RADIATION SAFETY : Improving radiation safety compliance among radiology residents during fluoroscopy procedures by facilitating dosimeter access and implementing a novel pre-procedural safety time-out

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Building Intelligent Connections

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INTRODUCTION

- Exposure to ionizing radiation is a significant occupational risk, particularly in interventional radiology.
- Limited data to demonstrate effective protocol development to improve dosimeter compliance
- Proper use of dosimeter badges is vital for protecting healthcare providers from excessive radiation exposure

INTRODUCTION

- Initially, only 1 in 4 radiology residents wore dosimeter badges during procedures with known ionizing radiation
- Our objective: Improve dosimeter use by 50% within one year
- The approach included streamlining dosimeter access and incorporating safety protocols into pre-procedure checklists

METHODS

01	Site	• Radiology Department of a large urban tertiary care academic medical center
02	Target population	• All radiology resident physicians
03	Interventions	• Improved accessibility to dosimetry badges via placement in a more centralized location • Dosimeter checklist in IR pre-procedure timeouts

METHODS

Implementation of Intervention

Improved dosimeter badge accessibility and survey to assess for obstacles to compliance

Posted signage on appropriate placement of dosimeter badges

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Implementation of intervention

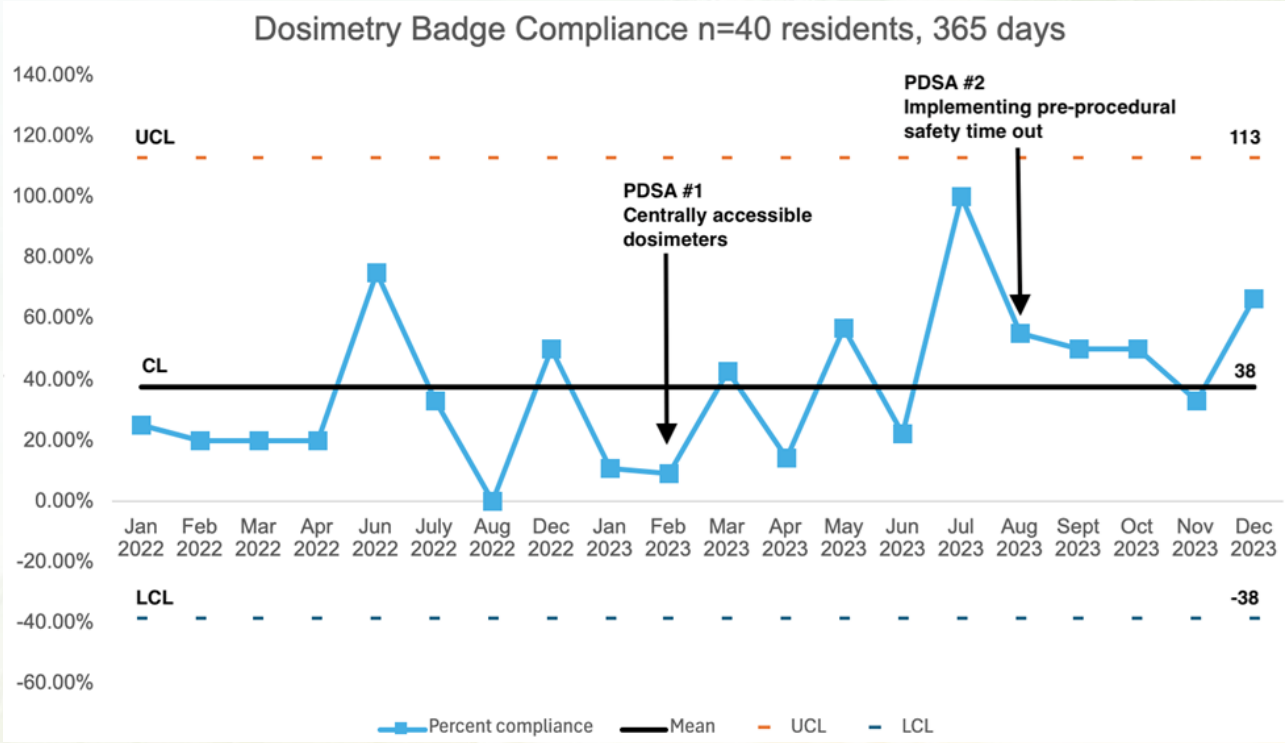
Dosimeter check in pre-procedure timeout

Continued implementation and improvement of interventions

Evaluation

Evaluation of results using Statistical Process Control Chart

RESULTS

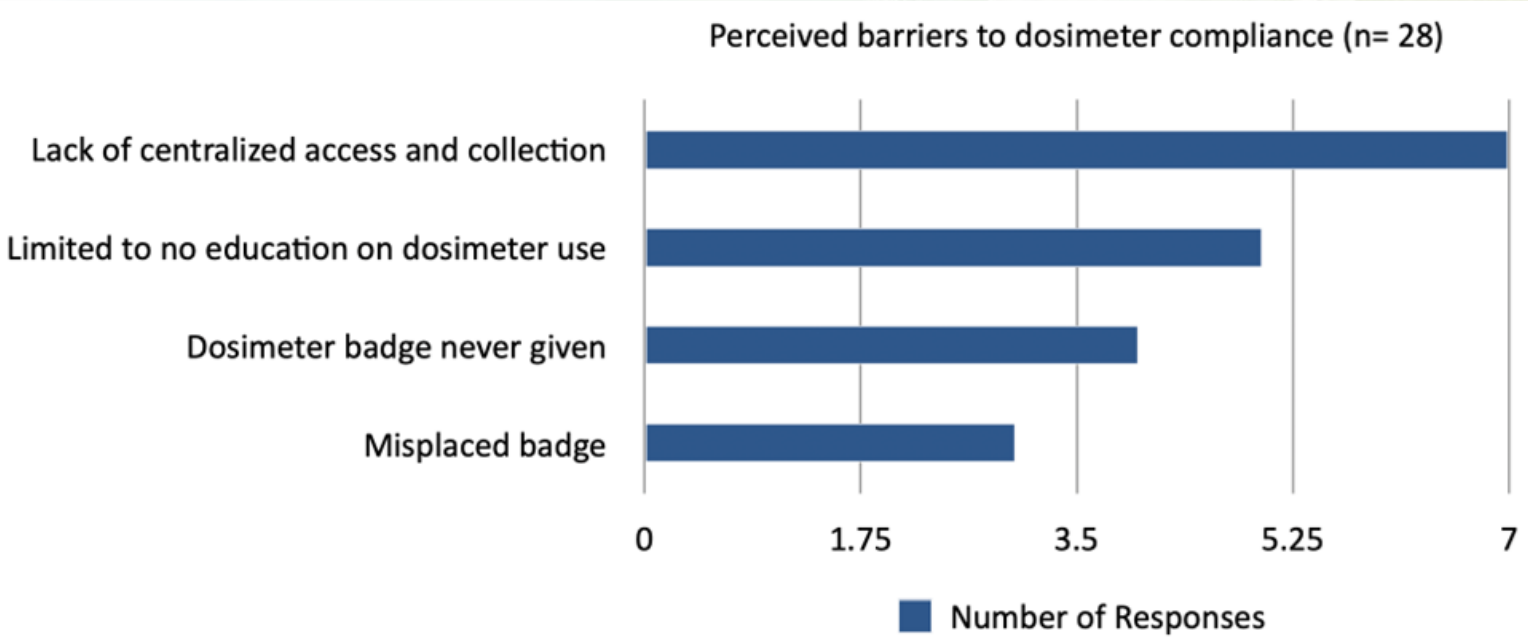


WARRIOR STRONG

RESULTS

- Overall, there was an approximate 50% increase in average compliance compared to pre-intervention
- Decreased variation following the second PDSA cycle indicates that compliance was optimized with active pre-procedure checks of residents in the procedure room
- There was some contribution to improvement from greater central access from the first PDSA cycle, possibly due to increased visibility

RESIDENT FEEDBACK



DISCUSSION

- Key Findings:
  - Dosimeter compliance improved by 50% after interventions.
  - Centralized dosimeter access nominally increased usage.
  - Pre-procedure time-out checks had the greatest impact on consistent compliance.
- Interpretation:
  - Accessibility and active reminders are critical for improving radiation safety behavior.
  - Findings align with limited literature supporting structured protocols for safety compliance.
- Implications:
  - Centralized access and procedural reminders can enhance safety practices in radiology departments.
  - Broader application could improve safety and awareness across medical procedures involving radiation exposure.
  - Badge data from improved compliance may inform future directions for improvements in procedural technique.
- Limitations:
  - Delay in return of dosimeter readouts and inconsistent time-out execution.
  - Asynchronous resident schedules and badge timelines may may result in data inconsistencies.
  - Future research could explore real-time tracking and streamlined time-outs.

CONCLUSION

- The interventions significantly improved radiation dosimeter compliance among radiology residents, boosting compliance by 50%.
- Accessibility (centralized dosimeter placement) and pre-procedural checks during safety time-outs were key to improving compliance and reducing system variation.
- Further process improvements and consistent protocol application are necessary to sustain and optimize radiation safety in the department.