Figure 2. Characteristics of 240 *C. difficile* PCR positive/toxin negative patients classified according to treatment given, June–Dec 2018.

Characteristic	Complete treatment N=173 (72%)	Incomplete treatment N=41 (17%)	No treatment N=26 (11%)
Mean age (± SD), years	60 (17)	62 (13)	59 (12)
Female sex	89 (51)	21 (51)	12 (46)
Origin prior to admission			
Home	125 (72)	29 (71)	17 (65)
Skilled nursing facility	3 (1.7)	1 (2.4)	1 (3.8)
Long-term acute care facility	1 (0.6)	0 (0)	0 (0)
Other hospital	44 (25)	11 (27)	8 (31)
Comorbid conditions			
Transplant	31 (18)	6 (15)	5 (19)
Hematologic malignancy	24 (14)	2 (5)	1 (4)
Solid tumor	22 (13)	8 (20)	2 (8)
Chemotherapy	26 (15)	4 (10)	1 (4)
Other immunosuppression	17 (10)	3 (7)	1 (4)
Inflammatory bowel disease	13 (8)	1 (2)	1 (4)
HIV	2 (1)	0 (0)	0 (0)
Systemic antibiotics in the prior month	79 (46)	19 (46)	12 (46)
History of prior CDI	23 (13)	8 (20)	7 (27)
Clinical features			
Hypotension	11 (6)	1 (2)	1 (4)
Ileus	17 (10)	3 (7)	1 (4)
White blood cell count >15,000	51 (29)	5 (12)	6 (23)
Serum creatinine >1.5	47 (27)	13 (32)	11 (42)
Imaging with colitis	17 (10)	3 (7)	1 (4)
In-hospital factors			
Median hospital length of stay, days (IQR)	11 (5–22)	14 (8–23)	14 (6–21)
Current treatment systemic antibiotics	77 (45)	20 (49)	13 (50)
Laxatives	43 (25)	13 (32)	10 (38)
Infectious Disease consultation	58 (34)	24 (59)	14 (54)
Primary team = surgical	61 (35)	13 (32)	8 (31)
CDI severity			
Severe	70 (40)	N/A	N/A
Fulminant	10 (6)	N/A	N/A
Treatment			
Metronidazole	13 (8)	N/A	N/A
Vancomycin*	147 (85)	N/A	N/A
Fidaxomicin	2 (1)	N/A	N/A
Combination**	11 (6)	N/A	N/A
Vancomycin days of therapy	2,107	N/A	N/A
Outcomes			
CDI-related complications			
Megacolon	2 (1)	N/A	N/A
Colectomy	1 (0.6)	N/A	N/A
ICU care related to CDI	18 (10)	N/A	N/A
Subsequent clinical suspicion of CDI			
Repeat testing	N/A	7 (17)	2 (8)
Treatment initiated	N/A	3 (7)	2 (8)
Death attributable to CDI	4 (2)	0 (0)	0 (0)
Recurrent CDI	15 (9)	N/A	N/A

*Includes Vancomycin QID or Vancomycin taper **Includes patients who received vancomycin plus metronidazole with or without vancomycin enema

Figure 3. Kaplan-Meier clinical failure-free survival curve of 67 PCR+/ toxin- patients given incomplete treatment and no treatment, June–December 2018
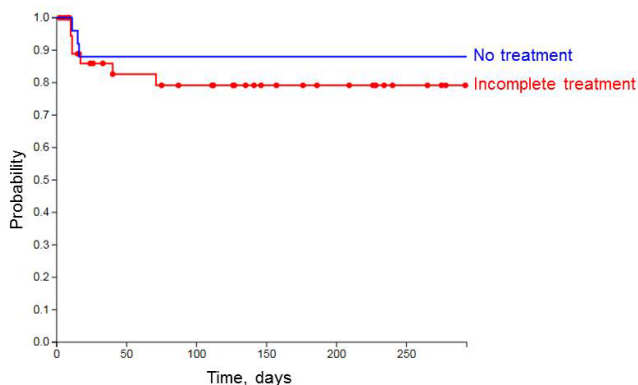
Disclosures. All authors: No reported disclosures.

2380. Fecal *Collinsella* Abundance is Negatively Associated with Toxin A/B Production in Cancer Patients with *Clostridioides difficile*
Denise Marie A. Francisco, MD[1]; Adilene Olvera, MPH MLS (ASCP)[2]; Liangliang Zhang, PhD[2]; Eduardo Yepez Guevara, MD[2]; Kevin W. Garey, PharmD, MS, FASHP[3]; Christine Peterson, PhD[2]; Kim-Anh Do, PhD[2]; Ryan J. Dillon, MSc[4]; Robert Jenq, MD[2]; Pablo C. Okhuysen, MD, FACP, FIDSA[2]; [1]Baylor College of Medicine, Houston, Texas; [2]The University of Texas MD Anderson Cancer Center, Houston, Texas, Houston, Texas; [3]University of Houston College of Pharmacy, Houston, Texas; [4]Merck & Co., Inc., Kenilworth, New Jersey

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Background. The detection of *C. difficile* (CDI) by nucleic acid amplification test (NAAT) with negative toxin enzyme immunoassay (EIA-) is difficult to interpret in cancer patients. Markers that differentiate true infection from colonization, and are associated with clinical outcomes are needed. We hypothesized that the microbiome composition and inflammatory fecal markers in EIA- patients differed from those who are EIA+ and were associated with disease severity and recurrence.

Methods. We studied the fecal microbiome composition (16s rRNA, V3) of 147 cancer patients with CDI diagnosed by a two-step testing algorithm. Clinical data, CDI bacterial quantity (BQ) by qPCR and markers of intestinal inflammation (calprotectin, lactoferrin, IL-1β and IL-8) were analyzed. Data were stratified according to cancer type [hematologic (H) $n = 49$, solid tumor (ST) $n = 66$, or stem cell transplant (SCT) $n = 32$].

Results. Demographic characteristics and symptoms were similar between the three groups. At baseline, species diversity by Shannon index was similar in all three groups regardless of EIA detection and did not correlate with clinical presentation, response to therapy or recurrence. Microbiome composition did not correlate with inflammatory response except in H in whom a higher diversity correlated with increased IL-8 ($P = 0.021$) and calprotectin ($P = 0.01$) levels. At the genus level across all strata and when compared with EIA- cases, EIA+ cases presented with a higher abundance of *Peptoclostridium* ($P = 0.0008$) which correlated with CDI BQ qPCR (log of BQ/mg 2.38 ± 1.49 vs 0.92 ± 1.28, $P < 0.001$). In contrast, EIA- cases had a higher abundance of *Collinsella* ($P = 0.001$). SCT patients carried fewer *Peptoclostridium* when compared with other groups, whereas all three patient groups carried similar amounts of *Collinsella*. The relative abundance of *Peptoclostridium* and *Collinsella* was not associated with response to therapy, or fecal markers of inflammation. Principal component analysis did not demonstrate differences between the three groups studied.

Conclusion. In this study, the presence of *Collinsella*, a known butyrate and bile salt hydrolase producer, was associated with the lack of CDI toxin A/B production. Loss of *Collinsella* may represent a novel risk factor for active CDI.

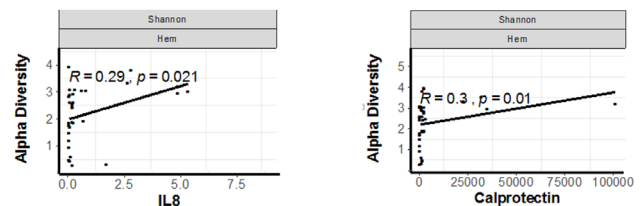Figure 1. Alpha Diversity (Shannon Index) versus Fecal Inflammatory Markers in Hematological Patients

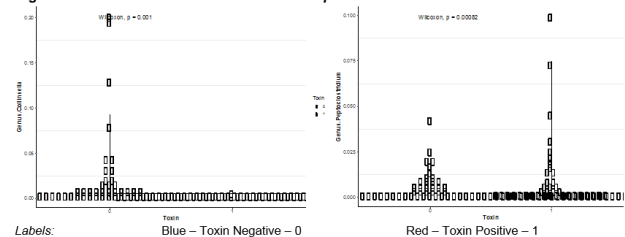Figure 2A. Abundance of *Collinsella* and *Peptoclostridium* in EIA+ and EIA- Patients

Labels: Blue – Toxin Negative – 0   Red – Toxin Positive – 1

Figure 2B. Plot of Effect Size (Per Permutations) of *Collinsella* and *Peptoclostridium*

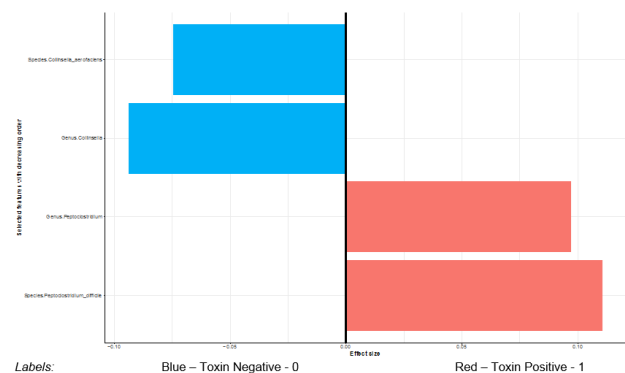*Labels:* Blue – Toxin Negative - 0   Red – Toxin Positive - 1

Figure 3. *Peptoclostridium* and *Collinsella* Abundance versus Diagnosis Groups (Hematological, Solid Tumor and Stem Cell Transplant patients)

Labels:　　1 – Hematological Malignancies　　2 – Solid Tumors　　3 – Stem Cell Transplant
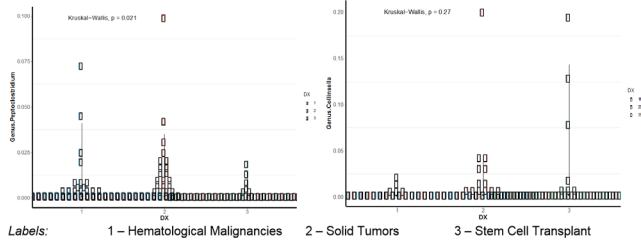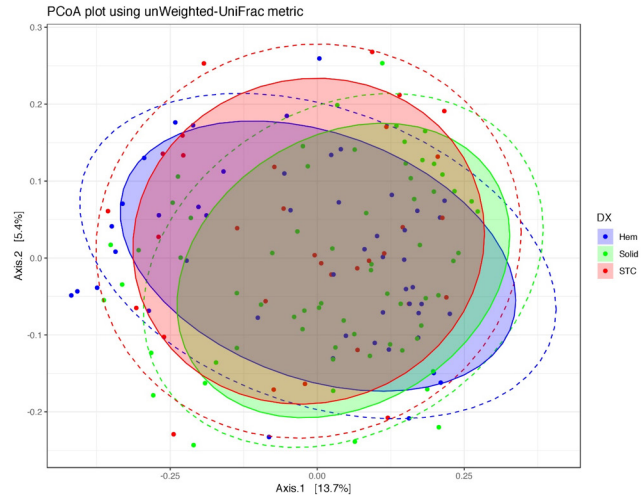
Figure 4. *Peptoclostridium* and *Collinsella* Abundance versus Diagnosis Groups (Hematologic - Hem, Solid Tumor – Solid and Stem Cell Transplant - STC patients)

Disclosures. All authors: No reported disclosures.

2381. Epidemiology of *Clostridium difficile* Infection in Patients Receiving Interleukin-2 Therapy

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Background. *Clostridium difficile* infection (CDI) has been associated with interleukin-2 (IL2) therapy, possibly leading to unnecessary testing and treatment of colonized patients receiving IL2 therapy. Since the debut of IL2 therapy for renal cell carcinoma (RCC) and metastatic melanoma (MM), only one study with 6 patients has shown a relationship between CDI and IL2 treatment, and no mortality data were reported. Because of the rising concern for appropriate testing and treatment of CDI, further studies looking at the correlation between IL2 therapy and CDI are needed. This study aims to describe CDI rates among a larger cohort of IL2 treated patients and to include mortality data.

Methods. Retrospective case series. A case of CDI was defined as (1) Bowel movements >3 or stool output >600 mL WITH, (2) positive laboratory test, either through toxin detection via ELISA prior to 2010 or molecular testing via PCR after 2010.

Results. During the study period from 2008 to 2015, 359 patients with RCC or MM receiving IL2 treatment were evaluated with a total of 294 patients undergoing *Clostridium difficile* testing (CDT). Median age was 52 (range 24–69), 33% female. An average IL2 dose of 27 million international units (MIU) was given in this population. 15% (45/294) had a positive CDT, but 7% (21/294) were found to have CDI. All patients with CDI had antibiotic exposure within the last 30 days of diagnosis. Of the patients who developed CDI, 24% (5/21) had a previous CDI episode within the last 90 days. None of the patients developed megacolon. Developing CDI lead to an all-cause mortality of 24% (5/21).

Conclusion. The results of this study show a lower CDI rate (7%, 21/294) than previously reported in IL2-treated patients (66%, 4/6), but this difference is likely due to the difference in population size. In addition to CDI rate, this study adds information about mortality in IL2-treated patients with CDI, which was not previously described in the literature. Applying a clinical criterion to laboratory testing results revealed a difference in laboratory testing positivity and actual infection rates, suggesting 8% of this population maybe colonized with *Clostridium difficile*, providing further evidence for Antibiotic Stewardship Committees to put in place local guidelines to avoid indiscriminate CDT in this population.

Disclosures. All authors: No reported disclosures.

2382. Recurrent *Clostridioides difficile* Infection (CDI) Worsens Anxiety-Related Patient-Reported Quality of Life

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Background. The Health-Related Quality of life (HR-QOL) instrument, the Cdiff32, allows studies on QOL changes associated with recurrent CDI. An ongoing real-world study of bezlotoxumab (BEZ) provided a unique opportunity to study anxiety-related HR-QOL in patients at high risk for recurrent CDI using the anxiety sub-domain of Cdiff32. The aims of this study were to assess baseline anxiety-related HR-QOL based on the number of prior episodes of CDI and to evaluate changes in patients with or without recurrence.

Methods. Patients at high risk for recurrent CDI given BEZ were administered the anxiety sub-domain questions of the Cdiff32 prior to infusion and at approximately 90 days after administration (0 = worst anxiety; 100 = no anxiety). The number of prior episodes of CDI were collected, along with demographics and co-morbid conditions. Patients were followed for 90 days for CDI recurrence, which was defined as new onset of diarrhea requiring CDI-active antibiotics.

Results. There were 107 patients evaluated, aged 68 ± 14 years (mean ± SD) with multiple co-morbid conditions (mean Charlson: 4 ± 3) and multiple previous CDI episodes (3 ± 1 episodes). Fourteen patients (13%) experienced a further CDI recurrence within 90 days following BEZ. Overall, baseline anxiety HR-QOL was 29 ± 22. Risk factors for lower baseline anxiety-related HR-QOL included immunocompromised conditions ($P < 0.046$) and receipt of a proton pump inhibitor ($P < 0.018$). Compared with patients with primary CDI disease (Score: 35 ± 20), baseline anxiety HR-QOL was worse with subsequent prior recurrences (Score: 26 ± 23) for CDI episodes 2–4, and then improved for subsequent episodes (Score: 38 ± 22). Anxiety-related HR-QOL improved by a mean of 32 ± 25 points compared with patients that experienced a further recurrence where HR-QOL declined ($P < 0.0001$). Results were confirmed in a multivariate model controlling for Charlson score and chronic renal failure.

Conclusion. Poor anxiety-related HR-QOL was observed at baseline in all patients regardless of number of prior episodes. QOL improved 90 days after BEZ infusion in patients without further recurrences of CDIs and worsened in patients with a subsequent recurrence.

Disclosures. All authors: No reported disclosures.

2383. Epidemiological and Clinical Features of *Clostridioides difficile* Infections in Pediatric Oncology and Transplant Patients

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Background. *Clostridioides difficile* infection (CDI) is the most common cause of healthcare-associated diarrhea-causing significant morbidity and mortality in adults. The epidemiology and clinical course of CDI in children, especially with cancer are poorly defined. We aim to describe the clinical, epidemiological features and outcomes of CDI, and identify risk factors for recurrence in a pediatric oncology center

Methods. This is a retrospective cohort study of CDI in pediatric oncology and hematopoietic stem cell transplant (HSCT) patients in 2016 and 2017. CDI cases were identified by electronic medical record search for positive *C. difficile* PCR tests. CDI episodes were classified as incident, duplicate or recurrent and community-onset (CO), hospital-onset (HO), or community-onset healthcare facility associated (COHCFA) using National Healthcare Safety Network surveillance definitions. Demographics, underlying diagnosis, CDI characteristics, drug exposure, and outcomes were analyzed. Risk factors for CDI recurrence were assessed by logistic regression.

Results. One hundred-eighty patients developed 305 CDI episodes; 233 (78%) were incident, 65 (22%) recurrent, and 7 duplicate and removed from the analysis. Recurrence occurred after 51 incident episodes (Table 1). Median age (range) was 5.7 (0.5–25.5) years. Underlying diagnoses were leukemia/lymphoma (56%) and solid/brain tumors (42%). 87 (29%) received HSCT. Almost all patients received antibiotics 4 weeks prior to CDI. 14% received laxatives 72 hours prior to CDI. 50% of patients were neutropenic. The median (range) duration of diarrhea was 10.0 (1–77). Thirty patients (15%) were hospitalized due to CDI, for a median (range) of 3 (1–49) days. 16% had a delay in chemotherapy due to CDI. There was no ICU admissions nor death due to CDI. None of the evaluated variables was identified as a significant risk factor for CDI recurrence by logistic regression (Table 3).

Conclusion. CDI in pediatric oncology and transplant patients ran a generally mild course, associated with chemotherapy delay and hospitalization in a small fraction, and no attributable ICU admission nor death. CDI recurred in less than a quarter of patients. Risk factors for CDI recurrence were not identified.