Improving Compliance of Barcode Medication Administration of Contrast in CT on Mayo 3

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DEFINITE TEAM MEMBERS
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BACKGROUND
The Radiology CT team on Mayo 3 identified that they were not in compliance with Mayo Clinic’s Barcode Medication Administration (BCMA) Policy, which requires staff to scan medications prior to administering them to a patient. It was also noted that aspects of Mayo Clinic’s Medication Administration Policy and Medication Preparation Policy were not being followed appropriately.

GAP IN QUALITY
The team developed an audit form that was utilized in observation of the sampled patients for both the pre- and post-intervention samples. Exam durations were measured via observational audit and timings.

MEASURE
IMPROVEMENT MEASURE BASELINE AND SAMPLE SIZE
The BOMA process was followed appropriately 9% of the time in a sample of 33 CT exams with contrast on Mayo 3.

BALANCING MEASURE BASELINE AND SAMPLE SIZE
The team decided to use exam durations as the balancing measure for this improvement. Baseline exam durations were 19 minutes in the sample of 33 CT exams with contrast on Mayo 3.

DATA COLLECTION PLAN FOR IMPROVING AND BALANCING MEASURES
The team developed an audit form that was utilized in observation of the sampled patients for both the pre- and post-intervention samples. Exam durations were measured pre-intervention via exam events in Epic. Post-intervention exam durations were measured via observational audit and timings.

ANALYZE
KEY CAUSE SELECTED
- Lack of understanding of policies/procedures and what is required of staff
- BCMA equipment not available in an efficient location
- No standard process for documentation of contrast administration and waste
- No standard training or evaluation process for contrast administration competency
- No standard training documents or resources

OTHER POTENTIAL CAUSES
- Documentation not in a standard location in EHR, depending on role (technologist vs R.N.)
- Not all types of contrast can be barcode scanned

FIGURE 1: CURRENT CONDITION
Laminated sheets were available at each CT scanning station in the Central Area. Technologists or nurses would scan these barcodes as part of the medication administration workflow, as opposed to the barcode on the medication itself.

FIGURE 2: BASELINE
Baseline BCMA Compliance & Exam Duration

FIGURE 3: IMPROVE
The team tested three different potential workflows to last through PDSA (Plan, Do, Study, Act) cycles, with the goal of improving BCMA compliance while maintaining exam duration times.

- PDSA 1 involved following the correct BCMA and medication preparation workflows while maintaining exam duration times.
- PDSA 2 utilized current equipment, but reduced movement back and forth between the exam room, where contrast is administered, and the control area, where it is documented.
- PDSA 3 tested at-the-elbow technology (Rovers & Workstations on Wheels).

FIGURE 4: BALANCING MEASURE
Of the three workflows tested, PDSA 2 and PDSA 3 reduced exam durations to 11 and 12 minutes, respectively. While PDSA 3 increased exam durations to 21 minutes.

CONTROL
LESSONS LEARNED
Helping staff understand why BCMA is important and why the process steps need to occur in a specific order helps to improve buy in with solutions.

The most desired solution at the start of a project is often not the end result. This team favored Rovers and tablets going into this project but ended up selecting a different solution.

Solutions can have a positive impact elsewhere. Contrast waste documentation has become more accurate, reducing workflow for the Chargers.

COMMUNICATION
Results of the project and lessons learned were communicated to project sponsors. Ongoing compliance will be communicated to frontline via work unit huddle boards.

HAND-OFF PLAN
The monitoring and intervention plan was handed off to the operational team after the control plan was finalized.

MONITORING PLAN
Workflows will be performed by the Mayo 3 CT Hub Lead 3 times a week for the first month and then weekly. BCMA compliance will be monitored monthly by the CNO. Baseline compliance below 95% will prompt the team to reconvene to seek root causes and barriers, and plan to next steps.