“S.A.V.E.” MRI Time Out protocol for reducing zone 4 safety infractions

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Background

- FDA’s MAUDE Database previously reported more than 389 significant MRI safety events during a 10 year period

- 114% procedure volume growth (2000-2013) resulted in an overall 487% increase in MRI related accidents.

- Accidents include “missile injuries”, burns, and implant malfunctions
Rhode Island Hospital

- Level 1 trauma center, tertiary care hospital
- One 3.0T and three 1.5 T MRI systems
- Overall MRI scan volume >20,000 exams per year.

Goals

- Integrate a simple “time-out” safety protocol immediately prior to patient transfers to Zone 4
- Reduce the incidence of MR-related safety infractions.
“S.A.V.E.” acronym

- **S-Screening**: Has the patient been screened by an MR Technologist and approved for the scan?

- **A- Ancillary Staff**: Has all ancillary staff potentially entering Zone 4 been screened and all ferromagnetic objects removed from their person?

- **V- Visual Inspection** with ferromagnetic detection: Has all non-MR personnel, including the patient been visually inspected and passed metal detection?

- **E-Equipment**: Has all medical equipment entering Zone 4 been confirmed MR Safe or conditional?

Methods

- Open prospective trial

- All inpatient, emergency department and sedated patients

- Monthly retrospective data collection was performed by our section manager and compared with patient volume to ensure data collection integrity
"S.A.V.E." time out

- Completion of the recommended MR Safety Screening (ACR Guidance Document on Safe Practices - 2013)
- Scanning MR Technologist, while in Zone 3, immediately prior to planned patient transfer to Zone 4, calls a mandatory “S.A.V.E. time-out”
- Verbal review with a second level 1 or 2 level MRI Technologist

Results
Results - Secondary detection

- Metallic chest wall tissue expander
- Telemetry box
- Rectal temperature probe
- Hearing aides
- EKG electrodes
- Medication patch
- Undetected metallic object on ancillary staff member

Conclusions

- The S.A.V.E. safety timeout is effective in decreasing MR related safety infractions
- Rapid integration with high staff compliance