Placement of Personal Radiation Monitoring Devices

After research of evidentiary documentation such as current literature, curricula, position statements, scopes of practice, laws, federal and state regulations and inquiries received by the American Society of Radiologic Technologists Governance Department, the American Society of Radiologic Technologists issued opinions contained herein.

Accountability and Responsibility of Medical Imaging and Radiation Therapy Professionals

The profession holds medical imaging and radiation therapy professionals individually 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.

Acts that are within the recognized scope of practice for a given license or certification may be performed only by those individuals who possess the education and skill proficiency to perform those acts in a safe and effective manner.

The medical imaging and radiation therapy professional’s performance should be consistent with state and federal laws, established standards of practice, facility policies and procedures, and be evidence-based.

Advisory Opinion

It is the opinion of the American Society of Radiologic Technologists that based upon current literature; the curricula set forth by the ASRT and Society of Nuclear Medicine and Molecular Imaging; certification specifications by the American Registry of Radiologic Technologists and Nuclear Medicine Technology Certification Board; regulatory requirements; American Association of Physicists in Medicine recommendations; and where federal or state law and/or institutional policy permits that:

1. Radiation workers wear a personal radiation monitoring device outside of protective apparel with the label facing the radiation source at the level of the thyroid to approximate the maximum dose to the head and neck.

2. In specific cases, a whole-body monitor may be indicated. This monitor should be worn at the waist under a protective lead apron.

3. In some cases, a ring monitor may be indicated. This monitor should be worn on the dominant hand with the label facing the radiation source.

GRADE: Strong

Rationale

The ASRT’s position is to determine the practice standards and scopes of practice for medical imaging and radiation therapy professionals. The practice standards’ general stipulation
Proposed Fall 2017

emphasizes the importance of an individual being educationally prepared and clinically
competent to practice in the profession of medical imaging and radiation therapy. With proper
education and proven competence, the determination of proper use of personal monitoring
devices ensures a safe environment in which to provide quality patient services.

Definitions
The following definitions can be found in the Glossary to The Practice Standards for Medical
Imaging and Radiation Therapy:

- Personal radiation monitoring device

Evidentiary Documentation

Current Literature

Bushong S. Occupational radiation dose management: Occupational radiation monitoring. In:
Radiologic Science for Technologists: Physics, Biology, and Protection 11th Ed. Elsevier

Statkiewicz-Sherer M, Visconti P, Ritenour, E. Radiation monitoring: Placement of personnel

U.S. Department of Labor. Occupational Safety and Health Standards web page. Occupational
Safety & Health Administration Web site.

(Quality of Evidence: High)

Curriculum

The ASRT curricula for all practice areas were reviewed.

2014 ASRT Bone Densitometry Curriculum

Radiation Safety and Protection, p. 49
Section II, B, 3
Section II, A, 1-6, B 1-4
Identified the knowledge base for how to adapt general radiation safety and protection
principles and practices to bone densitometry techniques using ionizing radiation with
DXA, including personnel monitoring.

2015 ASRT Limited X-ray Machine Operator curriculum

Radiation Protection and Radiobiology, p. 59
Section IV, A-E
Identified an overview of the principles of radiation protection, including the
responsibilities of the limited x-ray machine operator for patients, personnel and the
public, a historical evolution of standards for personnel monitoring, the requirements,
types and methods of personnel monitoring equipment, record keeping and dose limits.
2004 ASRT Positron Emission Tomography (PET)- Computed Tomography (CT) curriculum

Content Specifications for Basic Nuclear Medicine and PET for Dual Modality Imaging, p.3, Section I, A

Identified an overview of the principles of radiation protection, including the responsibilities of the computed tomography technologist for patients, personnel and the public, including personnel monitoring.

2014 ASRT Radiation Therapy curriculum

Radiation Protection, p.72
Section IV, A-E

Identified an overview of the principles of radiation protection, including the responsibilities of the radiation therapist for patients, personnel and the public, the requirements, types and methods of personnel monitoring equipment, record keeping and dose limits.

2017 ASRT Radiography Curriculum

Radiation Protection, p. 60
Section IV, A-F

Identified an overview of the principles of radiation protection, including the responsibilities of the radiographer for patients, personnel and the public, a historical evolution of standards for personnel monitoring, the requirements, types and methods of personnel monitoring equipment, record keeping and dose limits.

2015 ASRT Radiologist Assistant curriculum

Radiation Safety, Radiobiology, and Health Physics, p.35
Section III, A-E
Section IV, A-B

Identified content designed to expand on prior knowledge to enhance an understanding of protection of individual and population groups against the harmful effects of ionizing radiation and practical techniques and QA/QC procedures for reducing patient and operator risk of exposure to ionizing radiation including personnel monitoring.

Additional nationally recognized curricula were reviewed.

Society of Nuclear Medicine and Molecular Imaging – Technologist Section

2013 Nuclear Medicine Technology Competency-Based Curriculum Guide 5th Edition

(Quality of Evidence: High)

Certification Agency Content Specifications

The American Registry of Radiologic Technologists (ARRT) content specifications:

2017 Nuclear Medicine Category A, Section 1, B, 4.

2017 Radiography Category A, Section 4, B, 1-2 and C, 1-5.
2018 Registered Radiologist Assistant Category E, Section 1, b, 3.
2017 Cardiac-Interventional Radiography
2017 Vascular-Interventional Radiography
2018 Limited Scope of Practice in Radiography
Nuclear Medicine Technology Certification Board (NMTCB)
2017 Components of Preparedness.
(Quality of Evidence: High)
Federal and State Statute Reference(s)
10 CFR Part 19.12 Instruction to Workers
10 CFR Part 20.1208 Dose Equivalent to an Embryo/Fetus
10 CFR Part 20.1502 Conditions Requiring Individual Monitoring of External and Internal Occupational Dose
NRC Regulatory Guide 8.34 Monitoring Criteria and Methods to Calculate Occupational Radiation Doses
NRC Regulatory Guide 8.36 Radiation Dose to the Embryo/Fetus
NRC Regulatory Guide 8.7 Instructions for Recording and Reporting Occupational Radiation Exposure Data
(Quality of Evidence: High)
Other
American Association of Physicists in Medicine (AAPM) Report 58 Appendix A: Radiation Safety and Quality Assurance Program
(Quality of Evidence: High)
Advisory Opinion
It is the opinion of the American Society of Radiologic Technologists that based upon current literature, the curricula set forth by the ASRT, ARRT content specifications, regulatory requirements, American Association of Physicists in Medicine recommendations and where federal or state law and/or institutional policy permits that:
4. Radiation workers wear a personal radiation monitoring device outside of protective apparel with the label facing the radiation source at the level of the thyroid to approximate the maximum dose to the head and neck.

5. In specific cases a whole-body monitor may be indicated. This monitor should be worn at the waist under a protective lead apron.

6. In some cases a ring badge may be indicated. This monitor should be worn on the dominant hand with the label facing the radiation source.

GRADE: Strong

Rationale

The ASRT’s position is to determine the practice standards and scopes of practice for medical imaging and radiation therapy professionals. The practice standards general stipulation emphasizes the importance of an individual being educationally prepared and clinically competent to practice in the profession of medical imaging and radiation therapy. With proper education and proven competence the determination of proper use of personal monitoring devices ensures a safe environment in which to provide quality patient services.

Determining Scope of Practice

Each medical imaging and radiation therapy professional must exercise professional and prudent judgment in determining whether the performance of a given act is within the scope of practice for which the medical imaging and radiation therapy professional is licensed—if applicable within the jurisdiction in which he/she is employed—educationally prepared and clinically competent to perform.

The ASRT issues advisory opinions as to what constitutes appropriate practice. As such, an opinion is not a regulation or statute and does not have the force and effect of law. It is issued as a guidepost to medical imaging and radiation therapy professionals who engage in safe practice. Federal and state laws, accreditation standards necessary to participate in government programs, and institutional policies and procedures supersede these standards. The individual must be educationally prepared and clinically competent as a prerequisite to professional practice.

Approved: July 1, 2012
Amended, Main Motion, C-13.21 & C13.23, 2013
Amended, Main Motion, C-16.15, 2016
ASRT House of Delegates