

Public Health

IOWA HHS

INFORMATION NOTICE 2023-01

MARCH 2023

GONADAL SHIELDING FOR DIAGNOSTIC RADIOLOGY APPLICATIONS

The Iowa Department of Health and Human Services (HHS) is issuing this information notice to clarify the use of gonadal shielding during radiographic diagnostic imaging. The Bureau of Radiological Health has been consistently receiving questions regarding this change and has been informed that some facilities are misinterpreting the rule change that went into effect in 2021. All facilities using radiation machines should review the information below for applicability to their individual situations and consider actions as appropriate. A review of the facility's Radiation Protection Program may be necessary to ensure the appropriate protective practices are in place. No written response to this notice is required.

Further clarification of clinical use of gonadal shielding can be found in this [Gonadal Shielding Fact Sheet](#).

ORIGINAL FACT SHEET PUBLISHED JULY 2021:

Overview

The Bureau of Radiological Health has recently amended rules specific to requirements related to technique chart content and shielding of the reproductive organs (gonads) during diagnostic abdominal and pelvic radiographic imaging. These rule changes have resulted in many questions related to overall shielding requirements, and this fact sheet provides information to help guide facilities in reviewing their current radiation protection and shielding practices.

Gonadal shielding was introduced in the 1950's with the intent to minimize potential harmful effects from medical x-ray exposures. Improvements in technology have resulted in reduced absorbed dose to pelvic organs from radiography, and the risk of heritable genetic effects are less than previously estimated.

Clinical Application Guidelines

Radiation protection during patient imaging can be accomplished through a combination of efforts to include; collimation, proper selection of exposure factors, and shielding of sensitive areas of the patient's body. Deciding what is appropriate for patient shielding is specific to each individual patient and exam conditions.

The use of automatic exposure control (AEC) may increase dose to pelvic organs if a gonadal shield interferes with the x-ray exposure. Gonadal shielding may also obscure vital anatomy on radiographs of the pelvis and abdomen.

The IDPH rule change has removed the requirement for gonadal shielding during radiographic procedures in which the gonads are in the useful beam. We recommend you review your facility

procedures to ensure your radiation protection requirements are protecting your patients in alignment with As Low As Reasonably Achievable (ALARA) practices.

Methods to limit occupational radiation exposure are not impacted by the AAPM and NCRP recommendations to reduce gonadal shielding of patients. For occupational exposure management, medical professionals and assisting personnel should continue to wear lead aprons as appropriate when present while x-ray exposures are made. Protective aprons should continue to be provided for personnel to wear while operating mobile x-ray equipment.

Scientific Background

The American Association of Physicists in Medicine (AAPM) released a position statement in April 2019 outlining grounds for limiting the routine use of gonadal and fetal shielding in medical imaging. Much debate and discussion has ensued since but this position statement has been endorsed by organizations such as the American College of Radiology (ACR) and the Health Physics Society (HPS). On January 12, 2021, the National Council on Radiation Protection and Measurements (NCRP) released Statement No. 13 entitled "NCRP Recommendations for Ending Routine Gonadal Shielding During Abdominal and Pelvic Radiography". The Conference of Radiation Control Program Directors, Inc. (CRCPD) posted a position statement regarding gonadal shielding on May 20, 2021 endorsing the NCRP Statement No. 13. For more detailed information, please visit the following links.

<https://www.aapm.org/org/policies/details.asp?id=468>

<https://ncrponline.org/wp-content/themes/ncrp/PDFs/Statement13.pdf>

https://cdn.ymaws.com/www.crcpd.org/resource/collection/1B5B915F-2624-48A3-A809-09957F01C42F/POS-HA39-Gonadal_Shielding.pdf

IDPH Rule Change

The Bureau of Radiological Health has amended Iowa Administrative Code (IAC) Chapter 41 in numbered paragraph 41.1(3)"a"(3)"5" and subparagraph 41.1(3)"a"(6) to align with national consensus that demonstrates a need to change how gonadal shielding is applied due to new understanding of dose weighting factors for tissue and organs, as well as advances in radiation-emitting equipment and detector technologies.

These amendments remove a specific reference to the type and place of gonadal shielding to be used and replace it with more general radiation protection and shielding requirement based on diagnostic and clinical needs.

- The requirements of **IAC 641-41.1(3)"a"(3)** have been in place for many years, so facilities should already have technique charts as currently required. The revision in this rule replaced outdated wording to allow facilities to better align their current technique charts with newer units and the types of exposure settings the operators may need to use.
- The rule revision to **IAC 641-41.1(3)"a"(6)** removes the specific requirement for gonadal shielding when the gonads are in the primary beam area.

The remainder of the radiation protection rules throughout IAC Chapter 38-42 remain in place and facilities are encouraged to continually review their policies and procedures to ensure continued compliance with all rules. The chapters that relate to radiological health can be reviewed on the website. <https://hhs.iowa.gov/public-health/radiological-health>

Questions

Please direct questions to radhealthia@idph.iowa.gov or (515) 802-6866.