Controlling *Clostridium difficile*: What did and did not work in a multi facility healthcare system

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**Abstract**

*Clostridium difficile* infections (CDI) continue to rise across the nation with increased morbidity and mortality. Hospitals participating in the Inpatient Prospective Payment System (IPPS) began reporting *Clostridium difficile* Lab ID events to the National Healthcare Safety Network as a part of mandatory reporting in January 2013. A multi facility healthcare system in North Carolina implemented many strategies to reduce *Clostridium difficile*. Some strategies were successful while others were not.

**Introduction**

According to the National Healthcare Safety Network (NHSN), the Lab ID event surveillance module was a proxy measure to limit the collection burden on hospitals and to allow for electronic capture of cases (NHSN, 2015). As this proxy measure has been added to Value Based Purchasing metrics, hospitals are struggling to understand the measure as it relates to patient care and safety. Hospitals are attempting to determine what quality measures can be implemented to decrease the burden of Lab ID *Clostridium difficile* within the hospital and the community. The objective of this study was to understand which measures worked to reduce CDI for a multi facility healthcare system.

**Methods & Materials**

Best practices and guidance from The Society of Healthcare Epidemiology of America (SHEA) were reviewed by the Infection Prevention Department. A multi disciplinary team was designed to assist in review of guidelines, determine clinical implications based on recommendations from Infection Prevention, and assist in implementation of interventions. Infection Prevention participated in observations of the work occurring for patients suspected or confirmed to have *Clostridium difficile*. Based on observations, interventions were designed including an enhanced visual hand hygiene campaign, “bleach parties” for high touch surfaces, coordinated improvement efforts with compliance for UV disinfection, and implemented an enteric bundle bag. As rates continued to be above expected as compared to hospitals of similar size, current practices revealed inappropriate testing. Two major changes were made: elimination of the nurse driven protocol and 2) change lab methodology to a two step (GDH and toxin recognition versus polymerase chain reaction).

**Results/Discussion**

Two years of data was analyzed for the 4 acute care hospitals using two proportions testing.

- Hand hygiene compliance across the 4 hospitals improved by 9%, (not statistical significance).
- Environmental UV placement compliance improved by 76% (p<0.05).
- Nurse driven identification protocol increased testing by 43% (p<0.05); however, on review of cases 30% did not meet protocol criteria for testing. Thus, nurse driven identification protocol was discontinued.
- Rates decreased by 84% within 3 month with the final change to a different lab methodology (PCR only to the Alere Quick Check) demonstrating statistical significance (p<0.0001).
- Decreases in Lab ID events have been sustained for an additional 8 months following implementation.

**Implications/Conclusion**

Based on efforts at 4 acute care hospitals, multiple interventions had the greatest influence on reducing the incidence of hospital onset CDI rates. Nurse driven protocols can inaccurately influence rates greater when combined with sensitive testing methodologies such as polymerase chain reaction (PCR) if testing is initiated based only on diarrhea. For facilities currently exploring methods for controlling *Clostridium difficile* it is critical to evaluate the impact of different control measures, continually analyze the data for undue influence and change strategies based on the most recent literature findings.

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Nothing to Disclose