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Engaging the bedside nurse in reducing *Clostridium difficile* infection through an innovative patient care rounding program

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Abstract

Background: Bedside nurses comprise the largest personnel group in a hospital and are intimately familiar with a patient's day to day clinical status. They can be an effective group to engage and empower to assist with hospital-wide *Clostridium difficile* infection (CDI) reduction efforts. The objective of this study was to evaluate the impact of a nursing driven intervention bundle on CDI rates at a 365 bed community hospital.

Methods: Daily nursing led CDI and invasive line assessment rounds were implemented in April 2017. Nurses were empowered through a pre-approved protocol to place symptomatic patients in isolation and order a test for *C. difficile*. Additionally, patient care rounds that included nursing leadership, the antibiotic stewardship program physician director, infection preventionist and bedside nurses were conducted three times weekly. During these rounds, all Foley catheters, central lines, and CDI cases were discussed and a root cause analysis was performed for healthcare associated infections (HAIs). CDI standardized infection ratio (SIR) was tracked as the primary metric to assess outcome and trends by quarter over a two year period.

Results: CDI SIR rates for the two full quarters after program implementation (July to September 2017 and October to December 2017) declined by 27.8% and 51%, respectively when compared to matching quarters from 2016 (Figure 1). Overall calendar year 2016 rates were similar to 2017 rates, but this was due to a significant increase in CDI incidence in first quarter 2017.

Conclusion: A formalized program for CDI reduction that incorporated the bedside nurse, nursing leadership, infection prevention, and the ASP team was effective in reducing CDI rates as measured by SIRs for the two quarters after full program implementation when compared to 2016 baseline rates.

Introduction

The *Clostridium difficile* infection (CDI) standardized infection ratio (SIR) is a critical metric for any healthcare facility and can be influenced by the presence of an antimicrobial stewardship program (ASP) and staff interventions at multiple points of care. Due to an unexpected increase in our quarterly CDI SIR, we elected to engage the bedside nurses in helping to reduce our rates. Detailed analysis showed that approximately 25% of our healthcare-associated (HA) CDI were actually community-acquired CDI that were unrecognized at admission. We identified unit-specific bedside nursing leaders to help develop policies, in conjunction with our ASP, to assist with creating a sustainable HA-CDI SIR reduction at our facility.

Materials & Methods

Daily nursing led CDI and invasive line assessment rounds were implemented in April 2017. Nurses were empowered through a pre-approved protocol to place symptomatic patients in isolation and order a test for *C. difficile*. Additionally, patient care rounds that included nursing leadership, the antibiotic stewardship program physician director, infection preventionist and bedside nurses were conducted three times weekly. During these rounds (affectionately named WTF [Why the Foley?] rounds) , all Foley catheters, central lines, and CDI cases were discussed and a root cause analysis was performed for healthcare associated infections (HAIs). CDI SIR was tracked as the primary metric to assess outcome and trends by quarter over a two year period.

In addition to the daily rounds, a nurse-driven protocol was established for all patients with diarrhea on admission assessment.

Protocol:

1. Upon admission, all patients with a suspicious history should have a *C. difficile* assay ordered and be placed in isolation if:
   a. Currently experiencing unexplained diarrhea
   b. Currently having diarrhea and a history of antibiotic use within the last 4 weeks
   c. Currently having diarrhea and fever (>101 F) or WBC (>12k) or complaining of abdominal pain
2. During the hospital stay, if the patient has liquid or loose stools (>3 in 24 hours), a *C. difficile* assay should be ordered and the patient placed in isolation.
3. Exclusions: Patients who are receiving tube feedings.
4. All patients who have a negative assay will be removed from isolation.

Results

Figure 1: HAI CDI SIRS 2016-2017 (2015 Baseline)

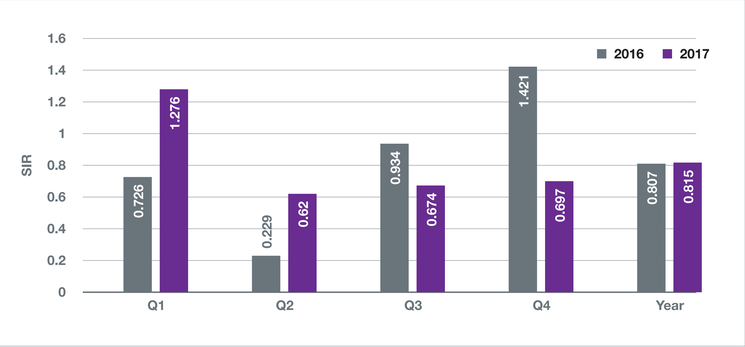
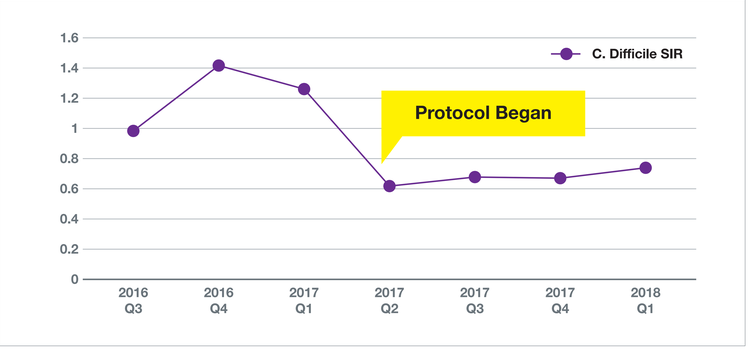


Figure 2: CDI SIR Trend



Discussion

CDI SIR rates for three full quarters after program implementation (July to September 2017, October to December 2017, and January 2018 to March 2018) declined by 27.8%, 51%, and 41.5%, respectively when compared to matching quarters from the previous year. Overall calendar year 2016 rates were similar to 2017 rates, but this was due to a significant increase in CDI incidence in first quarter 2017.

Conclusion

A formalized team including bedside nurses, nursing leadership, infection prevention, and the ASP team contributed to a sustainable reduction in HA-CDI SIR over three consecutive quarters compared to matching quarters from the previous calendar year. Engaging bedside nurses and nursing leadership can result in a significant impact on HA-CDI SIR rates.

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