Conclusion. Decreasing inappropriate testing has several distinct advantages, including reducing excessive and unnecessary antibiotic use, avoiding misclassification of carriers as CDI cases, normalizing healthcare-associated CDI rates, and diminishing healthcare costs associated with preventable tests. Laboratories that use PCR only testing for CDI diagnosis should follow stringent policies to ensure that only patients with high pretest probability are tested. EMR systems are a useful and effective resource to achieve this for patients with laxative induced diarrhea.

Laxative Alert and Overrides

Results. The STA significantly decreased the number of CDE ICD9/10 codes, HO, WBC > 15, labID events to ascertain if Hospital-Onest CDI (HO-CDI) cases, normalizing healthcare-associated CDI rates, and diminishing healthcare costs associated with preventable tests. Laboratories that use PCR only testing for CDI diagnosis should follow stringent policies to ensure that only patients with high pretest probability are tested. EMR systems are a useful and effective resource to achieve this for patients with laxative induced diarrhea.

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1296. The Impact of Diagnostic Stewardship on Clostridium difficile Infections Werner Bischoff, MD, PhD, FSHEA; Andrey Bubnov, James Palavecino, MD, James Beardsley, PharmD; John Williamson, PharmD; James Johnson, PharmD; Vera Luther, MD; Christopher Ohl, MD, FIDSA; Guy El Helou, MD, MS; Gleen Huang, DO; John Stehle Jr., PhD, CIC; and John Sanders, MD, MPH, IB; Internal Medicine, Infectious Diseases, Wake Forest Baptist Medical Center, Winston-Salem, North Carolina; Financial Planning & Analytics, Wake Forest Baptist Medical Center, Winston Salem, North Carolina; Department of Pharmacy, Wake Forest Baptist Health, Winston-Salem, North Carolina; Department of Internal Medicine, Section on Infectious Diseases, Wake Forest School of Medicine, Winston-Salem, North Carolina; Infectious Diseases, Wake Forest Baptist Medical Center, Winston-salem, North Carolina; Internal Medicine, Wake Forest School of Medicine, Winston Salem, North Carolina; Infection Prevention, Wake Forest Baptist Medical Center, Winston-Salem, North Carolina; Wake Forest Baptist Medical Center, Winston-salem, North Carolina

Session: 149. HAI: C. difficile Epidemiology, Impact, and Testing Friday, October 6, 2017: 12:30 PM

Background. Clostridium difficile infections (CDI) pose a growing threat to hospitalized patients. This study assessed the impact of changing from a nucleic acid amplification test (NAAT) to a two-stage testing algorithm (STA) by using an enzyme immunoassay (GIDH and toxin A/B) and confirmatory NAAT confirmation in hospitalized patients. This study assesses the impact of changing from a nucleic acid immunoassay (Cepheid), a NAAT method utilizing polymerase chain reaction (PCR), to diagnose CDI on uniformed stool samples only. As part of a 6-month quality initiative, we pilot tested the C. difficile QUICK CHEK COMPLETE test (Alere), an EIAT that tests for C. difficile antigen (Ag) and toxin, on all specimens that tested positive by NAAT. We abstracted clinical data from the medical record for a subset of patients who underwent EIAT testing. Results. Over 6 months, 294 patients had a positive test by NAAT. Of these, 258 (87.8%) underwent EIAT testing. 67 (26.0%) were Ag+/toxin+; 173 (67.1%) were Ag+/toxin-, and 18 (6.8%) were Ag/toxin-. Mortality rates were as follows: Ag+/toxin+, 17.9% (12/67); Ag+/toxin-, 13.9% (24/173); Ag-/toxin-, 27.8% (5/18). P = 0.27. Among the EIAT negative patients who underwent chart review, 81% had 3 or more loose stools within 24 hours, 62% had abdominal pain, nausea, or vomiting, and 27% had a WBC > 15.

Conclusion. The majority of patients testing positive for CDI by NAAT had a negative EIAT test for toxin. There was no significant difference in mortality between patients who tested positive and negative. Those with negative EIAT tests often had clinically significant symptoms of CDI. A two-stage CDI testing algorithm with NAAT followed by EIAT for toxin may exclude patients with clinically significant CDI but would have resulted in a 75% reduction in reported NHSN LabID events.

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1298. Clostridium difficile Laboratory Identification Event Reporting – A Need for Diagnostic Stewardship Clare Rock, MD MS;2 Zoi Pana, MD, MS, PhD;3 Surbhi Leekha, MBBS, MPH, MPH;4 Polly Texler, MS, CIC;5 Jennifer Andonian, MPH;1 Avi Gadala, MS, B.Pharma;1 Karen C. Carroll, MD, FIDSA4; and Lisa L. Maragakis, MD, MPH, FIDSA, FSHEA1-3; 1Department of Medicine, Division of Infectious Diseases, Johns Hopkins University School of Medicine, Baltimore, Maryland, 2Armstrong Institute for Patient Safety and Quality, Johns Hopkins University School of Medicine, Baltimore, 3Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, Maryland, 4Department of Hospital Epidemiology and Infection Control, Johns Hopkins Hospital, Baltimore, Maryland, 5Department of Pathology, Division of Medical Microbiology, Johns Hopkins University School of Medicine, Baltimore, Maryland

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Background. Clostridium difficile LabID event reporting uses electronic laboratory results without chart review. Nucleic acid amplification testing is common in the US. A positive result may represent colonization or C. difficile infection (CDI). We review C.diffLabID events to ascertain if Hospital-Onest CDI (HO CDI). For non-HO CDI, we identify reason and use a matrix to prioritize clinical areas for intervention efforts. Methods. Each C. difficile LabID event from Jan 2015 to June 2016 at academic center had chart review for HO CDI, defined significant diarrhea, not present on admission, with no laxatives in prior 48 hours. For non HO-CDI events, reason and receipt of antimicrobial treatment within 14 days of the positive test were retrospectively noted. A prioritization matrix, where clinical services were ranked according to number of lab ID events (service's contribution to the facility C. difficile LabID), was multiplied by
a rank based on percent of inappropriate tests giving an overall prioritization score for where intervention resources could potentially best be used.

Results. There were 490 C. difficile LabID events; 284 (58%) were HO-CDI; 206 (42%) were inappropriate or delayed testing. Of the 190 with available medical records at time of retrospective review, reasons for not meeting the HO-CDI included laxative use within the previous 48 hours (41%), no clinically significant diarrhea (49.5%), delayed testing (9.5%). See figure. Of 172 patients with inappropriate testing, 159 (92%) were treated for CDI. Medicine and psychiatry ranked first and second on prioritization matrix. See table.

Conclusion. NHSSN and NEDSS represent two unique data sources that allow for a more comprehensive assessment of CDIs. The number and type of facility that report to each system is slightly different but there is some overlap. Therefore, this comparison allows for detection of a greater number of reports overall and also provides an opportunity for data validation. This assessment identified discrepancies in reporting between facilities that can be targeted for further collaborative efforts to improve CDI reporting and management in Nebraska.

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1300. Antimicrobial Exposure and Risk of Community-associated Clostridium difficile Infection (CDI-CA): A Self-Controlled Case Series Analysis
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Session: 150. HAI: C. difficile Risk Assessment and Prevention
Friday, October 6, 2017: 12:30 PM

Background. CDI-CA accounts for up to 50% of all CDIs. Case-control studies (CCS) have been used to estimate the odds ratio (OR) of CDI-CA associated with antibiotic exposure. These ORs demonstrate significant heterogeneity across studies. Unlike CCS, a self-controlled case series (SCCS) design can be used to control for all time invariant confounders leading to less biased effect estimates.

Methods. Adults (≥18 years) registered (N = 139,670) with the Barrie and Community Family Health Team (BCFHT) were included in the study. Cases were defined as any patient with an incident case of CA-CDI and ≥1 antibiotic exposure occurring between January 1, 2011 and December 31, 2016. The SCCS model was used to estimate the association between antibiotic exposure and CA-CDI. The SCCS model yields estimates of the relative incidence rate of CA-CDI in exposure periods relative to non-exposure periods within a case. Exposure periods were defined as starting two days after any antibiotic prescription and ending 60 days later. Multiple exposure periods and time varying confounders due to calendar year were included in the final model. The relative incidence rate ratio (IRR) was estimated using conditional poisson regression analysis. Proton pump inhibitor (PPI) use was included as an effect modifier. Antibiotics were divided into high-risk (fluoroquinolone, clindamycin, and cephalosporin) and low-risk exposures. Research ethics approval was obtained from the BCFHT research ethics board.

Results. Among 544 total CDI cases, N = 189 CA-CDI cases met the inclusion criteria. Any antibiotic exposure increases the risk by 2-fold, with no difference observed between high and low-risk groups (IRR=1.11, 95% CI 0.53–2.36) (Table 1). Antibiotic exposure increases the risk of CA-CDI, with IRR estimates similar to those observed for healthcare-associated CDI. This, along with the control of all time-invariant confounders by the SCCS method suggests a less biased effect estimate previously reported from CCS.

Table 1

| Variable | IRR | 95% Confidence Interval | p-value |
|----------|-----|------------------------|---------|
| PPI      |     |                        |         |
| None     | 0.80 | (0.62–1.03)            | 0.09    |
| Low-risk | 1.95 | (0.94–2.45)            | 0.09    |
| High-risk| 1.20 | (0.42–3.40)            | 0.73    |
| Overall  | 2.03 | (1.19–3.47)            | 0.007   |
| High-risk| 2.26 | (1.29–3.96)            | 0.005   |

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1301. Predictors of 30-day All-Cause Mortality in Veterans with First Recurrence of Clostridium difficile Infection (CDI)
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Session: 150. HAI: C. difficile Risk Assessment and Prevention
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Background. Recurrent CDI is an important cause of mortality, however few studies have evaluated independent predictors of mortality in patients with recurrent CDI.

Methods. We conducted a case–control study nested in a national cohort of adult veterans with a CDI episode (defined as a positive stool sample for C. difficile toxins) & receipt of >2 days of CDI treatment [IV or PO metronidazole, PO or PR vancomycin, or fidaxomycin]) during an inpatient admission or outpatient encounter at a Veterans Affairs facility from 2010–2014. Only patients with a first recurrence were included, defined as a subsequent CDI episode within 30 days from the end of treatment of the first CDI occurrence. Cases were those that experienced 30-day all-cause mortality and controls included survivors matched to cases on year of episode, facility, and severity. Multivariable conditional logistic regression was used to identify predictors of mortality.

Results. 1,140 cases were matched with 2,850 controls (1:2.5). Five predictors of mortality were identified including concurrent use of any antibiotic (OR 4.61, 95% CI 2.45–8.69), pulmonary heart disease (OR 4.70, 95% CI 1.30–17.06), the use of proton...