

Table 1.

	All	CA-CDI	no CA-CDI	p-value
Number of patients	84787	20	84767	-
Age	64.8 +/- 16.4	63.6 +/- 21.8	64.8 +/- 16.4	0.812
Charlson comorbidity index	1.24+/-1.6	1.5+/-1.9	1.24+/-1.6	0.553
Antibiotics at index visit	3533 (4%)	5 (25%)	3528 (4%)	0.001
History of CDI (prior 2 years)	76 (0%)	1 (5%)	75 (0%)	<0.001

center. **Methods:** All primary care visits and nonvisit antibiotic prescriptions were identified in calendar years 2018–2019 as encounters of interest. Encounters occurring **Results:** We identified 84,787 patients with visits meeting our criteria. In this cohort, 3,533 patients were prescribed antibiotics at their encounter of whom 5 (0.14%) developed CA-CDI. Among the 81,254 patients who were not prescribed antibiotics, 15 (0.02%) developed CA-CDI, yielding an unadjusted CA-CDI odds ratio of 7.68 (95% CI, 2.50–19.82). **Conclusions:** Although CA-CDI episodes were infrequent among VA outpatients with a CBOC visit in 2018–2019, the odds of CA-CDI were 7-fold greater in outpatients with antibiotic exposure than outpatients without antibiotic exposure. Antibiotic stewardship interventions that emphasize adverse events as a result of care provided in the outpatient setting, rather than as events limited to acute-care settings, may mitigate CDI risk.

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Subject Category: *C. difficile*

Characteristics of antibiotic exposures for surgical procedures prior to *Clostridioides difficile* diagnosis—Minnesota, 2018

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Background: *Clostridioides difficile* infection (CDI) is the leading cause of healthcare-associated diarrhea. Significant risk factors for CDI include antibiotic use and healthcare exposure. Antibiotics are often administered before, during and/or after surgery to prevent postsurgical infection. The contribution of surgery-related antibiotics to the overall CDI burden has not been well described, and assessment of the appropriateness of surgical antibiotic use is complicated by complex clinical guidelines. We have described surgical antibiotic prophylaxis history among adult with CDI in Minnesota in 2018. **Method:** The Minnesota Department of Health (MDH) performs 5-county active population- and laboratory-based CDI surveillance as a CDC Emerging Infections Program site. Incident CDI was defined as stool positive for *C. difficile* by toxin or molecular assay from a person aged ≥ 18 years with no positive test in the preceding 8 weeks. History of CDI was defined as having had a previous CDI episode in the 2009–2018 surveillance data set. Medical records were reviewed for 12 weeks prior to incident CDI test date to identify antibiotic prescriptions. Antibiotics with documented indication for surgical-site infection prevention or surgical prophylaxis were classified as “surgical antibiotic prophylaxis” (SPPX). SPPX type (eg, intraoperative, postoperative), appropriateness of SPPX, and clinical guideline adherence were not assessed.

Results: During 2018, 812 incident CDIs were reported to MDH among 736 patients. SPPX preceded 84 (10.3%) cases, non-SPPX antibiotic use preceded 465 cases (57.3%), and 263 cases (32.4%) had no documented prior antibiotic use. The median age of incident CDIs with preceding SPPX was 68 years (IQR, 54–79.5). In 25 incident CDI cases with preceding SPPX (29.8%), there were no other antibiotic exposures. Among incident CDIs with preceding SPPX, 11 (13.1%) had >1 surgery event with SPPX. Prior CDI was identified for 13 (15.7%) with SPPX. Among 99 procedures with preceding SPPX, orthopedic surgeries (n = 27, 27.3%), gastrointestinal surgeries (n = 26, 26.3%), and cardiovascular surgeries (n = 22, 22.2%) were most common. In total 18 SPPX prescriptions (18.2%) originated in outpatient settings. SPPX drugs included cefazolin (n = 67, 67.7%), ceftriaxone (n = 7, 7.1%), ertapenem (n = 6, 6.1%), and clindamycin (n = 6, 6.1%). Median SPPX duration was 1 day (IQR, 1–2), and the median number days between surgery and specimen collection date was 19 (IQR, 7–49). **Conclusions:** Antibiotic stewardship programs should assess surgical prescribing, including in outpatient centers. Even short antibiotic duration for surgery could put patients at risk for CDI. More data are needed to evaluate the appropriateness of SPPX prescribing and to describe the impact of SPPX on CDI.

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Clostridioides difficile: A diagnostic intervention

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Background: *Clostridioides difficile* infection (CDI) is a leading cause of healthcare-associated infection and is associated with increased morbidity and mortality. Multiple strategies have been implemented to optimize the diagnostic accuracy of CDI testing algorithms. However, overdiagnosis of *C. difficile* colonization remains a challenge especially in the era of highly sensitive Nucleic acid amplification testing (NAAT). We implemented 2 interventions to reduce the rates of inappropriate *C. difficile* orders and tests. **Methods:** We performed a quasi-experimental retrospective study to examine the rates of all inpatient *C. difficile* test orders and results relative to 2 interventions between January 2018 and February 2021. We defined 3 periods: preintervention, after the first intervention, and after the second intervention. The first intervention, implemented May 2019, was a clinical decision support system (CDSS) tool to guide clinicians to order testing only if CDI criteria were met. The second intervention, implemented July 2020, was the requirement of mandatory antimicrobial team approval of PCR reflex testing for indeterminate toxin or antigen test results. This intervention included a discussion between clinicians and members of stewardship team prior to approval. To evaluate the impact of interventions on ordering appropriateness, chart review was conducted on a random subsample of 100 orders from each period. Hospital-onset CDI (HO-CDI) was calculated using CDC criteria. **Results:** In total, 3,004 *C. difficile* test orders were placed during the study period. The rates of reportable HO-CDI were significantly reduced by 57.1% ($P = .003$). We detected a significant reduction in the number of tests ordered over time from 11.6 to 7.51 per 1,000 patient days. **Conclusions:** CDSS tools target patients at high pretest probability of CDI. The restriction of PCR-reflex testing to the antimicrobial stewardship team is a novel effective measure to minimize the misdiagnosis of CDI. The incorporation of multiple strategies is necessary to improve the diagnostic accuracy of *C. difficile* testing.

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