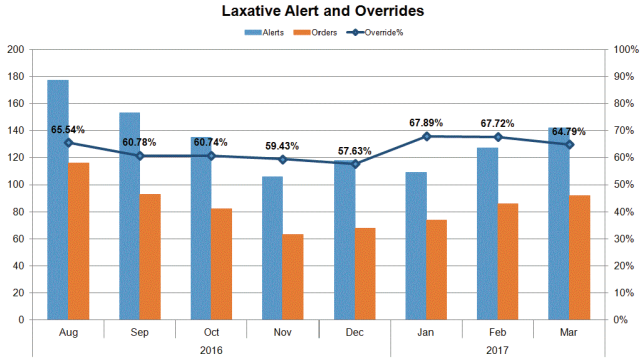
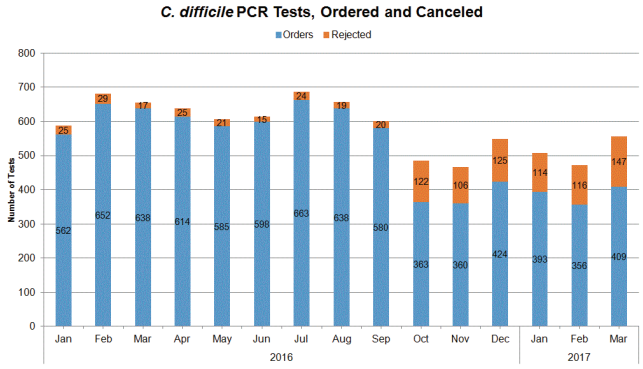
Conclusion. Decreasing inappropriate testing has several distinct advantages, including reducing excessive and unnecessary antibiotic use, avoiding misclassification of carriers as CDI cases, normalizing healthcare-associated CDI rates, and diminishing healthcare costs associated with preventable tests. 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.





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

1296. The Impact of Diagnostic Stewardship on *Clostridium difficile* Infections

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Background. *Clostridium difficile* infections (CDI) pose a growing threat to hospitalized patients. This study assesses the impact of changing from a nucleic acid amplification test (NAAT) to a stepwise testing algorithm (STA) by using an enzyme immunoassay (GDH and toxin A/B) and confirmatory NAAT confirmation in specific cases.

Methods. In an 885 bed academic medical center a 24 month pre-/post design was used to assess the effect of the STA for the following parameters: rates of enterocolitis due to C.diff (CDE), NHSN C.diff LabID events, CDI complications, mortality, antimicrobial prescription patterns, cluster occurrences; and testing, treatment, and isolation costs. Inpatient data were extracted from ICD-9/10 diagnosis codes, infection prevention, and laboratory databases.

Results. The STA significantly decreased the number of CDE ICD9/10 codes, HO, CO, and CO-HCFA C.diff LabID event rates by 65%, 78%, 75%, and 75%, respectively. Similar reductions were noted for associated complications such as NHSN defined colon surgeries (-61%), megacolon (-64%), and acute kidney failure (-55%). CDE unrelated complication rates for colon surgeries and acute kidney failure remained constant while the diagnosis of megacolon decreased but not significantly (-71%; $P > 0.05$). Inpatient mortality did not change with or without CDE. Significant reductions were observed in the use of oral metronidazole (total: -32%; CDE specific: -70%) and vancomycin (total: -58%; CDE specific: -61%). There were no clusters detected pre-/post STA introduction. The need for isolation decreased from 748 to 181 patients post-intervention (-76%; $P < 0.05$). Annual cost savings were over $175,000 due to decreases in laboratory testing followed by isolation, and antibiotic use.

Conclusion. The switch to an STA from NAAT did not affect the diagnosis, treatment, or control of clinically relevant CDI in our institution. Benefits included avoidance of unnecessary antibiotic treatment, reduction in isolation, achieving publicly reported objectives, and costs savings. Selection of clinically relevant tests can help to improve hospitalization and treatment of patients and should be considered as part of diagnostic stewardship.

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

1297. Enzyme Immunoassay for *C. difficile* Toxin Reduces Lab ID Events but Fails to Detect Clinically Significant *C. difficile* Infection

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Background. The National Health Safety Network (NHSN) requires reporting of Lab ID events for *C. difficile* infection (CDI) including all positive clinical tests after day three of hospitalization. Nucleic acid amplification tests (NAAT) that detect genes for toxins A and/or B may be overly sensitive, in some cases detecting *C. difficile* colonization. Some have advocated for two-stage testing, with positive NAAT tests followed by confirmatory enzyme immunoassay (EIA) to detect the presence of toxin and minimize the downside of false positives (i.e. additional NHSN reports or overuse of antibiotics). We aimed to better understand clinical characteristics of patients with positive NAAT and/or EIA tests.

Methods. Our hospital uses Xpert *C. difficile* assay (Cepheid), a NAAT method utilizing polymerase chain reaction (PCR), to diagnose CDI on unformed stool only. As part of a 6 month quality initiative, we pilot tested the *C.DIFF* QUIK CHEK COMPLETE® test (Alere), an EIA 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 EIA testing.

Results. Over 6 months, 294 patients had a positive test by NAAT. Of these, 258 (87.8%) underwent EIA 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 EIA toxin 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 EIA test for toxin. There was no significant difference in mortality between EIA toxin positive and negative. Those with negative EIA toxin tests often had clinically significant symptoms of CDI. A two-stage CDI testing algorithm with NAAT followed by EIA for toxin may exclude patients with clinically significant CDI but would have resulted in a 75% reduction in reported NHSN LabID events.

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

1298. *Clostridium difficile* Laboratory Identification Event Reporting – A Need for Diagnostic Stewardship

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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. diff* infection (CDI). We review *C.difflab*ID 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. difflab* ID 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 antibiotic treatment within 14 days of the positive test were retrospectively noted.

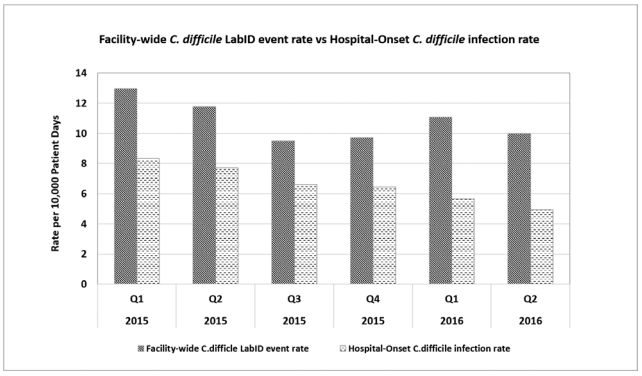
A prioritization matrix, where clinical services were ranked according to number of lab ID events (service's contribution to the facility *C. diffLabID*), was multiplied by

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.

Service	A. # Lab ID events	B. Rank based on Lab ID events	C. % inappropriate or delayed C. diff tests	D. Rank based on % inappropriate or delayed C. diff tests	Prioritization Score (B multiplied by D)	Prioritization ranking
Medicine	160	2	62%	2	4	1
Psychiatry	6	6	67%	1	6	2
Surgery	181	1	23%	8	8	3
Pediatrics	30	5	43%	4	20	4
Neuro-Sciences	42	4	36%	5	20	4
Oncology	66	3	24%	7	21	5
Physical medicine rehabilitation	2	8	50%	3	24	6
OB/GYN	4	7	25%	6	42	7

Conclusion. Nearly half of *C. diff* LabID events were not true HO CDI, but inappropriate or delayed tests. Prioritization matrix identified medicine and psychiatry as areas where diagnostic stewardship interventions could affect most on facility *C. diff* LabID.



Disclosures. **K. C. Carroll**, GenePOC, Inc.: Grant Investigator, Grant recipient

1299. An Assessment of 2016 National Healthcare Safety Network (NHSN) and National Electronic Disease Surveillance System (NEDSS) *Clostridium difficile* Infections *(CDI)* in Nebraska

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Background. In 2016 all acute care hospitals, inpatient rehab facilities, and PPS-exempt cancer facilities in Nebraska were required to report laboratory identified (LabID) *Clostridium difficile* infections (CDIs) to the National Healthcare Safety Network (NHSN). Test results indicating CDIs must be reported to the Nebraska Department of Health and Human Services (NDHHS) via the National Electronic Disease Surveillance System (NEDSS). NHSN and NEDSS represent unique sources of CDI reports in Nebraska.

Methods. The NHSN Nebraska database was queried for CDIs reported in 2016. All lab tests indicating a CDI in 2016 were extracted from NEDSS. These extracts were analyzed to assess descriptive epidemiologic variables and compared for differences.

Results. In 2016 there were 1,546 CDI LabID events reported to NHSN Nebraska from 28 facilities. There were 249 outpatient CDIs and 1,297 inpatient CDIs. Infections were further characterized as community-onset (N = 773), community-onset, health-care facility associated (N = 206), and hospital onset (N = 567). An average of 128 CDIs were reported per month (range: 111–155).

In 2016 there were 2,177 lab results indicating a CDI reported to NEDSS among Nebraska residents from 42 facilities. Patient ages ranged from 4 months to 104 years (mean = 58 years). An average of 181 CDIs were reported per month (range: 151–218).

Comparison of the two data sources found 781 reports among 591 unique patients at 11 facilities that were made to NHSN and were not in NEDSS. Additionally, there were 1,092 reports from 931 unique patients at 12 facilities that were made to NEDSS and should have been made to NHSN but were not. There were 9 shared facilities that accounted for the majority of these discrepancies.

Conclusion. NHSN 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 among 9 facilities that can be targeted for further collaborative efforts to improve CDI reporting and management in Nebraska.

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1300. Antibiotic Exposure and Risk of Community-associated *Clostridium difficile* infection (CA-CDI): A Self-Controlled Case Series Analysis

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Background. CA-CDI accounts for up to 50% of all CDIs. Case–control studies (CCS) have been used to estimate the odds ratio (OR) of CA-CDI 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 BFCHT 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).

Conclusion. 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
Antibiotic Exposure Group	PPI			
None	Yes	0.80	(0.62–1.03)	0.09
Low risk	Yes	1.95	(0.09–4.24)	0.09
High risk	Yes	1.20	(0.42–3.40)	0.73
Overall				
Low risk		2.03	(1.19–3.47)	0.009
High risk		2.26	(1.29–3.98)	0.005

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

1301. Predictors of 30-day All-cause Mortality in Veterans with First Recurrence of *Clostridium difficile* Infection (CDI)

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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 toxin(s) & receipt of >2 days of CDI treatment [IV or PO metronidazole, PO or PR vancomycin, or fidaxomicin]) 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. 110 cases were matched to 440 controls (1:4). 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 4.707, 95% CI 1.30–17.06), the use of proton