Background. While advantageous by casting a wider diagnostic net, multiplex panels can be problematic if the pretest probability is low. A significant increase in reported *Clostridioides difficile* infections (CDI) was noted at our institution following introduction of a multiplex comprehensive GI (CGI) panel which includes an analyte for *C. difficile*. Owing to these concerns, the *C. difficile* analyte result was suppressed when reporting and providers were advised to order a standalone *C. difficile* PCR (CDPCR) test if CDI was a concern. The objective of this study was to investigate concerns of false positive *C. difficile* results from the CGI panel.

Methods. *C. difficile* diagnostic practices were prospectively evaluated from April to August 2017. Patient charts were reviewed in response to a positive *C. difficile* analyte on the CGI panel. CDPCR results were reviewed if ordered. If not ordered, chart review and discussion with the provider was conducted to investigate clinical suspicion for CDI. The results were analyzed to examine the performance of the *C. difficile* analyte on the CGI panel.

Results. Overall, a total of 1,611 CGI panels were performed with *C. difficile* being detected in 156 specimens. Of these positive results, a subanalysis was performed on 123 positive specimens for whom complete data was available. A CDPCR was performed in 80 (65%) of these specimens. Among those, only 44 (55%) were CDPCR positive and 22 (28%) were CDPCR negative (likely a false-positive CGI result), and 14 (17%) were rejected because of specimen consistency. For the remaining 43 *C. difficile*-positive CGI panel specimens that did not have an accompanying CDPCR, seven were in children below 2 years of age. Direct provider discussion occurred in the remaining 36 cases. Providers declined CDPCR testing in 24 of those cases due to a lack of clinical concern.

Conclusion. The use of the CGI panel for *C. difficile* led to over diagnosis of CDI. This could have significant consequences for clinical care and the reporting of hospital acquired infections.

Disclosures. **All authors:** No reported disclosures.

530. The Perfect Storm for Improved Standardized Infection Ratio (SIR)—Recognizing More Community-onset *Clostridium difficile* Infections Increases the Expected Number of *C. difficile* Cases While also Helping to Decrease the Actual Observed Number of Hospital Onset *C. difficile* Cases

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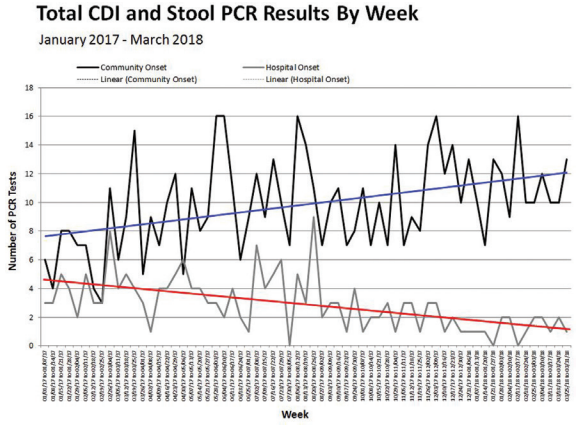
Session: 59. Healthcare Epidemiology: Updates in *C. difficile*
Thursday, October 4, 2018: 12:30 PM

Background. It is essential to recognize the true burden of community-onset (CO) *Clostridium difficile* infection (CDI) in hospital, not only because it prevents late recognition of CO CDI as being classified as a hospital-onset (HO) event, but also to assure appropriate contact precautions and therapeutic measures are deployed in a timely fashion. We recognized that our timely diagnosis of CO-CDI was suboptimal and sought to improve early recognition of CO-CDI.

Methods. We developed an automated daily report of all patients noted to have loose stools documented in the nursing flow sheets during the first 3 days of hospitalization. This report was automatically forwarded to the nurse manager of the unit, as well as was reviewed daily, Monday–Friday, by the infection preventionists (IP) to determine whether stool testing had been sent on these symptomatic patients. If not, then the IP would call the nurse caring for the patient and encourage that a stool sample be sent ASAP and before the third hospital day was completed.

Results. With this intervention, we increased early appropriate stool testing for patients with documented loose stools during the first 3 days of hospitalization leading to a marked increase in CO-CDI, as well as a notable decrease in HO-CDI lab ID events (Figure 1). Together, the increased recognition of CO-CDI increased our expected cases/SIR denominator and decreased observed cases/SIR numerator and substantially dropped our CDI SIR from a 2 years preintervention median SIR of 1.47 to 0.95 during the five quarters since the intervention has been in effect.

Conclusion. After several years of our CDI SIR remaining stubbornly around 1.5, we developed a system of enhanced recognition of patients who had loose stools early in their admission. This practice aided better recognition of CDI present on admission, substantially increasing our detection of CO-CDI. We also noted decreases in HO-CDI, in part secondary to no longer diagnosing patients who actually had CO-CDI later in their hospitalization and classifying CO-CDI as HO-CDI cases. In turn, we noted a remarkable decrease in our CDI SIR.



Disclosures. **J. P. Parada**, Merck: Speaker's Bureau, Speaker honorarium. **A. Harrington**, Biofire: Grant Investigator and Scientific Advisor, Consulting fee, Research grant and Speaker honorarium. Cepheid: Grant Investigator and Speaker's Bureau, Research grant.

531. Reducing Inappropriate Hospital-Acquired *Clostridium difficile* Diagnoses

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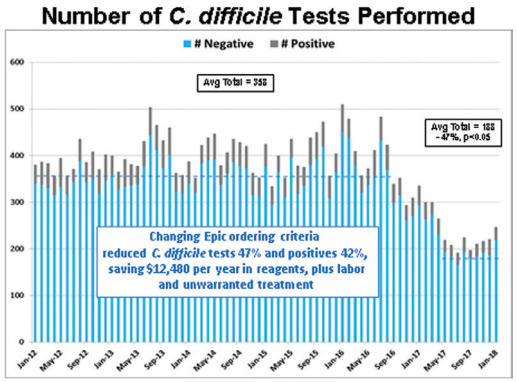
Background. *Clostridium difficile* infection (CDI) rates suddenly increased 30%, coincident with adoption of a new electronic medical record (EMR) and a reduction in our Environmental Services (ES) workforce. A Targeted Assessment for Prevention (TAP) report suggested we had the greatest opportunity for improvement among Massachusetts hospitals. Senior leadership identified CDI as an institutional top priority.

Methods. We prospectively measured CDI rates, using CDC criteria. A multidisciplinary team applied root cause analysis to each case; many represented repetitive testing or did not meet criteria for clinically significant disease. We reviewed, revised, and reinforced already robust efforts regarding hand hygiene, environmental cleaning and disinfection, antimicrobial stewardship, and test ordering behaviors. We revised *C. difficile* testing guidelines in accord with IDSA/SHEA Guidelines and leveraged EMR orders to help providers test more appropriately. Limit testing to patients with ≥3 unformed stools/day. Exclude testing within 24 hours of laxative use. Lab rejects specimens within 7 days after negative result and within 28 days after positive result; orders expire after 48 hours. We compared monthly ES staffing (FTEs/1,000 patient-days) and CDI rates, using linear regression.

Results. *C. difficile* testing decreased 47%, from 358 to 188 tests per month (Figure 1). CDI rates decreased 39% in 1 year (from 141 to 83), reducing the rate of infection below expected (Figure 2). Despite improvement, 40–60% of CDI testing still occurs during laxative use. ES staffing rates were associated with 5.2% of CDI rate changes ($P < 0.05$); adequate staffing reduced CDI rates 44% (Figure 3).

Conclusion. Implementation of a new EMR brought to light over-diagnosis of hospital-acquired CDI, resulting in unnecessary isolation and treatment of patients without significant illness. Inadequate ES staffing correlates with increased CDI rates. These factors also contribute to vulnerability to CMS Hospital-Acquired Condition (HAC) penalties. Revising laboratory testing and laxative EMR orders is laborious but significantly reduces inappropriate testing. It is essential to have senior leadership endorsement to marshal quality improvement and EMR resources.

Figure 1.



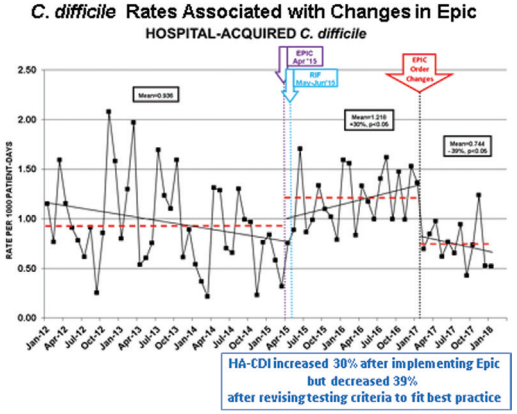


Figure 2.