***Conclusion.*** In this limited population, it appears FMT may predispose to weight gain, which may reflect improved health with CDI cure. However, effects of FMT on patient's microbiomes must also be considered. As this intervention becomes more widely used we must be increasingly aware of possible metabolic side effects and ensure documentation of weight changes as part of FMT protocols.

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

**1262. Comparison of Fidaxomicin and Vancomycin for Recurrent *Clostridium difficile* Colitis**

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***Background.*** Fidaxomicin is a narrow spectrum macrocyclic antibiotic used for the treatment of *Clostridium difficile*infection (CDI). The objective of this study is to compare the recurrence and mortality rates of patients with CDI who received either vancomycin or fidaxomicin at Stony Brook University Hospital.

***Methods.*** A retrospective chart review was performed to identify all hospitalized patients who received fidaxomicin and vancomycin for CDI for the period 2011–2015. Inclusion criteria included patient age ≥18 years, stool positive PCR test for *C. difficile* and being treated ≥10 days of either fidaxomicin or vancomycin orally. Clinical recurrence was defined as a return of diarrhea, a positive test for *C. difficile*toxin B and a need for retreatment for CDI within 90 days of cessation of therapy.

***Results.*** A total of 55 (52.7% male) and 74 (51.4% male) cases met inclusion criteria in the fidaxomicin (F) and vancomycin (V) groups, respectively. The mean age was 65.9 ± 1.88 and 63.7 ± 1.86 years in group F and V respectively ($P = 0.4$). Median length of hospitalization was 14 and 9 days for F and V respectively ($P = 0.6$). Both groups had similar proportions on the following variables: immunosuppression (V 36.5% vs. F 36.4%; $P = 0.9$), ≥ 1 prior episode of CDI (V 59.5% vs. F 61.8%; $P = 0.8$), sepsis on admission (V 29.7%, F 36.4%; $P = 0.4$), the use of any antibiotic during the last 30 days (V 74.3%, 71%, $P = 0.7$), and treatment with additional anti-CDI therapy (V 24.3%, F 29.1%; $P = 0.5$). CDI recurrence rate was 24% (V) and 40% (F, $P = 0.057$). The 90-day mortality rate was 4.1% in the vancomycin group and 10.9% in the fidaxomicin group ($P = 0.13$).

***Conclusion.*** Fidaxomicin had a higher recurrent CDI than vancomycin in this tertiary medical center.

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

**1263. Factors Affecting Effectiveness of Fecal Microbiota Transplant**

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***Background.*** Fecal microbiota transplant (FMT) is an effective treatment for relapsing *Clostridium difficile* infection (CDI). With more widespread use of this intervention, variable cure rates (70–95%) have been observed. We conducted this study to identify specific patient- and procedure-level factors affecting FMT effectiveness, hypothesizing that those patients with higher comorbidity, inadequate bowel preparation, and shorter retention of transplant would fail more frequently.

***Methods.*** At our 2-hospital, >1100-bed community-based academic center, we prospectively followed patients pre/post-FMT between June 2014-April 2017. To undergo FMT, patients must have ≥2 CDI relapses and failed vancomycin taper. We entered all FMT patients into a registry and followed them regularly for up to 1 year, collecting age, Charlson Comorbidity Index, number of CDI relapses, Boston bowel prep score, and stool retention time. FMT donor stool was obtained from OpenBiome (Boston, MA). We defined failure as recurrent CDI requiring treatment ≤8 weeks after FMT. We used 1-sided t-tests to test our hypotheses.

***Results.*** During the study period, 41 patients (mean age 65 years, SD 17.6) underwent FMT. Most (37, 90%) were performed via colonoscopy, 1 via upper endoscopy, and 3 via oral preparation (capsules). FMT failure occurred in 10 patients (24.4%). Nearly half ($n = 20$) reported adverse events, including constipation, gas, abdominal pain, blood in stool, and fatigue. Three patients expired from comorbid disease, and 3 were lost to follow-up. Patients with higher Charlson scores failed more frequently ($P = 0.04$), and history of tumor ($P = 0.03$) and pulmonary disease ($P = 0.04$) were both associated with failure. No other factors, including age, retention time, and Boston bowel prep score, were associated with failure.

***Conclusion.*** This study found that patients with multiple comorbid conditions, as defined by the Charlson index, are at risk for FMT failure. However, quality of bowel prep and retention time did not predict FMT failure. Future studies should include larger samples of FMT patients to determine whether specific comorbidities such as history of tumor and pulmonary disease are clinically significant predictors of FMT failure.

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

**1264. Cost Effectiveness Analysis of Fecal Transplant Delivery Methods for Recurrent *Clostridium difficile* Infections in Outpatients**

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***Background.*** *Clostridium difficile* infection (CDI) accounts for more than $1 billion annually in US health care costs. Recurrent CDI (RCDI, recurrence within 8 weeks of initial treatment) contributes substantially to this cost. The objective of the study was to compare the cost effectiveness of FMT delivered via colonoscopy vs. blind nasogastric tube (NGT) in outpatients. We hypothesized that FMT by NGT would be cost-effective given its low risk and simplicity.

***Methods.*** A decision-analytic simulation model compared the cost effectiveness of FMT by colonoscopy vs. NGT from a third-party payer perspective. Our base case cure rates were derived from a cohort receiving outpatient RCDI treatment at our institution. Cure was defined as resolution of symptoms for ≥ 90 days. Procedural cost and consultation was defined by average reimbursement to a large southeastern medical center in 2016 USD based on current procedural terminology (CPT) codes, and cost of disease states were derived from published literature. Health utilities were defined by quality of life year (QALY) based on published literature. Incremental Cost Effectiveness ratio (ICER) was defined as the cost per additional QALY gained. We assumed a 90 day time horizon. One-way sensitivity analysis was performed on all variables using ranges defined by published literature. We used TreeAge Software (Williamstown, MA).

***Results.*** In the base case, FMT by colonoscopy was dominant (more effective and less costly) than NGT, with cost of $1,568/QALY vs. $1,910/QALY respectively. Cure rates of FMT by colonoscopy vs. NGT (100% vs. 87%) had the largest impact on ICER based on one-way sensitivity analysis. Therefore, a subsequent two-way sensitivity analysis was conducted to compare cure rates of both delivery methods and found that NGT delivery is cost effective as cure rates approach colonoscopy delivery cure rates within 5 percentage points.

***Conclusion.*** Contrary to our hypothesis, our decision model supports FMT by colonoscopy as the preferred delivery method in outpatients with RCDI relative to NGT delivery. Additional costs of colonoscopy delivery are off-set by the improved cure rate leading to lower overall costs. As cure rates from NGT delivery are optimized, NGT may become the preferred method for FMT delivery.

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

**1265. Ribotypes Matter, Significance of *Clostridium difficile* Ribotypes in Cancer Patients with Diarrhea**

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***Background.*** Cancer patients are at increased risk for *Clostridium difficile* infection (CDI) due to frequent health care contact, chemotherapy, use of antibiotics, and immunosuppression. Distinct ribotypes are associated with CDI adverse outcomes. Ribotypes 14-020 are the predominant ribotypes in many hospitals. We examined the contribution of *C. difficile* ribotypes to CDI severity, response to therapy and outcomes in this population.

***Methods.*** Demographic and clinical data were collected from 90 cancer patients with a first episode or first recurrence of CDI identified by two-step PCR followed by EIA for A/B toxins. Fluorescent PCR ribotyping (FPCR) was performed on fecal isolates. We identified 27 distinct ribotypes between October 2016 and January 2017. Clinical outcomes were studied in three FPCR subgroups. Group I (GI, $n = 27$) included F014-020, group II (GII, $n = 17$) included virulent types 002, 027, 078–126, 244 and group III (GIII, $n = 46$) included the rest. Treatment failure was defined as no response after at least 3 days of a CDI treatment regimen. CDI severity was determined using Zar's criteria, presence of bacteremia and ICU stay.

***Results.*** The proportion of patients >50 yrs. old, with health care onset CDI (31%), primary CDI (92.2%), and on active chemotherapy (70%) was similar across

the three groups. At presentation, disease severity was similar in all groups; However, patients in GII were more likely to have detectable toxin A/B by EIA compared with GI and GIII (53% vs. 23%, $P = 0.015$) and higher treatment failure rates (56%) when compared with GI (15% $P = 0.007$) and GIII (16%, $P = 0.004$). Bacteremia was more common in GIII (28%) compared with GII (0%) $P = 0.041$ and GI 7% $P = 0.007$. Patients in GI experienced fewer complications when compared with those in GIII $P = 0.025$. No differences in sustained clinical response, recurrence, ICU stay or all cause 90-day mortality were found between the groups.

***Conclusion.*** Cancer patients with CDI due to GII ribotypes are more likely to excrete fecal toxin A/B and fail conventional therapy. In contrast, patients in GI and GIII were more likely to respond to therapy. GI was associated with fewer complications. Of interest, GIII was associated with bacteremia. Evaluation of *C. difficile* ribotypes is clinically relevant in cancer patients with CDI.

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

**1266. Bezlotoxumab (BEZ) for Prevention of *Clostridium Difficile* Infection (CDI) Recurrence (rCDI): Outcomes in Patients with Substantial Renal Impairment (SRI)**

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***Background.*** CDI in patients with SRI is harder to treat and is associated with higher recurrence. MODIFY I/II found that BEZ, a monoclonal antibody against *C. difficile* toxin B, is superior to placebo (PBO) at preventing rCDI in patients receiving standard of care antibiotics (SoC). This post hoc analysis assessed efficacy of BEZ in patients with SRI in the MODIFY studies.

***Methods.*** MODIFY I/II mITT populations were pooled to estimate initial clinical cure (ICC), rCDI, and mortality through 12 weeks. Estimated glomerular filtration rate (eGFR) was calculated with the Modified Diet in Renal Disease (MDRD) method. SRI was defined as eGFR <60 mL/minute/1.73 $m^2$. ICC was defined as SOC ≤16 days and no diarrhea on the 2 days after SoC end. rCDI was defined as diarrhea and toxigenic *C. difficile* in stool. Mortality within 90 days after randomization was summarized.

***Results.*** Of the included 1554 patients, 1101 had no SRI (≥90: $n = 612$; 60 to < 90: $n = 489$); 430 had SRI (30 to <60: $n = 290$; 15 to <30: $n = 71$; <15: $n = 69$); 23 had unknown eGFR. 87% of SRI patients had ≥1 risk factor for rCDI. Relative to patients without SRI, more patients with SRI were ≥65 years (69% vs. 44%), immunocompromised (25 vs. 20%), had ribotype 027 (25% vs. 17%), and used concomitant antibiotics during SoC (41% vs. 31%) or after SoC (36% vs. 28%). SRI patients had more severe CDI (21% vs. 14%), lower CDI cure (78.4% vs. 80.1%), higher rCDI (31.6% vs. 27.8%), and death (11.6% vs. 5.3%) In the SRI cohort, more BEZ vs. PBO patients were inpatients (81% vs. 72%), ≥65 years (72% vs. 65%), immunocompromised (28 vs. 22%), and used systemic antibiotics after SoC ended (40% vs. 32%). The rate of ICC was similar between treatment groups and the rCDI rate was significantly less the BEZ vs. PBO group (Table).

***Conclusion.*** SRI was associated with worse CDI outcomes. BEZ given with SoC significantly reduced rCDI in patients with SRI and could benefit this hard to treat population.

| | Endpoints of interest in patients with renal impairment | | |
|---|---|---|---|
| | BEZ (n/N) | PBO (n/N) | Unadjusted Difference (95%CI)† |
| ICC | 80.6 (174/216) | 76.2 (163/214) | 4.4 (-3.4, 12.2) |
| rCDI | 17.8 (31/174) | 31.9 (52/163) | -14.1 (-23.2, -4.9) |

†Based on the Miettinen and Nurminen method without stratification.
BEZ=bezlotoxumab; ICC=initial clinical cure; n=number of patients in the analysis population meeting the criteria for endpoint; N=number of patients included in the analysis population; PBO=placebo; rCDI= *C. difficile* infection recurrence

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**1267. Successful Response to Microbiota-Based Drug RBX2660 in Patients with Recurrent *Clostridium Difficile* Infection is Associated with More Pronounced Alterations in Microbiome Profile**

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***Background.*** Recurrent *Clostridium difficile* infections (rCDI) are associated with decreased diversity and altered intestinal microbiome compared with healthy patients. RBX2660, a standardized microbiota-based drug, is designed to restore microbiome diversity and composition in patients'. The effect of RBX2660 on rCDI patient microbiomes was evaluated by comparing pre- and post-treatment samples from PUNCH CD 2—a randomized, double-blind, placebo-controlled study.

***Methods.*** rCDIsubjects were randomized to receive blinded treatments of 2 doses of RBX2660 (Group A), 2 doses of placebo (Group B), or 1 dose each of RBX2660 and placebo (Group C), by enema 7 days apart. Subjects submitted stool samples at baseline, day 7, 30, and 60 after treatment. Stool samples from responders to RBX2660 treatment per protocol defined as the absence of CDI for 8 weeks after treatment were compared with non-responders.

Relative taxonomic abundances at the class level were determined using 16s rRNA sequencing analysis for 94 stool samples from 45 patients in Groups A and C. Relative abundance data were grouped longitudinally using Bray-Curtis dissimilarity index. Analyses were performed based on the Dirichlet-Multinomial distribution to compare group mean relative taxonomic abundances; Simpson and Shannon diversity indices were compared among groups longitudinally.

***Results.*** Baseline patient microbiomes were similar across response groups. RBX2660 treatment shifted the relative microbiome densities with taxa-specific increase in Bacteroidia, Clostridia, and decrease in Gamma-proteobacteria abundance. A larger shift from baseline microbiome was seen in responders to RBX2600 compared with non-responders (Figure 1). Microbiome changes in responders were durable to 60 days. RBX2660 treatment increased Shannon and Simpson diversity at 7 days post-treatment in responders but not in non-responders ($P < 0.05$).

***Conclusion.*** RBX2660 treatment shifts patient intestinal microbiomes with greater alterations seen in those with a successful clinical outcome.

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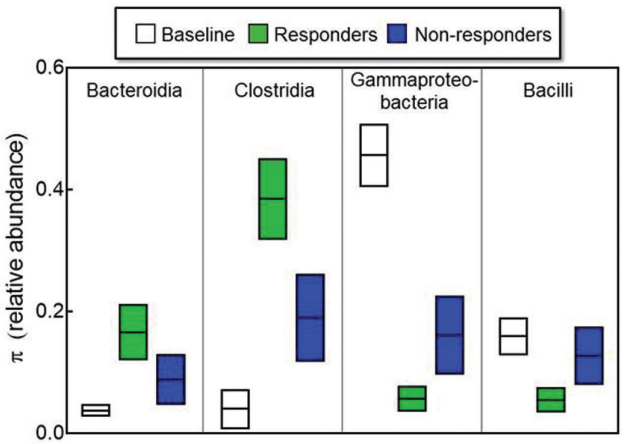
**Figure 1.** Responders to RBX2660 have a greater change in taxa abundance from baseline relative to non-responders at 30 days. Dirichlet-Multinomial parameter pi presented as mean (95% CI).

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**1268. Changes to the Composition of the Gastrointestinal Microbiome after Probiotics for *Clostridium difficile* Infection in Adults**

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