Quality Initiative to Improve the Electronic Health Record's Best Practice Advisory for Targeted MRSA Screening Compliance

Jason E. Wilson, DrPH, MS, CIC[1] | Kimberly Atrubin, MPH, CIC, CPHQ, FAPIC[2] | Carmen Murphy, MSN, RN, CIC, FAPIC [3]

[1-3] Infection Prevention Department, Tampa General Hospital

Purpose

To increase methicillin resistant Staphylococcus aureus (MRSA) screening compliance through improvements to the Electronic Health Record's (EHR) Best Practice Advisory (BPA)

Background

Early identification of MRSA colonized patients ensures prompt isolation and decolonization therapy to prevent MRSA transmission and infection. Our hospital currently uses an EHR BPA to alert team members to collect MRSA nares screens for adult inpatients that have MRSA risk factors (e.g., hospitalized in last 30 days, IV drug abuser, on dialysis, skin lesions, transfer from prison, etc.) documented in the EHR's navigator. Anecdotal infection prevention data suggested that MRSA screening compliance was low. This prompted a quality improvement initiative to increase compliance including conducting point prevalence surveys for MRSA screening compliance and assessing and revising the MRSA screening BPA.

Methods

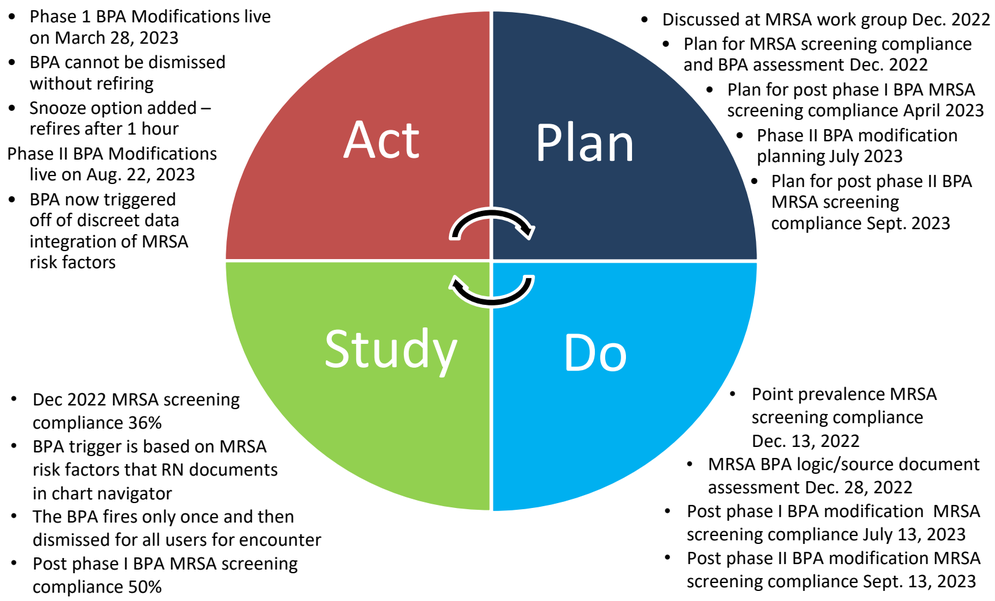
This quality improvement initiative followed the Plan Do Study Act (PDSA) cycle. The project was performed between Dec. 2022 and Nov. 2023 at Tampa General Hospital, a 1,040-bed acute care academic medical center. The project involved close collaboration with Information Technology and included monthly discussions with the multi-drug resistant organism (MDRO) multidisciplinary work group. All hospitalized adult patients were included in BPA modifications with the exception of stepdown and intensive care units. Phase I modifications included changes to BPA firing frequency and dismissal. More specifically,

- The user could no longer dismiss the BPA for a patient's entire encounter; the BPA refired within minutes of dismissal
- A snooze option was included to refire BPA after 1 hour
- A free flow text box was included to document reasons for BPA dismissal

Phase II BPA modifications included the integration of MRSA risk factors from discrete data fields to trigger the BPA instead of relying only on RN documentation of MRSA risk factors in the navigator. The BPA would fire when:

- Admission documents type of residence as correctional facility, homelessness, extended care facility, residential facility, or shelter
- Infection status includes MRSA
- Registration documents point of origin as outside healthcare facility, skilled nursing facility, assisted living facility, intermediate care facility, outside hospital (transfer)
- Registration documents patient as healthcare employee
- Line drains and airways (LDA) documents active dialysis central line or fistula
- Substance history drug use is marked yes for commonly injected IV drugs (e.g., cocaine, fentanyl, heroin, etc.)

Point prevalence surveys were conducted for MRSA nares screening compliance prior to (n= 56), after phase I (n=30), and after phase II (n=38) BPA modifications. In addition, the number of MRSA screens collected, and MRSA positive patients identified for the first time in the 90 days before and after BPA modifications were compared.



- Phase 1 BPA Modifications live on March 28, 2023
- BPA cannot be dismissed without refiring
- Snooze option added – refires after 1 hour

Phase II BPA Modifications live on Aug. 22, 2023

- BPA now triggered off of discreet data integration of MRSA risk factors

- Discussed at MRSA work group Dec. 2022
  - Plan for MRSA screening compliance and BPA assessment Dec. 2022
    - Plan for post phase I BPA MRSA screening compliance April 2023
      - Phase II BPA modification planning July 2023
      - Plan for post phase II BPA MRSA screening compliance Sept. 2023

- Dec 2022 MRSA screening compliance 36%
- BPA trigger is based on MRSA risk factors that RN documents in chart navigator
- The BPA fires only once and then dismissed for all users for encounter
- Post phase I BPA MRSA screening compliance 50%
- Post phase II BPA MRSA screening compliance 89%

- Point prevalence MRSA screening compliance Dec. 13, 2022
  - MRSA BPA logic/source document assessment Dec. 28, 2022
- Post phase I BPA modification MRSA screening compliance July 13, 2023
- Post phase II BPA modification MRSA screening compliance Sept. 13, 2023

Results

- MRSA screening compliance was 38% before and 89% after BPA modifications
- The 30-day average number of MRSA screens collected increased from 539 to 926 (72%) after BPA modifications
- The 30-day average identification of first-time positive MRSA patients increased from 59 to 87 (47%)
- The percentage of positive MRSA screens remained similar before (13.0%) and after (12.3%) BPA modifications

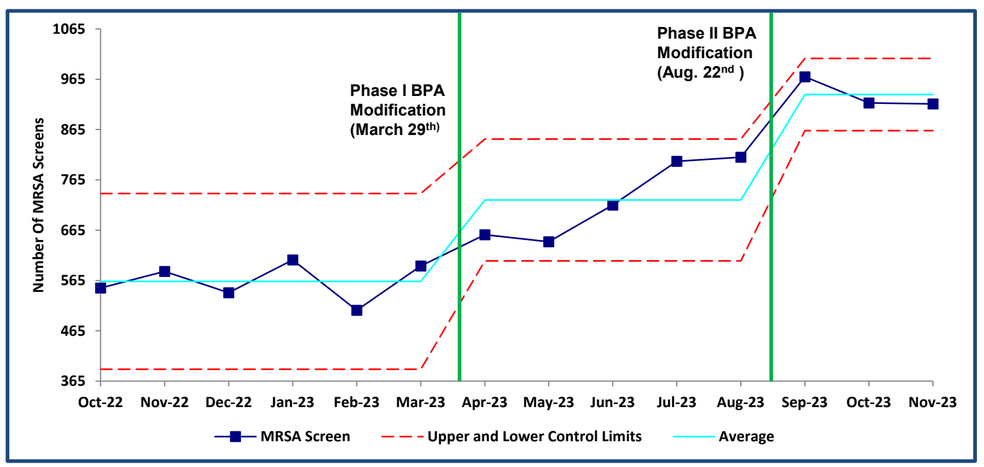


Figure 1. Control Chart (X Chart) for Number of MRSA Screens Collected Between Oct. 1, 2022 and Nov. 30, 2023)

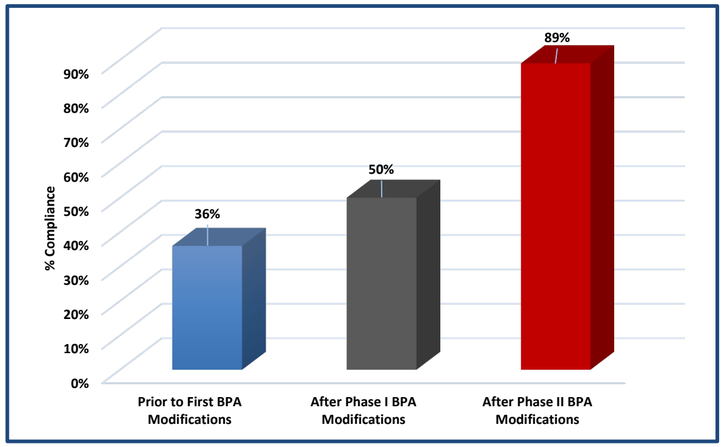


Figure 2. MRSA Screening Point Prevalence Compliance Before Phase I (n=56; Dec. 13, 2022), After Phase I (n=30; July 13, 2023), and After Phase II (n=38; Sept. 13, 2023) BPA Modifications

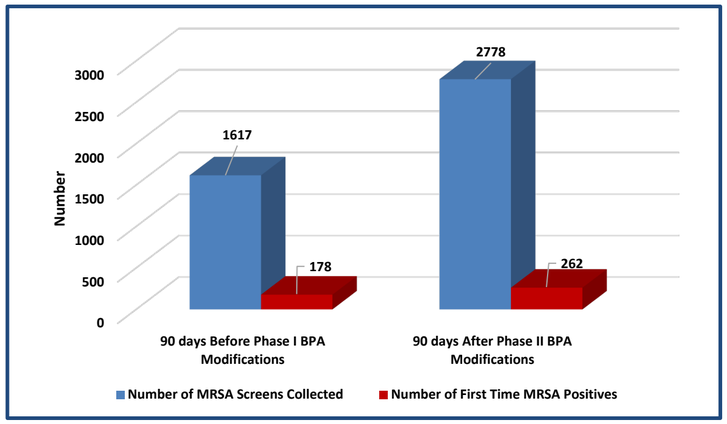


Figure 3. Number of MRSA Screens Collected and First-Time MRSA Patients Identified 90 Days Before (Dec. 29, 2022 – Mar. 28, 2023) Phase I BPA Modifications and 90 Days After (Aug. 23, 2023 – Nov. 20, 2023) Phase II BPA Modifications

Conclusions

- This quality improvement project successfully identified opportunities for expanding the MRSA screening BPA to increase MRSA screening compliance by 72%.
- Facilities that desire to increase MRSA screening compliance may consider using an EHR BPA and/or assessing and adjusting their current EHR BPAs.

Acknowledgments

We thank our Information Technology team for their collaboration in this project.

****We have no disclosures to report.**