Background. C. difficile infection (CDI) is the most common nosocomial infection, representing 12% of all hospital acquired infections. The risk for CDI is clearly linked to antibiotic (abx) exposure. Several studies, including one from our institution, indicate prophylaxis of patients who recently had CDI with oral vancomycin decreases the risk of a relapse when exposed to abx. In an effort to further analyze this, we examined all patients with CDI in our inpatient population who received any abx before the CDI and determined how that modified their risk of relapse.

Methods. All patients with a positive PCR for C. difficile at our institution between 2012 and 2014 were examined for receipt of abx within 3 months of a positive PCR. Patients who received metronidazole were excluded to remove the potential confounding effect. The relapse rate for all patients, patients who received abx, and patients who did not receive abx were calculated. Timing of the relapse from the last episode of CDI and from receipt of abx were determined.

Results. A total of 6,436 patients were identified, representing 8,000 episodes of CDI. The relapse rates and timing based on prior CDI episodes and receipt of additional abx prior to relapse are shown in Table 1.

Table 1: Relapse Rates and Timing of Relapses Within 3 Months of CDI Episode

| Category                  | Relapse Rate | Days Since Last CDI | Days Since abx |
|---------------------------|--------------|---------------------|----------------|
| All episodes              | 12.5%        | 38.4                | N/A            |
| Received abx prior to relapse | 11.8%    | 46                  | 73             |
| Received high-risk abx prior to relapse | 12.4%    | 46.5                | 72             |
| Received no abx prior to relapse | 12.6%    | 36.9                | N/A            |

There were 1,375 episodes of CDI where abx were given within 3 months of the episode. Of these, 333 received prophylaxis with oral vancomycin, and none of those related within 3 months.

Conclusion. While abx clearly are the major risk factor for CDI, the receipt of abx does not change the overall rate of CDI relapse. However, when the timing of the relapse after abx is examined, the relapses occur both later in those who received abx than relapses in patients who do not receive abx and shortly after abx. It is likely that abx trigger relapses in patients who otherwise would not have relapsed. Oral vancomycin prophylaxis appears to be effective in preventing relapses in patients given abx after CDI.

Disclosures. All authors: No reported disclosures.

504. Change in C. difficile Strain-Type Distribution After Implementation of Diagnostic Stewardship

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Background. The aim of this study was to evaluate the change in strain-type distribution after eliminating the testing of formalin-laced sputum samples. The frequency of distribution of the three most prevalent strain types (MLST-2, 8, and 42) declined by 38%, 60%, and 42%, respectively. The absolute number of epidemic strains, ST-1 and ST-11, remained unchanged prevelant strain types (MLST-2, 8, and 42) declined by 38%, 60%, and 42%, respectively. The absolute number of epidemic strains, ST-1 and ST-11, remained unchanged.

Methods. In January 2013, all C. difficile-positive-potent stool samples by Cepheid’s GeneXpert were routinely typed using Multi-Locus Sequence Typing (MLST). MLST was performed as previously described (1). After implementation of rejection policy and re-education of staff, strain type (ST) distribution among tested samples was analyzed and compared with historic data.

Results. After evaluation of our historical typing data the 10 most frequent ST were identified. Diagnostic stewardship led to 40.0% reduction in testing volume, the positive rate increased from 12.0% to 12.6%. The frequency distribution of the most prevalent strain types (STLST-2, 8, and 42) declined by 38%, 60%, and 42%, respectively. The absolute number of epidemic strains, ST-1 and ST-11, remained unchanged and the frequency distribution increased from 9.6% to 14.0%. No clonal outbreaks were detected during this time.

Conclusion. Implementation of diagnostic stewardship led to a reduction in epidemic strains without substantial impact on detection of hypervirulent or epidemic strains.

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505. Bezlotoxumab Reduces Recurrence of C. difficile Infection in Immunocompromised Patients: Early Experience in a Tertiary Care Center

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Background. Bezlotoxumab (BEZ) was approved in 2017 for prevention of recurrent C. difficile infection (CDI), with a number needed to treat (NNT) of 10 reported in the registration trials. Little information is available on its effectiveness in high-risk populations. BEZ was added to the institutional outpatient formulary in 2017 for use in patients with CDI at high-risk for recurrent CDI (rCDI), i.e., history of solid organ (SOT) or bone marrow transplant (BMT), acute malignancy, chronic steroid (prednisone equivalent 20 mg/day), and failed fecal microbiome transplant (FMT). Patients that met criteria were referred by the antimicrobial stewardship team to the infectious disease clinic for BEZ insurance approval and administration. The goal of this study was to evaluate the effectiveness and safety of BEZ in this high-risk population.

Methods. The cohort of patients referred for BEZ were compared by those who received BEZ vs. those who did not receive BEZ (standard of care, SOC). The primary endpoint was rCDI at ≤100 days of BEZ infusion or end-of-treatment (EOT). Secondary endpoints were time to rCDI and insurance status. Safety of BEZ was evaluated as infusion reaction ≤24 hours and death ≤100 days.

Results. Twenty-nine patients were referred for BEZ; 14 (48%) received BEZ. Patient characteristics are in Table 1. rCDI at 100 days occurred in 14.3% BEZ vs. 28.6% SOC (P = 0.0365) with an NNT of 7. Average time to rCDI was longer in the BEZ vs. SOC (49 vs. 27 days). No infusion reactions or death were noted in the BEZ group. Insurance approval for BEZ was denied in 26.7%. Medicaid coverage was common in SOC (46.7% vs. 7.1%; P = 0.0191) and Medicare coverage was more common in BEZ group (71.4% vs. 33.3%; P = 0.0498).

Conclusion. Early experience with BEZ appears promising in a high-risk, pre-dominantly immunocompromised population. The NNT to prevent rCDI was 7. Larger cost-benefit studies in immunocompromised and transplant populations are warranted.

Table 1: Characteristics of BEZ and SOC Patients

| Variable | BEZ | SOC |
|----------|-----|-----|
| Age ≤60 | 57.1% | 26.7% |
| ≥1 prior CDI episodes | 50% | 26.7% |
| Average no. of prior CDI episodes | 2 | 2 |
| Immunosuppressed | 78.6% | 86.7% |
| SOT recipient | 42.8% | 33.3% |
| HCT recipient | 21.4% | 13.3% |
| Active cancer | 28.6% | 26.7% |
| Failed FMT | 7.1% | 6.7% |

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