MHA Lean Six Sigma Project Summary

INITIATIVE TITLE: Clostridium difficile SIR reduction via BPA compliance
ORGANIZATION NAME: Mercy Hospital St. Louis
ELECTRONIC MED RECORD: EPIC

PARTICIPANT / CONTACT INFORMATION

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DEFINE – Problem Statement & Goal

Increasing RN BPA compliance will reduce hospital acquired C. diff infections by identifying positive C. diff patients in the present-on-admission timeframe thereby reducing the SIR. Additionally, compliance with BPA will identify C. diff positive patients earlier in stay; place positive patients on correct isolation/cleaning protocol; and reduce hospital-transmitted C. diff. Additionally because C. diff is publicly reported, a lower rate will improve Mercy Hospital St. Louis's public perception and the organization through increased reimbursement earned from value-based payment incentives.

Decrease the number of defects by 90%, reducing the SIR to meet IBM Watson Top Hospital criteria and the ministry goal of 0.400.

DEFINE - Initiative Scope

There are two Best Practice Advisories (BPAs) that will fire in EPIC if certain criteria is met during a patient stay. The first opportunity for the BPA to fire is within the admission assessment and the second is based on frequency and Bristol-Meyer's stool consistency documentation. For these BPAs to work as they were designed, the RN must appropriately answer the questions and follow the BPA directions. The scope is limited to the RN BPA. Resources include EPIC, EPIC reports, and the project team. Project constraints include the inability to change the BPA itself and EPIC.

DEFINE –BIG Y

The BIG Y of the project is complete single order and sign orders per protocol. The discrete defect is the BPA is dismissed and the discrete opportunity is each time the BPA fires.

MEASURE - Data Collection / MSA

The MSA used is the Attribute Gage R&R Effectiveness. A compliance report was printed from EPIC and a chart review was performed to determine if an order was placed by the primary nurse (yes), placed by another provider (no) or dismissed (no). The initial sample size was 20 times the BPA fired.

AHA Moment: We knew BPA #2 compliance was low. We were surprised at how low it *actually* was. Baseline BPA compliance was 7% and sigma score was 0.1.

ANALYZE - Critical Xs / Root Causes Identified

- Primary RN placing the order (chi squared & two proportion test); if the BPA fires to the primary nurse, they are statistically more likely to place the order. Root cause: the non-primary RN does not feel confident placing orders on a patient they do not know
- T/N ICUs vs all other units and Trauma & Surgery vs all other units (two proportion test); T/N and T&S have a high volume of BPA firings and placed the orders statistically less often than the rest of the units. Root cause: lack of education surrounding the BPA
- TCU/490 vs all other units (two proportion test); TCU/490 has a high volume of BPA firings and placed the order statically more often that the rest of the units
- AHA Moment: Orders are statistically more likely to be placed when the BPA fires for the first time than all other times combined. No orders were placed after the BPA fired nine or more times. In our review, the BPA fired up to 29 times. Meaning, the more times the BPA fires does not increase the likelihood that the order will be placed.

IMPROVE - What was Implemented
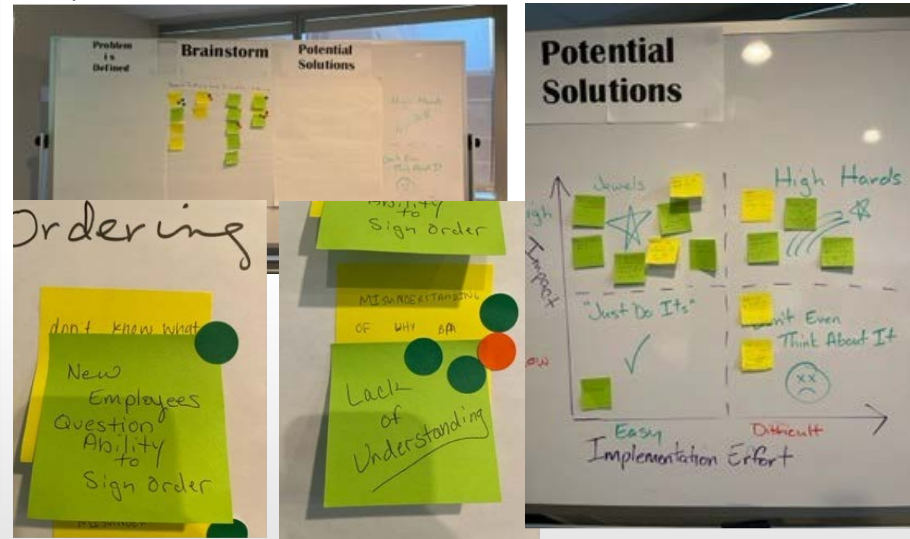
ICU Shared Governance RPIW

- Develop Donna Wright's on BPA #1 & BPA #2 including definitions / whys / & emphasize if BPA #2 fires, EPIC has already done the critical thinking for you
- Roving education & unit signs hung in high traffic areas:
    - If you see BPA #2, place the order, regardless of primary RN, do it per protocol
    - Myths vs facts
    - Can place order outside of the BPA firing & BPA will stop firing
- Add BPA specific education in nursing fellowship
- Delegate if unable to order timely

Trauma & Surgery Shared Governance RPIW

- Notify patient care technicians (PCTs) if BPA #1 fires so they know to collect next stool if 6, 6/7 on the Bristol Meyers stool chart
- Unit signs with education (see above)
- Create time during PCT orientation about the importance of communicating with the nurse about the type of stool & high-risk C. diff patients
- Add "BPA" section to handoff report
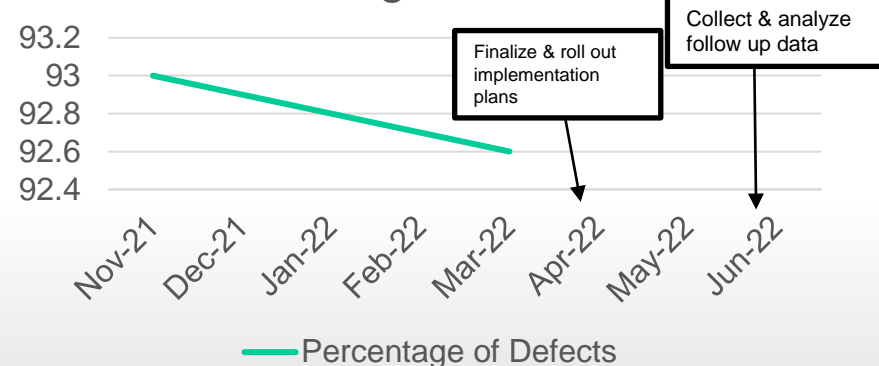- Make a column to document stool (y/n) & stool type on turn team board

IMPROVE – What was Implemented

These pictures are from the ICU shared governance RPIW. We used the RPIW template. The dots represent individual votes on issues and barriers. Each shared governance member was given three dots to vote on what they thought were the highest risk issues and barriers to BPA compliance.

IMPROVE – Results to Date

Percentage of Defects

93.2	
93	
92.8	
92.6	
92.4	

Nov-21 Dec-21 Jan-22 Feb-22 Mar-22 Apr-22 May-22 Jun-22

Finalize & roll out implementation plans

Collect & analyze follow up data

—— Percentage of Defects

CONTROL – Next Steps

After approved solution recommendations are identified, the teams will develop action plans for implementing these solutions on their units. Patti and I will follow up with the teams and collect and report data until the solutions are fully implemented, can be sustained, and are ready to be shared throughout the organization. We will then develop a control plan, a project benefit summary, and project handoff/closure plan.

Project momentum will not halt, and the process will not revert to previous practices because we are implementing nursing fellowship education on the importance of following the BPA and unit shared governance councils will be involved in reinforcing best practice and standards of care. There will be infection prevention follow up and one-on-one education regarding following the BPA during the C. diff SWARM.

We will run the EPIC BPA report in June, one month after plan implementations are rolled out, to determine the project benefit. We will look at the end of the fiscal year SIR data to determine if 1) BPA compliance was increased and 2) did increased BPA compliance decrease the SIR.

Shared governance councils will implement solutions on their respective units. BPA compliance and effect on SIR will be analyzed by IP and results will be presented to shared governance councils at a standing monthly meeting. Considering BPA compliance, SIR, and plan roll out to all hospital units, we will then determine the project close timeline.

We will hand of to nursing fellowship education and shared governance councils.

AHA Moment: The changes in our nurse onboarding process during COVID reduced face-to-face interaction with subject matter experts, including infection prevention, and changed the focus of real time, high-priority education topics.

OVERALL LESSONS LEARNED

Participating in this process helped solidify leadership, teamwork, problem solving and communication skills. Commitment to best practices and adhering to standards of care by our organization was reinforced throughout this process. Structured process improvement lead us through the steps to end up with realistic actionable items. The RPIW steps were easy to follow and encouraged interaction from the shared governance councils. The LSS approach engaged stakeholders and will hopefully ensure follow through on the processes implemented. We would not do anything differently.

Increased lack of communication on the T&S floor, compared to the ICU. On the floors the PCT is primarily responsible for assisting the patient to the bathroom or the patient is independent. There is no notification that is automatically sent to the PCT when a stool sample is needed.

Nurses on both the floor and in the ICU are reluctant to place the order and place the patient on contact isolation because,

1. The likelihood of the stool specimen returning a C. diff positive result is 20% (we found a 20% C. diff positive rate from orders placed through the BPA in CY 2021) AND
2. PPE must be donned by anyone entering the room and patient / family education must be provided until the specimen is resulted (4-hour turnaround time)

NEXT PROJECT(S)

Work with the stroke team to improve stroke measures, including intervention times, to become a Joint Commissions designated Comprehensive Stroke Center.

REWARD AND RECOGNITION

Robyn Weilbacher
Rachel Martens
ICU shared governance: Jacob Thomas, Josh Ennis, Maggie Mahoney, Raven Wyatt
T&S shared governance: Nichole McNichols, Elesha Allen, Brianna Shaw