



**Lakeridge
Health**

MEMORANDUM

Date: Thursday, January 30, 2025

Subject: Change in Practice – Gonadal and fetal shielding no longer recommended for radiographic imaging.

Today's research shows that there is limited benefit to the patient or fetus when shielding is used for imaging examinations, requiring x-rays. Health Canada's *Safety Code 35* was recently updated, which is the leading document for radiation safety guidelines in Canada.

Safety Code 35 Reads:

A3.3: The relative risk of developing cancer due to exposure to a sensitive tissue or organ is described in ICRP 1031. When considering the risk associated with radiation exposure to sensitive tissues, one must also consider the fraction of the tissue or organ that is exposed and the tissue weighting available in ICRP 103

Reproductive organs (gonads) were previously considered highly sensitive tissues for which fetal and gonadal shielding were recommended, however the gonadal tissue weighting factor was reduced in ICRP 103.

Routine gonadal shielding should not be used. Recent evidence (including a reduction in the ICRP tissue weighting factor of the gonads relative to other tissues from 0.2 to 0.08 in ICRP 103) has demonstrated that use of gonadal and fetal shields shows negligible benefit to either the patient or their offspring^{11, 3}. Furthermore, patient shielding of the gonads may reduce the effectiveness of an exam by obscuring anatomy of interest, reducing image quality, or interfering with automatic exposure control.

What this means:

- Routine gonadal shielding should no longer be applied during radiographic acquisition.
- Should the patient request, continued use of shielding is still acceptable when shield placement is safe, and in line with minimizing patient radiation exposure, for example, over the breasts for an x-ray of the pelvis.
- This does not change any practice for anyone in the room assisting the patient during imaging. Continued use of personal protective equipment/lead shields should be maintained.

Below are key reasons for this shift:

1. Advances in Modern Imaging Technology

Modern imaging systems, particularly those using digital radiography, have significantly reduced radiation doses compared to earlier systems. These technologies are designed to minimize scatter and optimize image quality with minimal patient exposure, making gonadal shielding less impactful than in the past.

2. Potential for Image Degradation

Gonadal shielding can obscure critical anatomy or interfere with automatic exposure controls (AEC). This may result in repeat imaging and therefore increasing the total radiation dose to the patient.

3. Ineffectiveness for Internal Scatter

Most radiation exposure to gonads is from internal scatter rather than direct exposure. Gonadal shields provide minimal protection against internal scatter, making their effectiveness limited.

4. Alignment with Professional Standards

The CMRITO practice standards call for imaging that adheres to provincial and federal legislation. Shielding practices that no longer provide demonstrable benefits are not consistent with these standards. *Safety Code 35* and recommendations from international organizations such as the Canadian Association of Radiologists (CAR) and the International Commission on Radiological Protection (ICRP) now advise against routine gonadal shielding in most clinical scenarios.

Next Steps

- **Educate and Reassure Patients:** Provide education and address questions or concerns about radiation safety, emphasizing how modern techniques and standards, like those in *Safety Code 35*, prioritize their well-being.
- **Optimize Imaging Practices:** Focus on accurate positioning, protocol adherence, choosing wisely, and technology use to minimize unnecessary exposure.
- **Stay Informed:** Review *Safety Code 35* and CMRITO updates and engage in ongoing professional development to maintain compliance with evolving standards.

We understand that this represents a significant change in practice, please feel free to speak with your Healthcare Professional if you have any questions.

Resources:

[Safety Code 35](#)

[Canadian Association of Radiologists - Position Statement](#)

[Canadian Association of Radiologists - Summary of Recommendations](#)

[Canadian Association of Medical Radiation Technologists - Patient Shielding Position Statement](#)

[NCRP - Recommendations for Ending Routine Gonadal Shielding](#)

