

Multifaceted approach to reduce acquired Clostridium difficile infections in a community hospital

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Background

Clostridium difficile infection (CDI) is the most common cause of infectious diarrhea in healthcare settings. CDI increases hospital cost, length of stay, and rates of readmission. Transmission of *Clostridium difficile* (*C. difficile*) in the healthcare setting can occur via contact with a healthcare worker, contaminated environment, or CDI patient. Prolonged duration of antibiotics and acid suppressing medications such as proton pump inhibitors (PPI) have been associated with an increased risk of CDI. Incidence and severity of infection has increased over the past decade. The Joint Commission has responded to this epidemic by identifying CDI as a hospital acquired infection (HAI) and made it a National Patient Safety Goal with aim to "reduce the risk of HAI." Reducing CDI has been a continued focus at this facility. A collaborative team has been created across departments to coordinate prevention strategies.

Objective

To reduce rates of hospital acquired CDI through education and a multidisciplinary approach

Methods

The infection control committee at this facility consists of infectious disease physicians, nurses, pharmacists, and an infection prevention specialist. Initiatives have been developed to support the goal of reducing CDI. An infection prevention specialist provided education to nurses regarding *C. difficile* transmission and prevention. Prompt contact isolation and cleaning procedures were stressed. Bedpan and commode pail liner with super absorbent pad were implemented. Signage warning of "enteric precautions" describing required personal protective equipment is required for CDI patient rooms. Hand hygiene continued to be enforced and monitored by infection control and department managers. Clinical pharmacists provided educational in-services on CDI prevention, diagnosis, and treatment to pharmacists and nursing staff. A pharmacy-driven program was implemented aiming to reduce use of PPI. This project was comprised of extensive physician and staff education on indications and guidelines as well as a pharmacy protocol to discontinue PPI without indication in patients outside of the intensive care units. Antibiotic stewardship practices continued with pharmacy-performed medication use evaluations for treatment of specific infectious disease states in first quarter of 2015. Case reviews were presented at infection control committee meetings concentrating on appropriate treatment and limiting antibiotics. Total inpatient antibiotic expenditures were evaluated as well as use of antibiotics with high risk of causing CDI including clindamycin, fluoroquinolones and broad spectrum beta-lactams. Additionally, PPI doses and acquired CDI rates were reviewed. All outcomes were tracked and analyzed from first quarter 2013 through third quarter 2015 using control charts.

Disclosures

The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

Results

A total of 134 nurses and 14 pharmacists were educated on CDI via pharmacist in-service. An infection control specialist educated all nursing units on *C. difficile* transmission and hospital-mandated procedures. The pharmacy program to reduce PPI usage and extensive physician education surrounding the program resulted in a sustained decrease. In the time preceding the program, monthly doses dispensed averaged 3723 while recently averaged 2265 doses. With the implementation of aforementioned new strategies and continued vigilance to previous measures, decreasing trends have been observed in antibiotic expenditures, use of high-risk antibiotics, use of PPI and hospital acquired CDI rates.

Figure 1. Total Antibiotic Expenditures

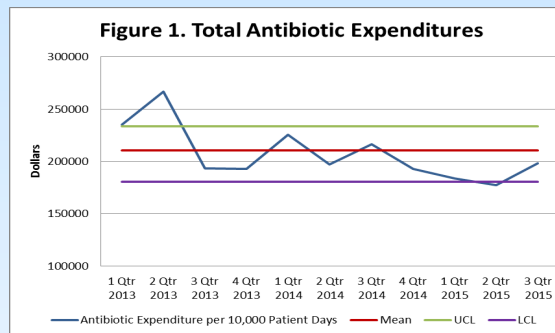
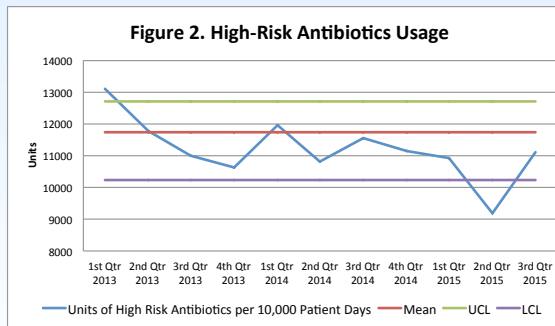


Figure 2. High-Risk Antibiotics Usage



Results

Figure 3. Doses PPI Dispensed

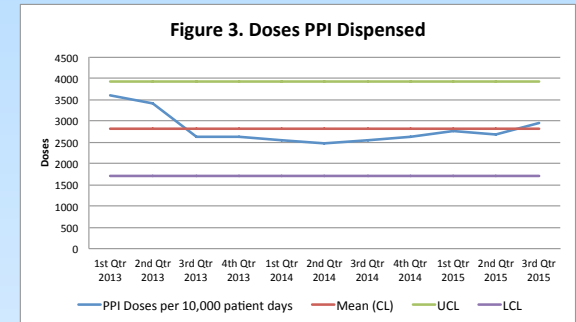
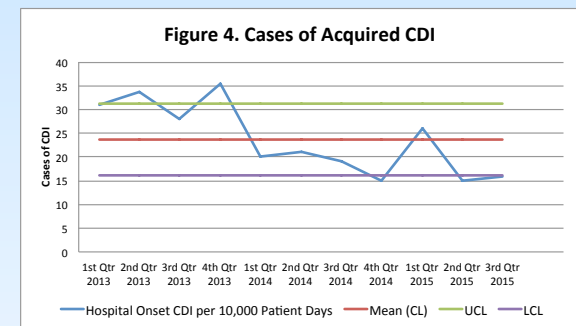


Figure 4. Cases of Acquired CDI



Conclusion

Many factors contribute to the incidence of CDI. These efforts represent a work in progress to decrease and sustain rates of acquired CDI at this facility. This review focused on a multidisciplinary team approach including pharmacy driven protocols, continued staff education, monitoring progress, and adherence to protocols in place. Positive trends were observed for the measures reviewed. Future projects aim to continue to perform medication use evaluations of specific disease states and evaluate order sets containing high-risk antibiotics.

References

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