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Taking the fear out of MRI safety queries: a modular educational intervention for the experts

Abstract

Expanding imaging indications and increasing patient complexity have heightened the burden on radiologists to address MRI safety concerns, particularly regarding implantable devices, foreign bodies, and contrast reactions. Despite this critical responsibility, a survey at our academic imaging institute revealed that 39% of 105 staff radiologists lacked confidence in making MRI safety-related decisions. Inadequate training in ACR MRI safety guidelines was identified as a contributing factor, posing risks such as exam delays, inappropriate cancellations, and potential safety events. To address this gap, we utilized the SOLVE curriculum to assess institutional MRI safety training, map common process failures, and conduct a root cause analysis. Based on an effort-impact matrix, we identified a high-yield intervention: a mandatory, recurring MRI safety training module developed in collaboration with the institutional MRI safety team. Outcomes were evaluated through two metrics: self-reported confidence in MRI safety decision-making and objective improvement in MRI safety knowledge, measured by pre- and post-intervention test scores and attempts to achieve a perfect score. In 2023, 277 in-training and staff radiologists completed the module; 95% reported increased confidence, and average first-attempt test scores improved by 39% post-intervention, with a median of two attempts required for a perfect score. Our results demonstrate that structured, formal MRI safety education significantly improves both subjective and objective competency among radiologists. This approach has been adopted as an annual requirement at our institution. These findings highlight a practical, scalable model for improving MRI safety expertise among radiologists.

Keywords

MRI safety, radiologist education, implantable devices, quality improvement, patient safety, training module

Biography

Olivia has a strong focus on medical education and patient safety. She was honored as Medical Student Educator of the Year in 2024 for excellence in teaching and was nominated for the ACGME Lewis Blackman Patient Safety Award for her work improving MRI safety education. She presented her research, "Taking the Fear Out of MRI Safety Queries. Training the Experts," at RSNA 2024, which was also published in *Abdominal Radiology*. As an incoming Senior Resident Quality Champion, she continues to be dedicated to advancing radiology education and enhancing patient care.