

American Association of Physicists in Medicine Position Statement on the Use of Patient Gonadal and Fetal Shielding

Policy PP 32-A

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Introduction

Shielding has always been considered a good practice in the field of radiology. In April 2019, the American Association of Physicists in Medicine (AAPM) released a new policy regarding patient shielding. In this policy, the AAPM stated that patient and fetal shielding should be discontinued as it may interfere with the benefits of medical imaging.

Types of Shields

The most common types of shields include lead aprons, thyroid shields, gonadal shields, lead gloves, and lead glasses. Shields are used by anyone who could potentially be in the primary x-ray beam to protect themselves from any form of radiation. Anyone who could possibly be around radiation should be shielded.

Shielding Provides no Benefit to Patient Health

With current advances in technology, radiation doses used to produce a good quality image are not as high as they once were. These lower doses used in imaging are not correlated with measurable harm to the fetus or gonads. Currently, the AAPM says the main concern with radiation exposure to the gonads has been an increased risk of hereditary effects¹.

Conclusion

With new advances in technology, the AAPM has recommended to discontinue the practice of patient shielding. Gonadal and fetal shielding provide no benefit to a patient's health and is no longer as effective, says the American Association of Physicists in Medicine.

Why do we use shields?

The concept behind shielding patients has always been to decrease the amount of radiation a patient receives during an exam. Shielding has been one of the three basic concepts behind radiation protection, as it puts a barrier between the patient and the radiation source². Shields have been made with lead to help attenuate radiation which in return will reduce the amount of scatter radiation reaching the patient². Shielding also helps radiographers follow the basic principle of ALARA – As Low As Reasonably Achievable.

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The AAPM released a position statement for a new policy on the use of patient gonadal and fetal shielding in April 2019. This policy stated that shielding during x-ray imaging should be discontinued as a practice¹. The use of shielding patients may threaten the benefits of medical imaging if positioned incorrectly, placed in the field of view, or if patient motion causes the shield to move. Effects like the ones just listed can affect the success of the exam or even result in an increased radiation dose. With these possible risks and the little to no benefit linked with shielding, the AAPM suggests to discontinue the use of shielding.

Shielding can Negatively Affect the Efficiency of the Exam

If a shield is not placed correctly, it could cover the anatomy of interest and be in the way of the primary beam. This would cause an increase in the automatic exposure control, and dose to the patient. There would be additional radiation to the patient caused by a repeat image from having to move the shield out of the way of the primary beam.

References

1. AAPM. American Association of Physicists in Medicine . <https://www.aapm.org/org/policies/details.asp?id=468>. Published 2019. Accessed November 12, 2020.
2. Jaquith K. Shielding: A Key Radiation Protection Principle. Universal Medical Inc. Blog. <https://blog.universalmedicalinc.com/lead-shielding-one-key-principles-radiation-protection/>. Published March 5, 2015. Accessed November 12, 2020.