Reducing Inappropriate *Clostridium difficile* Testing by Empowering Nurses

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**Introduction**

• Most common HAI in US hospitals and costs up to $4.8 billion each year in excess health care costs for acute care facilities.1

• Inappropriate testing for *Clostridium difficile* (CD) can result in over diagnosing, which may lead to overuse of antibiotics, increased length of stay and financial penalties under Center for Medicare and Medicaid’s Value Based Programs 2

• The primary aim of this study was to address inappropriate testing through implementing a nurse driven algorithm and evaluate the intervention’s impact on hospital acquired CD infections (HO-CDI) rates.

**Methods**

• An algorithm for CD testing appropriateness was created by leadership and the Infection Prevention team based on national testing guidelines (Figure 1). 2

• Emphasized that CD testing should not be performed on asymptomatic patients (defined as <3 loose stools in 24 hour period), formed stool specimens, and/or those that received laxatives and/or stool softeners in past 24 hours.

• Rates of HO-CDI per 10,000 patient days were compared before and after the intervention and statistical significance was determined by a two-tailed, unpaired t-test.

• The laboratory diagnostic test was PCR for length of study.

**Case Definitions**

• CDIs were classified according to CDC’s LabIDs definitions2

• Community onset: Patient that tests positive for CDI on days 1-3 of hospitalization

• Hospital onset: Patient that tests positive for CDI on day 4 or beyond of hospitalization

**Results**

• Before the algorithm was implemented, our hospital had an average of 8.2 HO-CDI per 10,000 patient days. After the algorithm was established, the rate decreased to 4.6 HO-CDI per 10,000 patient days. This represents a statistically significant decrease in HO-CDI (p-value = 0.037).

• The rate of community onset CD cases was 16.45 and 17.52 per 10,000 patient days before and after intervention, respectively. This does not represent a statistically significant change (p-value = 0.69).

• Before the algorithm was implemented, our hospital had a CD testing rate of 12.8 per 1,000 patient days. After the algorithm was implemented, the CD testing rate slightly decreased to 12.3 per 1,000 patient days. This represents a 3.66% decrease in CD test and is not statistically significant (p-value = 0.65).

**Conclusions and Future Direction**

• Empowering and educating nurses about CD testing guidelines proved to be an effective tactic to reduce unnecessary CD testing, and in turn, decrease HO-CDI rates.

• Nurses had to ask providers to cancel CD order if he/she deemed test was inappropriate. Given that this is a time consuming task, the team has proposed electronic medical record enhancements to address the following: Providers ordering multiple tests within a 7-day time period Submission of formed stool samples Ordering CD tests on patients that had laxatives and/or stool softeners in prior 48 hours Additional analysis is needed to quantify how many inappropriate tests were discontinued as a direct result of nursing intervention

**References & Acknowledgements**


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