the risks associated with job-related exposure on the basis of employment benefits, it would be unreasonable to restrict the worker from employment involving exposure to radiation for the remainder of the year.

22. How should radiation risks be considered in an emergency?

Emergencies are "unplanned" events in which actions to save lives or property may warrant additional doses for which no particular limit applies. The revised 10 CFR Part 20 does not set any dose limits for emergency or lifesaving activities and states that nothing in Part 20 "shall be construed as limiting actions that may be necessary to protect health and safety."

Rare situations may occur in which a dose in excess of occupational limits would be unavoidable in order to carry out a lifesaving operation or to avoid a large dose to large populations. However, persons called upon to undertake any emergency operation should do so only on a voluntary basis and with full awareness of the risks involved.

For perspective, the Environmental Protection Agency (EPA) has published emergency dose guidelines (Ref. 2). These guidelines state that doses to all workers during emergencies should, to the extent practicable, be limited to 5 rems (0.05 Sv). The EPA further states that there are some emergency situations for which higher limits may be justified. The dose resulting from such emergency exposures should be limited to 10 rems (0.1 Sv) for protecting valuable property, and to 25 rems (0.25 Sv) for lifesaving activities and the protection of large populations. In the context of this guidance, the dose to workers that is incurred for the protection of large populations might be considered justified for situations in which the collective dose to others that is avoided as a result of the emergency operation is significantly larger than that incurred by the workers involved.

Table 5 presents the estimates of the fatal cancer risk for a group of 1,000 workers of various ages, assuming that each worker received an acute dose of 25 rems (0.25 Sv) in the course of assisting in an emergency. The estimates show that a 25-rem emergency dose might increase an individual's chances of developing fatal cancer from about 20% to about 21%.

Table 5
Risk of Premature Death from Exposure to 25-Rems (0.25-Sv) Acute Dose

Age at Exposure (years)	*Estimated Risk of Premature Death (Deaths per 1,000 Persons Exposed)*
20–30	9.1
30–40	7.2
40–50	5.3
50–60	3.5

Source: EPA–400–R–92–001 (Ref. 2).

23. How were radiation dose limits established?

The NRC radiation dose limits in 10 CFR Part 20 were established by the NRC based on the recommendations of the ICRP and NCRP as endorsed in Federal radiation protection guidance developed by the EPA

(Ref. 12). The limits were recommended by the ICRP and NCRP with the objective of ensuring that working in a radiation-related industry was as safe as working in other comparable industries. The dose limits and the principle of ALARA should ensure that risks to workers are maintained indistinguishable from risks from background radiation.

24. Several scientific reports have recommended that the NRC establish lower dose limits. Does the NRC plan to reduce the regulatory limits?

Since publication of the NRC's proposed rule in 1986, the ICRP in 1990 revised its recommendations for radiation protection based on newer studies of radiation risks (Ref. 13), and the NCRP followed with a revision to its recommendations in 1993. The ICRP recommended a limit of 10 rems (0.1 Sv) effective dose equivalent (from internal and external sources), over a 5-year period with no more than 5 rems (0.05 Sv) in 1 year (Ref. 13). The NCRP recommended a cumulative limit in rems, not to exceed the individual's age in years, with no more than 5 rems (0.05 Sv) in any year (Ref. 14).

The NRC does not believe that additional reductions in the dose limits are required at this time. Because of the practice of maintaining radiation exposures ALARA (as low as is reasonably achievable), the average radiation dose to occupationally exposed persons is well below the limits in the current Part 20 that became mandatory January 1, 1994, and the average doses to radiation workers are below the new limits recommended by the ICRP and the NCRP.

25. What are the options if a worker decides that the risks associated with occupational radiation exposure are too high?

If the risks from exposure to occupational radiation are unacceptable to a worker, he or she can request a transfer to a job that does not involve exposure to radiation. However, the risks associated with the exposure to radiation that workers, on the average, actually receive are comparable to risks in other industries and are considered acceptable by the scientific groups that have studied them. An employer is not obligated to guarantee a transfer if a worker decides not to accept an assignment that requires exposure to radiation.

Any worker has the option of seeking other employment in a nonradiation occupation. However, the studies that have compared occupational risks in the nuclear industry to those in other job areas indicate that nuclear work is relatively safe. Thus, a worker may find different kinds of risk but will not necessarily find significantly lower risks in another job.

26. Where can one get additional information on radiation risk?

The following list suggests sources of useful information on radiation risk:

- The employer—the radiation protection or health physics office where a worker is employed.
- Nuclear Regulatory Commission Regional Offices:

King of Prussia, Pennsylvania	(610) 337-5000
Atlanta, Georgia	(404) 331-4503
Lisle, Illinois	(708) 829-9500
Arlington, Texas	(817) 860-8100

- U.S. Nuclear Regulatory Commission
  Headquarters
  Radiation Protection & Health Effects Branch
  Office of Nuclear Regulatory Research
  Washington, DC 20555
  Telephone: (301) 415-6187
- Department of Health and Human Services
  Center for Devices and Radiological Health
  1390 Piccard Drive, MS HFZ-1
  Rockville, MD 20850
  Telephone: (301) 443-4690
- U.S. Environmental Protection Agency
  Office of Radiation and Indoor Air
  Criteria and Standards Division
  401 M Street NW.
  Washington, DC 20460
  Telephone: (202) 233-9290

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*Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202) 634-3273; fax (202) 634-3343. Copies may be purchased at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202) 512-2249); or from the National Technical Information Service by writing NTIS at 5285 Port Royal Road, Springfield, VA 22161.

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REGULATORY ANALYSIS

A separate regulatory analysis was not prepared for this Revision 1 to Regulatory Guide 8.29. A value/impact statement, which evaluated essentially the same subjects as are discussed in a regulatory analysis, accompanied Regulatory Guide 8.29 when it was issued in July 1981.

This Revision 1 to Regulatory Guide 8.29 is needed to conform with the Revised 10 CFR Part 20, "Standards for Protection Against Radiation," as published May 21, 1991 (56 FR 23360). The regulatory analysis prepared for 10 CFR Part 20 provides the regulatory basis for this Revision 1 of Regulatory Guide 8.29, and it examines the costs and benefits of the rule as implemented by the guide. A copy of the "Regulatory Analysis for the Revision of 10 CFR Part 20" (PNL–6712, November 1988), is available for inspection and copying for a fee in the NRC's Public Document Room at 2120 L Street NW., Washington, DC 20555–0001.

Regulatory Guide 8.13 - Instruction Concerning Prenatal Radiation Exposure

(Draft was issued as DG-8014)

Revision 3
June 1999

Availability Notice

A. INTRODUCTION

The Code of Federal Regulations in 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," in Section 19.12, "Instructions to Workers," requires instruction in "the health protection problems associated with exposure to radiation and/or radioactive material, in precautions or procedures to minimize exposure, and the purposes and functions of protective devices employed." The instructions must be "commensurate with potential radiological health protection problems present in the work place."

The Nuclear Regulatory Commission's (NRC's) regulations on radiation protection are specified in 10 CFR Part 20, "Standards for Protection Against Radiation"; and Section 20.1208, "Dose to an Embryo/Fetus," requires licensees to "ensure that the dose to an embryo/fetus during the entire pregnancy, due to occupational exposure of a declared pregnant woman, does not exceed 0.5 rem (5 mSv)." Section 20.1208 also requires licensees to "make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman." A declared pregnant woman is defined in 10 CFR 20.1003 as a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

This regulatory guide is intended to provide information to pregnant women, and other personnel, to help them make decisions regarding radiation exposure during pregnancy. This Regulatory Guide 8.13 supplements Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure" (Ref. 1), which contains a broad discussion of the risks from exposure to ionizing radiation.

Other sections of the NRC's regulations also specify requirements for monitoring external and internal occupational dose to a declared pregnant woman. In 10 CFR 20.1502, "Conditions Requiring Individual Monitoring of External and Internal Occupational Dose," licensees are required to monitor the occupational dose to a declared pregnant woman, using an individual monitoring device, if it is likely that the declared pregnant woman will receive, from external sources, a deep dose equivalent in excess of 0.1 rem (1 mSv). According to Paragraph (e) of 10 CFR 20.2106, "Records of Individual Monitoring Results," the licensee must maintain records of dose to an embryo/fetus if monitoring was required, and the records of dose to the embryo/fetus must be kept with the records of dose to the declared pregnant woman. The declaration of pregnancy must be kept on file, but may be maintained separately from the dose records. The licensee must retain the required form or record until the Commission terminates each pertinent license requiring the record.

The information collections in this regulatory guide are covered by the requirements of 10 CFR Parts 19 or 20, which were approved by the Office of Management and Budget, approval numbers 3150-0044 and 3150-0014, respectively. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a

currently valid OMB control number.

B. DISCUSSION

As discussed in Regulatory Guide 8.29 (Ref. 1), exposure to any level of radiation is assumed to carry with it a certain amount of risk. In the absence of scientific certainty regarding the relationship between low dose exposure and health effects, and as a conservative assumption for radiation protection purposes, the scientific community generally assumes that any exposure to ionizing radiation may cause undesirable biological effects and that the likelihood of these effects increases as the dose increases. At the occupational dose limit for the whole body of 5 rem (50 mSv) per year, the risk is believed to be very low.

The magnitude of risk of childhood cancer following in utero exposure is uncertain in that both negative and positive studies have been reported. The data from these studies "are consistent with a lifetime cancer risk resulting from exposure during gestation which is two to three times that for the adult" (NCRP Report No. 116, Ref. 2). The NRC has reviewed the available scientific literature and has concluded that the 0.5 rem (5 mSv) limit specified in 10 CFR 20.1208 provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers associated with radiation exposure during pregnancy.

In order for a pregnant worker to take advantage of the lower exposure limit and dose monitoring provisions specified in 10 CFR Part 20, the woman must declare her pregnancy in writing to the licensee. A form letter for declaring pregnancy is provided in this guide or the licensee may use its own form letter for declaring pregnancy. A separate written declaration should be submitted for each pregnancy.

C. REGULATORY POSITION

1. Who Should Receive Instruction

Female workers who require training under 10 CFR 19.12 should be provided with the information contained in this guide. In addition to the information contained in Regulatory Guide 8.29 (Ref. 1), this information may be included as part of the training required under 10 CFR 19.12.

2. Providing Instruction

The occupational worker may be given a copy of this guide with its Appendix, an explanation of the contents of the guide, and an opportunity to ask questions and request additional information. The information in this guide and Appendix should also be provided to any worker or supervisor who may be affected by a declaration of pregnancy or who may have to take some action in response to such a declaration.

Classroom instruction may supplement the written information. If the licensee provides classroom instruction, the instructor should have some knowledge of the biological effects of radiation to be able to answer questions that may go beyond the information provided in this guide. Videotaped presentations may be used for classroom instruction. Regardless of whether the licensee provides classroom training, the licensee should give workers the opportunity to ask questions about information contained in this Regulatory Guide 8.13. The licensee may take credit for instruction that the worker has received within the past year at other licensed facilities or in other courses or training.

3. Licensee's Policy on Declared Pregnant Women

The instruction provided should describe the licensee's specific policy on declared pregnant women, including how those policies may affect a woman's work situation. In particular, the instruction should include a description of the licensee's policies, if any, that may affect the declared pregnant woman's work situation after she has filed a written declaration of pregnancy consistent with 10 CFR 20.1208.

The instruction should also identify who to contact for additional information as well as identify who should receive the written declaration of pregnancy. The recipient of the woman's declaration may be identified by name (e.g., John Smith), position (e.g., immediate supervisor, the radiation safety officer), or department (e.g., the personnel department).

4. Duration of Lower Dose Limits for the Embryo/Fetus

The lower dose limit for the embryo/fetus should remain in effect until the woman withdraws the declaration in writing or the woman is no longer pregnant. If a declaration of pregnancy is withdrawn, the dose limit for the embryo/fetus would apply only to the time from the estimated date of conception until the time the declaration is withdrawn. If the declaration is not withdrawn, the written declaration may be considered expired one year after submission.

Substantial Variations Above a Uniform Monthly Dose Rate

According to 10 CFR 20.1208(b), "The licensee shall make efforts to avoid substantial variation above a uniform monthly

exposure rate to a declared pregnant woman so as to satisfy the limit in paragraph (a) of this section," that is, 0.5 rem (5 mSv) to the embryo/fetus. The National Council on Radiation Protection and Measurements (NCRP) recommends a monthly equivalent dose limit of 0.05 rem (0.5 mSv) to the embryo/fetus once the pregnancy is known (Ref. 2). In view of the NCRP recommendation, any monthly dose of less than 0.1 rem (1 mSv) may be considered as not a substantial variation above a uniform monthly dose rate and as such will not require licensee justification. However, a monthly dose greater than 0.1 rem (1 mSv) should be justified by the licensee.

D. IMPLEMENTATION

The purpose of this section is to provide information to licensees and applicants regarding the NRC staff's plans for using this regulatory guide.

Unless a licensee or an applicant proposes an acceptable alternative method for complying with the specified portions of the NRC's regulations, the methods described in this guide will be used by the NRC staff in the evaluation of instructions to workers on the radiation exposure of pregnant women.

REFERENCES

1. USNRC, "Instruction Concerning Risks from Occupational Radiation Exposure," Regulatory Guide 8.29, Revision 1, February 1996.

2. National Council on Radiation Protection and Measurements, *Limitation of Exposure to Ionizing Radiation*, NCRP Report No. 116, Bethesda, MD, 1993.

APPENDIX: QUESTIONS AND ANSWERS CONCERNING PRENATAL RADIATION EXPOSURE

1. Why am I receiving this information?

   The NRC's regulations (in 10 CFR 19.12, "Instructions to Workers") require that licensees instruct individuals working with licensed radioactive materials in radiation protection as appropriate for the situation. The instruction below describes information that occupational workers and their supervisors should know about the radiation exposure of the embryo/fetus of pregnant women.

   The regulations allow a pregnant woman to decide whether she wants to formally declare her pregnancy to take advantage of lower dose limits for the embryo/fetus. This instruction provides information to help women make an informed decision whether to declare a pregnancy.

2. If I become pregnant, am I required to declare my pregnancy?

   No. The choice whether to declare your pregnancy is completely voluntary. If you choose to declare your pregnancy, you must do so in writing and a lower radiation dose limit will apply to your embryo/fetus. If you choose not to declare your pregnancy, you and your embryo/fetus will continue to be subject to the same radiation dose limits that apply to other occupational workers.

3. If I declare my pregnancy in writing, what happens?

   If you choose to declare your pregnancy in writing, the licensee must take measures to limit the dose to your embryo/fetus to 0.5 rem (5 millisievert) during the entire pregnancy. This is one-tenth of the dose that an occupational worker may receive in a year. If you have already received a dose exceeding 0.5 rem (5 mSv) in the period between conception and the declaration of your pregnancy, an additional dose of 0.05 rem (0.5 mSv) is allowed during the remainder of the pregnancy. In addition, 10 CFR 20.1208, "Dose to an Embryo/Fetus," requires licensees to make efforts to avoid substantial variation above a uniform monthly dose rate so that all the 0.5 rem (5 mSv) allowed dose does not occur in a short period during the pregnancy.

   This may mean that, if you declare your pregnancy, the licensee may not permit you to do some of your normal job functions if those functions would have allowed you to receive more than 0.5 rem, and you may not be able to have some emergency response responsibilities.

4. Why do the regulations have a lower dose limit for the embryo/fetus of a declared pregnant woman than for a pregnant worker who has not declared?

A lower dose limit for the embryo/fetus of a declared pregnant woman is based on a consideration of greater sensitivity to radiation of the embryo/fetus and the involuntary nature of the exposure. Several scientific advisory groups have recommended (References 1 and 2) that the dose to the embryo/fetus be limited to a fraction of the occupational dose limit.

5. What are the potentially harmful effects of radiation exposure to my embryo/fetus?

   The occurrence and severity of health effects caused by ionizing radiation are dependent upon the type and total dose of radiation received, as well as the time period over which the exposure was received. See Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Exposure" (Ref. 3), for more information. The main concern is embryo/fetal susceptibility to the harmful effects of radiation such as cancer.

6. Are there any risks of genetic defects?

   Although radiation injury has been induced experimentally in rodents and insects, and in the experiments was transmitted and became manifest as hereditary disorders in their offspring, radiation has not been identified as a cause of such effect in humans. Therefore, the risk of genetic effects attributable to radiation exposure is speculative. For example, no genetic effects have been documented in any of the Japanese atomic bomb survivors, their children, or their grandchildren.

7. What if I decide that I do not want any radiation exposure at all during my pregnancy?

   You may ask your employer for a job that does not involve any exposure at all to occupational radiation dose, but your employer is not obligated to provide you with a job involving no radiation exposure. Even if you receive no occupational exposure at all, your embryo/fetus will receive some radiation dose (on average 75 mrem (0.75 mSv)) during your pregnancy from natural background radiation.

   The NRC has reviewed the available scientific literature and concluded that the 0.5 rem (5 mSv) limit provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers. If this dose limit is exceeded, the total lifetime risk of cancer to the embryo/fetus may increase incrementally. However, the decision on what level of risk to accept is yours. More detailed information on potential risk to the embryo/fetus from radiation exposure can be found in References 2-10.

8. What effect will formally declaring my pregnancy have on my job status?

   Only the licensee can tell you what effect a written declaration of pregnancy will have on your job status. As part of your radiation safety training, the licensee should tell you the company's policies with respect to the job status of declared pregnant women. In addition, before you declare your pregnancy, you may want to talk to your supervisor or your radiation safety officer and ask what a declaration of pregnancy would mean specifically for you and your job status.

   In many cases you can continue in your present job with no change and still meet the dose limit for the embryo/fetus. For example, most commercial power reactor workers (approximately 93%) receive, in 12 months, occupational radiation doses that are less than 0.5 rem (5 mSv) (Ref. 11). The licensee may also consider the likelihood of increased radiation exposures from accidents and abnormal events before making a decision to allow you to continue in your present job.

   If your current work might cause the dose to your embryo/fetus to exceed 0.5 rem (5 mSv), the licensee has various options. It is possible that the licensee can and will make a reasonable accommodation that will allow you to continue performing your current job, for example, by having another qualified employee do a small part of the job that accounts for some of your radiation exposure.

9. What information must I provide in my written declaration of pregnancy?

   You should provide, in writing, your name, a declaration that you are pregnant, the estimated date of conception (only the month and year need be given), and the date that you give the letter to the licensee. A form letter that you can use is included at the end of these questions and answers. You may use that letter, use a form letter the licensee has provided to you, or write your own letter.

10. To declare my pregnancy, do I have to have documented medical proof that I am pregnant?

    NRC regulations do not require that you provide medical proof of your pregnancy. However, NRC regulations do not preclude the licensee from requesting medical documentation of your pregnancy, especially if a change in your duties is necessary in order to comply with the 0.5 rem (5 mSv) dose limit.

11. Can I tell the licensee orally rather than in writing that I am pregnant?

    No. The regulations require that the declaration must be in writing.

12. If I have not declared my pregnancy in writing, but the licensee suspects that I am pregnant, do the lower dose limits apply?

    No. The lower dose limits for pregnant women apply only if you have declared your pregnancy in writing. The United States Supreme Court has ruled (in *United Automobile Workers International Union v. Johnson Controls, Inc.*, 1991) that "Decisions about the welfare of future children must be left to the parents who conceive, bear, support, and raise them rather than to the employers who hire those parents" (Reference 7). The Supreme Court also ruled that your

No. 115, Bethesda, MD, 1993.
10. National Radiological Protection Board, *Advice on Exposure to Ionising Radiation During Pregnancy*, National Radiological Protection Board, Chilton, Didcot, UK, 1998.
11. M.L. Thomas and D. Hagemeyer, "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities, 1996," Twenty-Ninth Annual Report, NUREG-0713, Vol. 18, USNRC, 1998.[2]

FORM LETTER FOR DECLARING PREGNANCY

This form letter is provided for your convenience. To make your written declaration of pregnancy, you may fill in the blanks in this form letter, you may use a form letter the licensee has provided to you, or you may write your own letter.

DECLARATION OF PREGNANCY

To: _____

In accordance with the NRC's regulations at 10 CFR 20.1208, "Dose to an Embryo/Fetus," I am declaring that I am pregnant. I believe I became pregnant in_____ (only the month and year need be provided).

I understand the radiation dose to my embryo/fetus during my entire pregnancy will not be allowed to exceed 0.5 rem (5 millisievert) (unless that dose has already been exceeded between the time of conception and submitting this letter). I also understand that meeting the lower dose limit may require a change in job or job responsibilities during my pregnancy.

_____
(Your Signature)

_____
(Your Name Printed)

_____
(Date)

REGULATORY ANALYSIS

A separate regulatory analysis was not prepared for this regulatory guide. A regulatory analysis prepared for 10 CFR Part 20, "Standards for Protection Against Radiation" (56 FR 23360), provides the regulatory basis for this guide and examines the costs and benefits of the rule as implemented by the guide. A copy of the "Regulatory Analysis for the Revision of 10 CFR Part 20" (PNL-6712, November 1988) is available for inspection and copying for a fee at the NRC Public Document Room, 2120 L Street NW, Washington, DC, as an enclosure to Part 20 (56 FR 23360).

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2. Copies are available at current rates from the U.S. Government Printing Office, P.O. Box 37082, Washington, DC 20402-9328 (telephone (202)512-1800); or from the National Technical Information Service by writing NTIS at 5285 Port Royal