Implementation of Ferrous-Free Dress Code for MRI Personnel – an MRI Safety Initiative

RSNA 2022 – Quality Improvement Report

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No Disclosures to Report

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Background

We are a free-standing academic children's hospital.

The ACR recommends the use of Ferrous Metal Detection Systems (FMDS) to reduce the likelihood of hazardous ferromagnetic objects entering the MRI Scanner room (Zone 4).

In 2017, we equipped all our MRI Scanner rooms with doorway FMDS.

Our Story

- Ferromagnetic accessories on staff attire were causing frequent alarms
  - Wires in undergarments, watch straps, shoes etc.
- Alarm fatigue meant our staff were ignoring alarms which negates the effect of FMDS on MRI safety.

- **Purpose:**
  - Create a ferrous-free dress code for MRI personnel to eliminate alarm fatigue and allow for effective use of FMDS.

Planning

A Task force was formed to establish a ferrous-free MRI environment

Baseline alarm rates obtained to evaluate frequency of passage of ferromagnetic items.

Initial focus on MRI personnel attire: technologists and sedation team.

Go-live date chosen, committees created to work through details and share information with staff.

Execution: Staff-Led Committees

Ferrous-Free Clothing Committee

Provided resources to staff for ferrous-free attire

Process Committee

Designed process changes, defined policies, developed training procedures

Engagement Committee

Encouraged staff engagement with ferrous-free campaign (logo, t-shirts, and posters).

Execution & Monitoring

Ferrous-free dress code was implemented on October 11th, 2021.

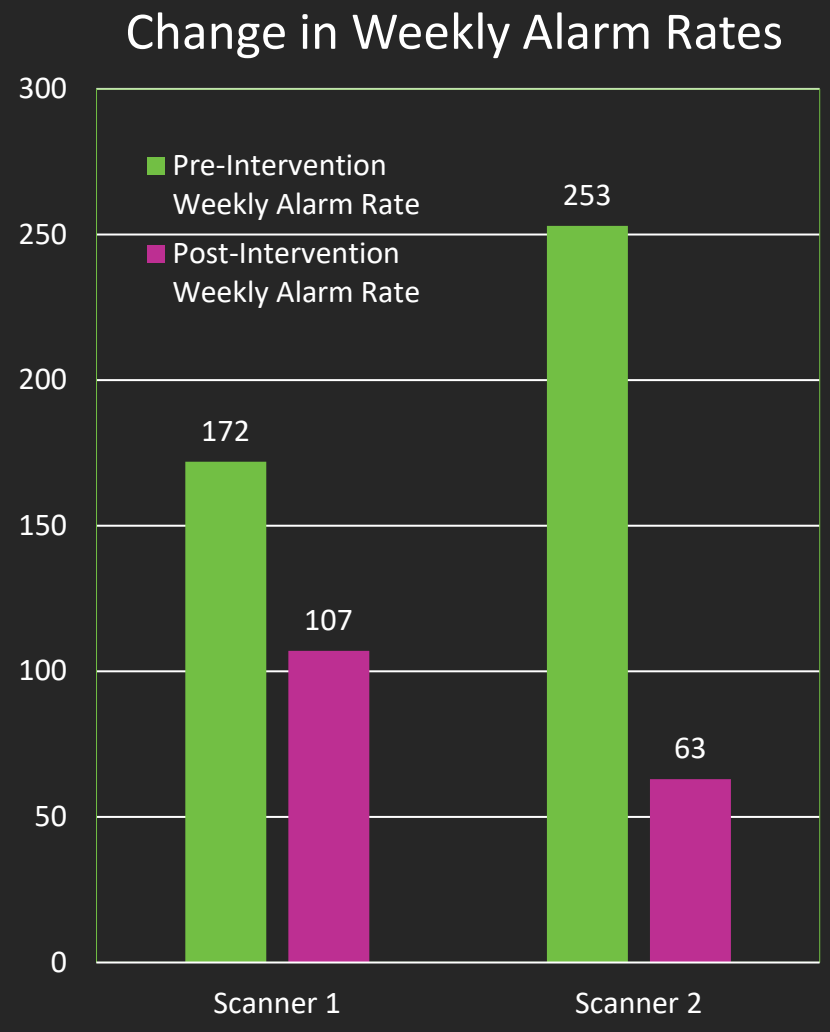
Processes were developed that required staff to stop and investigate any alarms produced by the doorway FMDS.

Alarm rates from the FMDS were evaluated to determine impact of the initiative on alarm frequency.

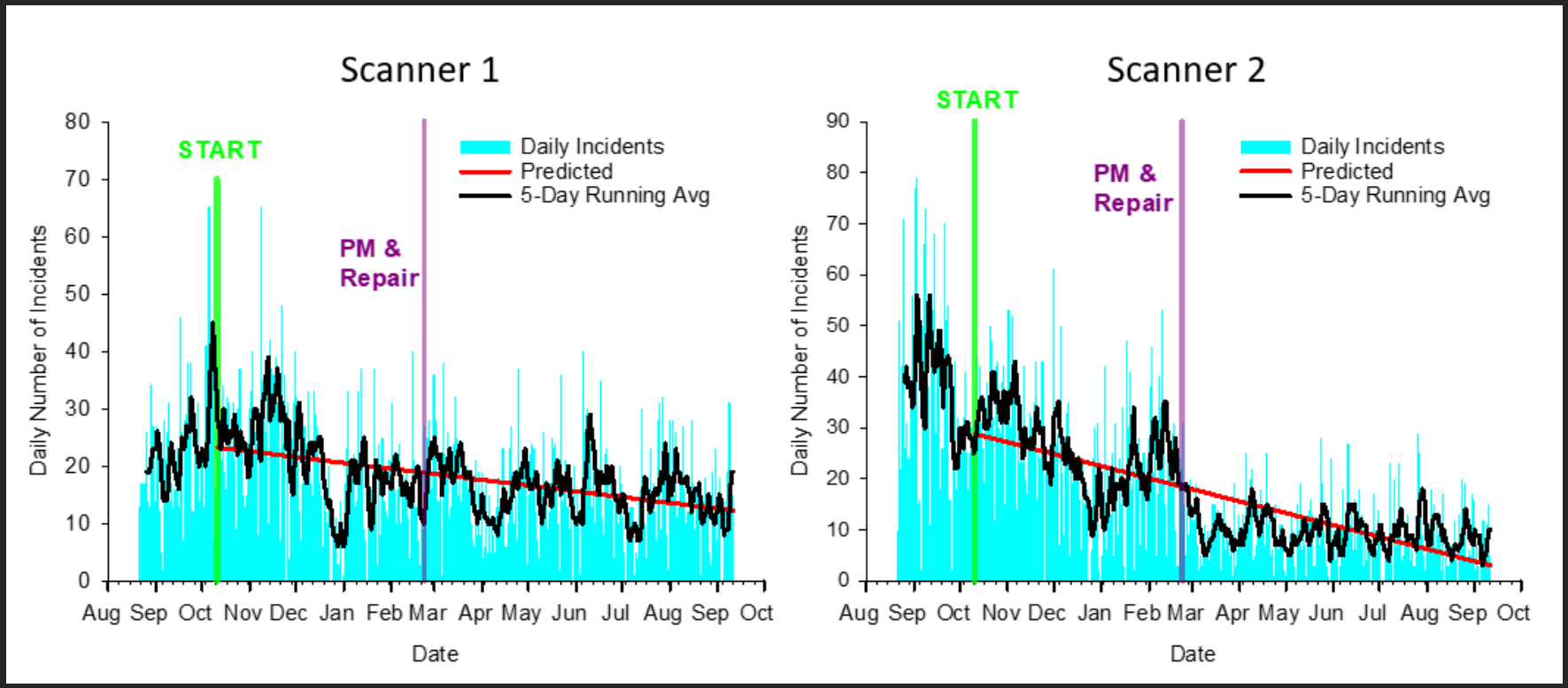
Alarm rate data was collected weekly and reported to the task force monthly to serve as our metric.

Results

- Alarm rates have trended down over time.
- Compliance of MRI personnel with ferrous-free attire has been excellent.
- Most alarms are now caused by non-MRI personnel attire and ferrous objects in Zone 3 moving near the FMDS.



FMDS Alarm Rates Have Steadily Declined Since Dress Code Go-Live



Scanner 1's decrease is less dramatic because of its proximity to the outer Zone 3 doors. The opening and closing of these doors causes alarms on Scanner 1's FMDS.

Discussion

- Implementation of a ferrous-free dress code for MRI personnel is feasible with high compliance and is essential to decrease FMDS alarm rate and resultant alarm fatigue.
- In the next phase of this project, we will focus on further reducing our alarm rates by:
  - Expanding the ferrous-free dress requirement to all hospital staff, patients and guardians entering the MRI suites.
  - Identifying and mitigating environmental factors that cause extraneous alarms.