



# Wisconsin Society of Radiologic Technologists

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## **Introduction:**

The Wisconsin Society of Radiologic Technologists (WSRT) is the professional organization of radiologic technologists in the state of Wisconsin, and an affiliate of the American Society of Radiologic Technologists (ASRT). The WSRT represents approximately 7,000 registered radiologic professionals, credentialed by the American Registry of Radiologic Technologists (ARRT). The WSRT is in strong support of the licensure of radiologic technologists and issuance of permits to qualified limited x-ray machine operators (LXMO). Chapter 462 of Wisconsin State Statutes was enacted in 2010 to ensure that patients receive only safety-conscious, cost-effective, and quality diagnostic x-ray imaging throughout the state. The WSRT is submitting the following commentary on the items that pertain directly to the practice of diagnostic radiologic imaging in patient care.

f) Gonadal Shielding; Application of the 3 components of “Time, Distance, and Shielding” have long been the foundation of the ALARA practice of radiologic technology since its inception (As Low As Reasonably Achievable dose). It is recognized that radiologic equipment has changed considerably over time. According to the American Association of Physicists in Medicine (AAPM) Position Statement on the Use of Patient Gonadal and Fetal Shielding Policy Number PP32-A, Date 4/2/19:

## **Gonadal and fetal shielding provide negligible, or no benefit to patients' health.**

1) Radiation doses used in diagnostic imaging are not associated with measurable harm to the gonads or fetus. The main concern with radiation exposure to the reproductive organs has been an increased risk of hereditary effects. However, according to the 2007 Publication 103 of the International Commission on Radiological Protection (ICRP), “no human studies provide direct evidence of a radiation-associated excess of heritable disease” (5). Similarly, the American College of Obstetricians and Gynecologists (ACOG) Guidelines, with endorsement from the American College of Radiology (ACR), states that “with few exceptions, radiation exposure through radiography, computed tomography scan, or nuclear medicine imaging techniques is at a dose much lower than the exposure associated with fetal harm” (6).

2) Patient shielding is ineffective in reducing internal scatter. In medical x-ray imaging, the main source of radiation dose to internal organs that are outside the imaging field of view is x-rays that scatter inside the body. However, surface shielding covering these organs has no impact on this scatter.

**The use of gonadal and fetal shielding can negatively affect the efficacy of the exam.**

1) Shielding can obscure anatomy, resulting in a repeated exam or compromised diagnostic information. Shielding placed inside the imaging field of view, or shielding that moves into the imaging field of view, can obscure important anatomy or pathology, or introduce artifacts. In such cases, if the procedure is not repeated the interpreting physician may lack important diagnostic information; if it is repeated, there will be a substantial increase in dose. Evidence shows that this is a more common problem than usually assumed (7-9).

2) Shielding can negatively affect automatic exposure control and image quality. All modern X-ray imaging systems use automatic exposure control, and the presence of shielding in the imaging field of view can drastically increase X-ray output, increasing patient radiation dose and degrading image quality (10).

The American College of Radiology (ACR) endorsed the AAPM position on May 30, 2019. The American Society of Radiologic Technologists (ASRT) published this statement dated January 15, 2021 :

**ASRT Update on Gonadal and Fetal Shielding**

Jan 15, 2021

“On Jan. 12, 2021, the ASRT Board of Directors released a statement supporting the discontinuation of the use of gonadal and fetal shielding specifically during abdominal and pelvic radiography.

Significant advances in technology have resulted in reduced patient radiation dose during radiographic procedures, opening the door to this change in clinical practice. However, the radiation protection methods implemented by registered and certified radiologic technologists remain an essential component of high-quality and safe medical imaging procedures. While shielding placed outside of the exposed field may offer only limited additional reductions to patient exposure, this low-risk practice is an important component of our comprehensive efforts to reduce excess radiation dose during our procedures.

The ASRT Board supports the continued use of lead shielding during radiographic procedures where shield placement is appropriate and aligned with minimizing patient radiation exposure. For example, the placement of a lap shield during a radiographic extremity procedure carries little-to-no risk of exam interference or error, but may significantly increase patient comfort and confidence, thus helping to reaffirm our profession’s commitment to maximizing safety. The elimination of all patient shielding from standard practice could exacerbate the radiophobia that exists among the public

and our patients due to widespread media coverage of the published risks associated with medical radiation exposure.

Before considering the elimination of all patient shielding as a standard practice during radiographic procedures, it is essential that we educate our patients and health care colleagues on the recent advances in technology that have dramatically reduced patient radiation dose, as well as the indispensable role that radiologic technologists serve in the provision of safe and high-quality medical imaging procedures.

The ASRT will explore partnering with key stakeholders to collaboratively develop and disseminate educational materials to inform the public about the safety of our procedures.”

**The WSRT stands in support of the research and rationale for the change on radiographic shielding in accordance with the considerations included in the above ASRT statement.**

h) Thyroid shielding-dental practices: The WSRT defers any commentary on changes to thyroid shielding to the proper authorities in the practice of dentistry.

i) X-ray unit testing : The WSRT, through the creation of Chapter 462, required that diagnostic x-ray radiation be administered to patients by competent individuals regardless of the type of medical setting in which it is being delivered. Therefore it follows that all x-ray units used for patient diagnostic examinations be tested on the same schedule and held to the equivalent standards hospital ascribe to.

Thank you for the opportunity to review and comment on the matters being considered by the DHS 157 Advisory Committee.

Respectfully submitted,

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