

Title	Gonadal Shielding	Policy #	05-002
--------------	-------------------	-----------------	--------

POLICY

Patient and fetal gonadal shielding was standardized in 1976 through a US code of Federal Regulation that recommended the use of shielding on all patients.

In April 2019 the American Association of Physicists in Medicine (AAPM) released a position statement indicating that contrary to established norms for the use of Gonadal Shielding during x-ray based imaging, this shielding may obscure anatomy needed for the exam or interfere with the automatic exposure control of the imaging system (AEC) and can result in lost information and / or increase the radiation dose to the patient.

The Radiation Safety Committee at Children's National has decided to recommend the repeal of the use of the Gonadal Shielding during routine diagnostic imaging procedures over the gonadal region. This decision was made after careful review of the information and studies cited by these organizations; The American Association of Physicist in Medicine (AAPM), Image Gently, Health Physics Society (HPS) and American College of Radiology (ACR).

It is also understood that this policy does not prohibit shielding when patients, parents, or legal guardians insist on the use of shielding during routine procedures as long as the area of interest is not obscured.

The use of lead aprons will continue to be available for use by healthcare workers and parents, assisting in the imaging of the patient. This use is associated with the probability of exposure while working with radiation.

PURPOSE

Gonads are defined as ovaries and testis. A Gonadal Shield is determined to be adequate when it has a thickness of 0.5 mm lead equivalent. The types of shielding used at Children's National sites are contact shields (full aprons, half aprons, thyroid and shaped contact shields) and are consistent with this 0.5 mm lead equivalent.

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, it has been determined that surface shielding covering these organs has no impact on the reduction of this scatter radiation.

It is recognized that when imaging the pelvis and abdominal regions, surface shielding may not remain in place resulting in the need at times for repeat imaging.

With digital x-ray imaging, the use of the Automatic Exposure Control (AEC) system may create repeat scatter resulting from striking the shield several times creating an unnecessary increased radiation dose to the patient.

PROCEDURE

1. The Division of Diagnostic Imaging and Radiology will provide educational information to patients, parents, and other staff members about the discontinuation of the use of shielding during gonadal region imaging.
2. Gonadal Shielding will not be used on exams such as the pelvis, abdomen, hips, lumbar spine, sacrum, and coccyx, voiding cystourethrogram, and exams of the small and large bowel. This policy will cover all imaging equipment used at Children's National facilities except when asserted by this policy or specified by legal requirements (Law) of that specific state.
3. If shielding is requested by a patient, parent or guardian, shielding may only be provided if it does not obstruct or interfere with anatomy required for exam.
4. This shielding is not a substitution for collimation and collimation always takes priority.
5. If the patient is pregnant, shielding is used to cover the abdomen as long as the shielding does not obstruct or interfere with anatomy required for the exam. See pregnancy policy.
6. Shielding may be provided during fluoroscopic procedures. Every effort should be used to avoid x-ray beam intersecting with any portion of the shield, especially when using the Automatic Exposure Control (AEC) settings
7. Surgery will continue to shield patients, parents, or physicians upon requests during a procedure as long as it does not obscure needed anatomy for that exam.
8. This policy applies to all areas of x-ray imaging such as CT, Fluoroscopy, C-Arm, O-Arm, Portable Radiography, Dentistry, or any other x-ray producing modality.
9. Parents, guardians or healthcare professionals present in room or assisting with the exam will continue to use shielding.
10. All technologists will follow these guidelines, when in doubt consult the Radiologist, Radiation Safety Officer (RSO) or Medical Physicist.
11. EOS: With biplane or single plane imaging, shielding will not be provided due to intersecting X-ray beam(s), low radiation exposure, and difficulty controlling shielding from patient movement.

Approved by:

Dorothy I Bulas, MD
Division Chief, Diagnostic Imaging and Radiology

6/30/2021
Date

Laurie Hogan, MBA, CRA
Director, Diagnostic Imaging and Radiology

6/30/2021
Date

Catalina Kovats, MS
Radiation Safety Officer, Diagnostic Imaging & Radiology

6/30/2021
Date

Sunil Valaparla, Ph.D.
Medical Physicist, Diagnostic Imaging & Radiology

6/30/2021
Date

Eglal Shalaby-Rana, MD
Radiation Safety Committee, Chair

6/30/2021
Date

Dates of review

Original: December 16, 1996
Revised: February 22, 2007
Reviewed: June 22 2010
Revised: April 5, 2013
Reviewed: August 7, 2015

Reviewed: May 10, 2016
Reviewed: June 21, 2018
Reviewed: August 1, 2020
Reviewed: June 1, 2021
Reviewed: June 30, 2021

References:

- AAPM: clarifies x-ray shielding recommendations (Healthimaging)
- AAPM: Gonadal, Fetal shielding during x-ray should be 'discontinued' (Healthimaging)
- ACR: Endorses AAPM Position on Patient Gonadal and Fetal Shielding
- AJR: Patient Shielding in Diagnostic Imaging: Discontinuing a Legacy Practice
- Image Gently: Endorsement Statement: AAPM Gonadal Shielding Position

Questions: Contact: CARES@aapm.org