Table 1: Incidence of CDI in patients with SCD

| Year | # CDI cases in SCD patients (all/recurrent) | Number of Admissions | Total number of Hospital Days | CDI Incidence Rate (Cases/10,000 patient days) | CDI Incidence Rate (Cases/1,000 patient admission) |
|---|---|---|---|---|---|
| 2008 | 1 | 516 | 2,141 | 4.7 | 4.7 |
| 2009 | 0 | 588 | 2,846 | 0 | 0 |
| 2010 | 0 | 602 | 3,084 | 0 | 0 |
| 2011 | 0 | 577 | 2,759 | 0 | 0 |
| 2012 | 0 | 544 | 2,362 | 0 | 0 |
| 2013 | 0 | 536 | 2,317 | 0 | 0 |
| 2014 | 0 | 509 | 1,795 | 0 | 0 |
| 2015 | 0 | 584 | 2,977 | 0 | 0 |
| 2016 | 0 | 615 | 3,328 | 0 | 0 |
| 2017 | 0 | 595 | 2,306 | 0 | 0 |
| TOTAL | 1 | 5,666 | 25,915 | 0.4 | 0.18 |

Table 2: Incidence of CDI in all children excluding those with SCD

| Year | # CDI cases in SCD patients (all/recurrent) | Number of Admissions | Total number of Hospital Days | CDI Incidence Rate (Cases/10,000 patient days) | CDI Incidence Rate (Cases/1,000 patient admission) |
|---|---|---|---|---|---|
| 2008 | 18 | 6,299 | 35,845 | 5.0 | 2.9 |
| 2009 | 28 | 6,664 | 37,430 | 7.5 | 4.2 |
| 2010 | 28 | 6,599 | 38,546 | 7.3 | 4.2 |
| 2011 | 31 | 6,687 | 36,971 | 8.4 | 4.6 |
| 2012 | 14 | 6,740 | 37,667 | 3.7 | 2.1 |
| 2013 | 26 | 6,760 | 40,269 | 6.5 | 3.8 |
| 2014 | 5 | 7,078 | 35,828 | 1.4 | 0.7 |
| 2015 | 24 | 7,424 | 37,450 | 6.4 | 3.2 |
| 2016 | 25 | 8,703 | 38,846 | 6.4 | 3 |
| 2017 | 9 | 8,945 | 36,991 | 2.4 | 1 |
| TOTAL | 208 | 71,899 | 375,843 | 5.5 | 2.9 |

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

### 2397. Effects of antimicrobial surgical prophylaxis on rates of Clostridioides difficile infection

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**Session:** 251. HAI: *C. difficile* - Epidemiology
*Saturday, October 5, 2019: 12:15 PM*

***Background.*** Studies have demonstrated short courses of antibiotics, including surgical site infection (SSI) prophylaxis, can increase the risk of *Clostridioides difficile* infection (CDI). The purpose of this study was to evaluate the incidence of CDI associated with antibacterial perioperative prophylaxis.

***Methods.*** In a retrospective analysis of affiliated hospitals from a large healthcare system, aggregate data from 156 acute care facilities across the United States was analyzed for the time period of July 2017 through July 2018. Patients were included if they were 18 years and older, admitted to an inpatient unit, and underwent a surgical procedure requiring antibiotic prophylaxis. Patients were excluded if they received antibiotics more than 24 hours prior to procedure start, received antibiotics more than 72 hours after procedure stop, or had more than one procedure with antibiotic prophylaxis within 30 days. Patients were divided into three groups based on the duration of antibiotic prophylaxis received: preoperative only (Pre-op only), pre-op plus postoperative for 24 hours or less (Short Post-op), and pre-op plus post-op for 25 to 72 hours (Long Post-op). The primary outcome was the incidence of CDI within 30 days of surgical procedure. Study design was approved by the University of Tennessee Institutional Review Board.

***Results.*** The final analysis included 230,524 patients: 68,307 Pre-op Only, 123,185 Short Post-op, and 39,032 Long Post-op. Overall, 195 cases of CDI were identified during the study period, for a rate of 0.8 cases per 1000 procedures. The highest incidence occurred in the Long Post-op group (1.3 cases per 1000 procedures). A pairwise comparison demonstrated the incidence of CDI is statistically higher in the Long Post-op group compared with both the Pre-op Only ($P = 0.005$) and the Short Post-op ($P = 0.003$) groups. There was no significant difference between the Pre-op Only and the Short Post-op groups<./p>

***Conclusion.*** Patients who received antibiotics for more than 24 hours post-op had a higher incidence of CDI. No statistically significant difference in CDI between pre-op only and less than 24 hours post-op was found.

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

### 2398. Effect of Eosinopenia and Binary Toxin on Clostridioides difficile Infection Clinical Outcomes

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***Background.*** The ability of *Clostridioides difficile* to cause clinical disease in humans is dependent on toxin production. Significantly fewer eosinophils are seen in the peripheral blood of mice infected with a binary toxin positive (CDT+) *C. difficile* strain. Furthermore, the presence of CDT and eosinopenia have separately been associated with increased mortality in humans with *C. difficile* infection (CDI). We hypothesized that CDI due to a CDT+ *C. difficile* strain accompanied by peripheral eosinopenia would be associated with higher odds of inpatient mortality.

***Methods.*** This multicenter, retrospective cohort study included all patients ≥ 18 years of age with toxigenic CDI in which specimen ribotype data were available as part of our ongoing surveillance study. The cohort was stratified by eosinophil count (0.0 cells/μL vs. > 0.0 cells/μL). The primary outcome was inpatient mortality. A logistic regression model was developed modeling inpatient mortality as a function of the available patient covariates. All *P*-values were from 2-sided tests, and results were deemed statistically significant at $P < 0.05$.

***Results.*** A total of 688 patients from 13 institutions in six cities were included. Of those, 132 had a baseline eosinophil count of 0.0 cells/μL and 556 had a baseline eosinophil count > 0.0 cells/μL. While the odds of inpatient mortality were higher among patients with eosinopenia and those infected with a CDT+ ribotype, the combination of these variables remained an independent predictor of inpatient mortality after adjusting for CCI score, WBC count, and serum albumin level (OR, 7.84; 95% CI, 1.85–33.20; $P = 0.005$).

***Conclusion.*** This is the first attempt to study the *in vivo* relationship between CDT presence, human immune response, and CDI clinical outcome. We identified an association between CDT presence with concomitant eosinopenia and worsened CDI outcomes. Healthcare facilities should consider identifying this important subset of patients at the time of CDI diagnosis. Future CDI drug development might benefit from targeting *C. difficile* properties that impair host immune response, which may in turn decrease adverse clinical outcomes associated with this disease.

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

### 2399. Ribotype Diversity of Clostridioides difficile strains obtained during screening tests

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***Background.*** *Clostridioides difficile* is an organism acquired not only in healthcare settings but also in community settings. For the past several years our hospital has performed screening tests to detect asymptomatic carriage of *C. difficile*. We now aim to better understand the ribotypes and degree of diversity among these *C. difficile* strains obtained in a systematic screening.

***Methods.*** This study was performed at a 600 bed teaching affiliated hospital in Milwaukee, WI, where surveillance testing is performed in selected units upon admission and weekly thereafter using nucleic acid amplification test (NAAT; Xpert® *C. difficile*; Cepheid, Sunnyvale, CA). Screening tests are obtained regardless of symptoms. NAAT positive samples underwent anaerobic cultures in *C. difficile* selective broth (CCMB-TAL) for 24–48 hr and then to Brucella blood agar plates (BA) for 48–72 hr to confirm *C. difficile* presence. PCR-ribotyping was performed as previously described by Stubbs et al. with minor modifications. The results were compared with a database containing >3,000 clinical isolates including *C. difficile* reference strains from the Cardiff ribotype collection.

***Results.*** A total of 104 strains belonging to 93 unique patients were processed. Patients had a mean age of 60 years (range: 18 - 89) and 49% were females. Most patients were hospitalized in the hematology oncology units (55.7%) or in the solid-organ transplant step down unit (9.6%). A total of 25 different ribotypes were identified. The most common ribotype was 014/020 (23; 22%), followed by ribotype 56 (13; 12.5%), 106 (12; 11.5%), 027 (11; 10.5%), 002 (6; 5.7%), and 078/126 (5; 4.81).

***Regarding the timing of admission, 70 strains were obtained within 4 days from hospital admission and the remaining 34 were obtained afterwards.*** Both groups had ribotype 014/020 as the most frequently detected ribotype but 027 were the second most commonly detected at the time of admission (table). A total of 7 patients had more than one stool sample processed and 5 of them had discordant ribotypes at different time points.

***Conclusion.*** Systematic screening tests for *C. difficile* carriage in a single center showed a large heterogeneity of ribotypes with the majority not being 027. Additionally, most patients tested more than once carried different ribotypes.

| Ribotype | Isolates obtained after 4 days of admission | | Isolates obtained within 4 days of admission | | All isolates | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| 014/020 | 8 | 7.7 | 15 | 14.4 | 23 | 22.1 |
| 056 | 5 | 4.8 | 8 | 7.7 | 13 | 12.5 |
| 106 | 8 | 7.7 | 4 | 3.9 | 12 | 11.5 |
| 027 | 2 | 1.9 | 9 | 8.7 | 11 | 10.6 |
| 002 | 0 | 0.0 | 6 | 5.8 | 6 | 5.8 |
| 078/126 | 1 | 1.0 | 4 | 3.9 | 5 | 4.8 |
| 003 | 1 | 1.0 | 2 | 1.9 | 3 | 2.9 |
| 010 | 1 | 1.0 | 2 | 1.9 | 3 | 2.9 |
| 017 | 1 | 1.0 | 2 | 1.9 | 3 | 2.9 |
| 001 | 1 | 1.0 | 1 | 1.0 | 2 | 1.9 |
| 012 | 0 | 0.0 | 2 | 1.9 | 2 | 1.9 |
| 013 | 0 | 0.0 | 2 | 1.9 | 2 | 1.9 |
| 026 | 0 | 0.0 | 2 | 1.9 | 2 | 1.9 |
| 054 | 0 | 0.0 | 2 | 1.9 | 2 | 1.9 |
| 057 | 1 | 1.0 | 1 | 1.0 | 2 | 1.9 |
| 097 | 2 | 1.9 | 0 | 0.0 | 2 | 1.9 |
| 104 | 0 | 0.0 | 2 | 1.9 | 2 | 1.9 |
| 005 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| 009 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| 018/356 | 1 | 1.0 | 0 | 0.0 | 1 | 1.0 |
| 046 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| 053 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| 081 | 1 | 1.0 | 0 | 0.0 | 1 | 1.0 |
| 087 | 1 | 1.0 | 0 | 0.0 | 1 | 1.0 |
| 131 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| Not identifiable | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 |
| Total | 34 | 32.7 | 70 | 67.3 | 104 | 100.0 |

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