were reviewed by Infectious Diseases physicians blinded to the EIA results. Using the American College of Gastroenterology (ACG) classification system, CDI status was determined to be mild, moderate, severe, or complicated. Patients without significant diarrhea (<3 unformed stools / 24 hours) were considered colonized. Those without documentation of stools were classified as indeterminate. Correlation of clinical assessment with EIA results was assessed.

**Results.** Most of the PCR positive specimens (75%) were toxin EIA negative. Correlation of clinical assessment with toxin EIA is summarized in the table below. Among patients colonized vs. those with CDI, the percentages with negative toxin EIA results were 80% and 87%, respectively. GDH antigen results were negative for 25 specimens—17 were from patients considered to have CDI.

| Clinical Assessment | Toxin EIA positive | Toxin EIA negative |
|---------------------|--------------------|--------------------|
| Indeterminate (11)  | 1                  | 9                  |
| Colonized (39)      | 8                  | 20                 |
| CDI (250)           | 67                 | 26                 |
| Mild (47)           | 10                 | 21                 |
| Moderate (68)       | 21                 | 30.9               |
| Fisher (26)         | 6                  | 23.1               |
| Complicated (109)   | 30                 | 28                 |
| Total (500)         | 76                 | 25.3               |

**Conclusion.** Toxin EIA performed on samples positive for *C. difficile* by PCR does not reliably identify patients considered to have CDI with ACG criteria applied. GDH as an initial screen would not have detected 6.8% of patients with CDI.

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1291. Clinical Characteristics and Outcomes of Hematologic Malignancy Patients with *Clostridium difficile* Toxin EIA vs. PCR Positive Test Results
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**Session:** 149. HAI: *C. difficile* Epidemiology, Impact, and Testing
**Friday, October 6, 2017: 12:30 PM**

**Background.** *C. difficile* infection is common in patients with hematologic malignancy. The use of polymerase chain reaction (PCR) based testing lacks specificity for infection, while detecting patients with colonization. The objective of our study was to evaluate characteristics of patients with toxin enzyme immunoassay (EIA) vs. PCR positive *C. difficile* test results.

**Methods.** A retrospective review of inpatients at a tertiary care academic center with hematologic malignancy and a positive *C. difficile* test from 1/1/2015 to 1/1/2016 was performed. Data on demographics, comorbidities, clinical features, and outcomes were collected using medical record review. Characteristics were compared between patients with EIA vs. PCR positive test results using chi-squared or Fisher’s exact test for categorical variables and Wilcoxon rank-sum test for continuous variables.

**Results.** A total of 130 patients were included: 51% and 49% had a PCR positive and EIA positive result, respectively. Diagnoses included AML (42%), multiple myeloma (22%), and Non-Hodgkin’s lymphoma (13%). Antibiotic exposure was similar with a median of 4 days of anti-pseudomonal antibiotics received in the prior 30 days. There was no difference in history of a positive *C. difficile* test in the prior year (12% in the EIA group, 10% in the PCR group, P = 0.71).

**Conclusion.** Patients with EIA positive results were more likely to have a WBC ≥15/mm3 (18% vs. 6%, P = 0.02). However, there were no differences in presence of fever, stool frequency, or imaging evidence of colitis at the time of testing. Medications in the prior 72 hours were similar, including the use of proton pump inhibitors of ~40% and of laxatives of 28%. Clinical outcomes were also similar between patients with EIA vs. PCR positive tests: all-cause death (22% vs. 20%), recurrent CDI (9% vs. 13%), colitis (1% vs. 4%), and megacolon (0% vs. 3%). Most patients received treatment with oral vancomycin for a median duration of 14 days.

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1292. Using Clinical Decision Support to Improve Evidence Based Testing and Diagnosis of *Clostridium difficile* Infection
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**Session:** 149. HAI: *C. difficile* Epidemiology, Impact, and Testing
**Friday, October 6, 2017: 12:30 PM**

**Background.** *Clostridium difficile* infection (CDI) requires clinical understanding of the disease and knowledge of diagnostic testing limitations. It is important for providers to utilize CDI testing only in patients with suspected disease. Real-time polymerase chain reaction (PCR) assays are sensitive but cannot differentiate between symptomatic and asymptomatic patients. Individual hospitals have reported a 50% to 100% increase in the rate of CDI after substituting toxin tests with molecular tests such as PCR. We conducted a quality improvement project, implementing clinical decision support in ordering diagnostic testing of CDI, while measuring the number of diagnostic tests ordered and positive results.

**Methods.** We implemented evidence based clinical decision support into Cerner order entry system on March 1, 2016. The Cephid Xpert *C. difficile* molecular test is used for diagnosis of CDI at our facility. The decision support included a message stating “Use the test with caution in patients who are receiving tube feeds or recent laxative use” and prompted ordering providers to select one of three indications for using the test: 3 or more diarrheal stools per 24 hour period, leukocytosis with abdominal pain, or ileus. A control chart was used to monitor the number of tests ordered and positive tests per month (patient adults) for a total of 24 months; 14 months pre-intervention and 10 months post-intervention.

**Results.** A decrease in the number of tests ordered per month was seen post intervention. Average number of monthly tests ordered was 207 pre-intervention and 163 post-intervention. After controlling for patient-days per month, there was a 13.5% decrease in the number of tests ordered from a mean of 14.29 vs. 12.37 tests per thousand patient-days per month. This resulted in specific cause variation (Figure 1). There was no special cause variation detected with the number of positive PCR results per month, pre and post intervention.

**Conclusion.** Implementing decision support into the electronic medical record may assist providers with evidence-based utilization of the *C. difficile* PCR by decreasing unnecessary testing. This decrease may also have an impact on overall hospital costs, antibiotic utilization, and public reporting related to CDI.

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1293. Impact of a Multi-disciplinary *C. difficile* Action Team
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**Session:** 149. HAI: *C. difficile* Epidemiology, Impact, and Testing
**Friday, October 6, 2017: 12:30 PM**

**Background.** *Clostridium difficile* infection (CDI) is associated with increased length of hospital stay, morbidity, mortality, and cost of hospitalization. Early intervention by experts from multiple areas of practice such as gastroenterology (GI), infectious diseases (ID) and surgery can be essential to optimize care and increase utilization of novel treatment modalities such as fecal microbiota transplant (FMT) and anti-inflammatory, colon-preserving surgical management.

**Methods.** A multi-disciplinary *C. difficile* action team (MD-CAT) was implemented at University of Maryland Medical Center (UMMC) in March 2016 to engage appropriate specialty consultants in the care of CDI patients. The MD-CAT reviews positive *C. difficile* tests at UMMC and provides guidance and suggestions to the
primary team including optimal antibiotic treatment (for CDI and any concomitant infection), and consultant involvement including ID, surgery, and GI, when appropriate. Using retrospective chart review, CDI patient management and outcomes were compared before and after implementation of the MD-CAT. Differences in the time to consult and frequency of interventional treatment was compared using Chi-square or Wilcoxon Rank-sum test.

Results. We compared 48 patients with CDI in the pre-intervention with 89 patients in the post-intervention period. Demographic and clinical characteristics of the groups were similar. MD-CAT intervention was associated with frequent (73%) modification or discontinuation of concomitant antibiotics. Median time to GI and ID consults was significantly shorter in the post group (P = 0.007 and P = 0.004, respectively). Five of 89 (5.6%) of patients received FMT or colon-preserving surgical intervention in the post-intervention group compared with no patients in the pre-intervention group. There was no difference in 30-day all-cause mortality or CDI recurrence between groups.

Conclusion. Early, multi-disciplinary action on patients with CDI increased the proportion of patients undergoing active specialty consultation and improved use of concomitant antibiotics. A larger sample size is needed to determine the effects of such a team on other clinical outcomes.

Figure 1: Time to GI Consult

Figure 2: Time to ID Consult

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1294. Clostridium difficile (CD) Action Team (CDAT): An Intervention to Improve Care for Patients with a Positive CD PCR
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Background. CD infections (CDI) may be viewed by healthcare workers (HCW) as an unpreventable consequence of antibiotics (abs). The purpose of CDAT was to use patient cases in real time to educate HCW on CD diagnostic, treatment and prevention practices including appropriate abs and proton-pump inhibitors (PPI) use.

Methods. From 7/17/16 to 5/6/17, Johns Hopkins abs stewardship team reviewed positive CD PCR in inpatient to determine whether they had CDI or colonization (no diarrhea or an alternate cause) and if prevention and management was optimal. Included in this time are 2 surveillance periods (SP) (SP1: 7/17–9/27/16 and SP2: 12/18/16–3/30/17). During SP1, there was no contact with HCW. SP2 followed the intervention, and allowed assessment of sustained practice changes. During the intervention periods (IP) (IP1: 10/9–12/17/16 and IP2: 3/31–5/6/17), teaching points for optimizing care for each case were shared and discussed in person with the HCW team, including prescribers and nursing. Compliance with recommendations at 48 hours was assessed. Chi-square test was used to compare sub-optimal management for each variable in different time periods.

Results. We assessed 217 cases in the SPs and 96 cases in the IPs. 75 of 96 cases reviewed in the IPs required intervention. CDAT spoke to 74 teams, which led to a change in the care of patients in 49 cases (65%). Compliance with recommendations were as follows: 1) stop or modify CDI therapy, 53%, (39 cases); 2) stop PPI therapy, 52% (15 cases); 3) stop laxatives, 53% (9 cases); 4) stop or modify non-CDI abs, 46% (16 cases); and 5) improve BM documentation, 58% (11 cases). The Figure shows proportions of patients with suboptimal CD management without (SPs) or before (IPs) CDAT intervention in each period. There were no changes in practice between the SP1 and IP1. Between the SP1 and IP2, significant improvement in BM documentation was seen (P = 0.007). No differences were observed for other variables, although there was a trend towards improved CD therapy (P = 0.09).

Conclusion. Overall, prescribers did not independently change practice as a result of daily contact with CDAT; however, they were responsive to CDAT recommendations. BM documentation, the only nursing intervention, improved significantly.

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1295. Know When to Test: Optimizing Diagnostic Practices for Clostridium difficle Infection (CDI) Among Patients at a Tertiary-Care Cancer Center
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Background. Polymerase chain reaction (PCR) based diagnostic testing for the detection of toxigenic Clostridium difficile infection (CDI) does not distinguish between carriers and patients with true CDI. As a result, CDI is over-diagnosed in hospitalized patients with diarrhea. Unnecessary testing generates false positives and several downstream sequelae.

Aim. The aim of this study was to reduce unnecessary testing for CDI through an electronic alert, targeted education, and implementation of evidence-based laboratory testing policy.

Methods. In order to quickly identify laxative induced diarrhea and avoid CDI testing, an electronic alert was created in the electronic medical record (EMR) system. The alert was built on a logic that identified patients who had received laxatives (Bristol Stool Chart types 1 through 4) for at least 3 days. The alert was triggered when laxatives were administered within 48 hours of a CDI PCR test order. The alert additionally provided the rationale for avoiding testing in patients on laxatives and guidance on appropriate testing for CDI. The following steps were taken simultaneously to complement the intervention: 1) Infection Control conducted hospital-wide education for licensed independent practitioners on a CDI testing algorithm 2) Laboratory based policy was instated to reject all formed stools (Bristol Stool Chart types 1 through 4) for CDI testing.

Results. In the 6 month pre-intervention period, there were 29 CDI tests per 1000 patient-days. In the post-intervention period, CDI tests decreased to 19 per 1000 patient-days, a 35% decrease (P < 0.0001). The decline in testing has been sustained for 7 months. The following observations were also made: 1) HAI rate reduction of 28%; 2) decrease in oral vancomycin use.

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