sequencing (WGS). rCDI was defined as diarrhea with toxigenic C. difficile in stool. Reinfec tion and relapse were differentiated by comparing ribotype (RT) and pair-wise single-nucleotide WGS variations (PWSNV). Relapse was assigned if the baseline RT and the RT isolated during rCDI were the same and PWSNVs were ≤2. Reinfection was defined as rCDI cases with a different RT compared with baseline or the same RT with >10 PWSNVs. Patients with at least one isolate. There were 198 (76.4%) relapse, 26 of 30 subjects did not recur following Seres Therapeutics, Inc., Cambridge, Massachusetts

**Recurrence of CDI occurs within a few weeks after treatment due to antibiotic-induced dysbiosis. SER-109, an investigational, first-in-class microbiome drug, was designed to sustain a clinical response through microbiome restoration with a purified ecology of spores. In an open-label Phase 1b (Ph1b) trial of SER-109 for prevention of recurrent CDI, 26 of 30 subjects did not recur following treatment. In a Phase 2 (Ph2) double-blind controlled trial of SER-109 (n = 59) vs. placebo (n = 30), no significant difference was observed in the proportions of subjects with recurrence (44.1% vs. 53.3%, respectively) consistent with drug efficacy. The BEZ-induced reduction in rCDI observed in MODIFY I/II reflects the prevention of relapses due to the same strain. A reduction in reinfections was also observed, but likely due to a smaller number of recurrence cases, the difference was not significant.

**Conclusion.** The BEZ-induced reduction in rCDI observed in MODIFY I/II reflects the prevention of relapses due to the same strain. A reduction in reinfections was also observed, but likely due to a smaller number of recurrence cases, the difference was not significant.

**Table: Proportion of rCDI Cases Classified as Relapse vs Reinfection by Treatment Group in MODIFY I/II**

| Recurrence (N) | BEZ and ACT+BEZ | PBO and ACT | RT 027 |
|---------------|-----------------|-------------|--------|
| Relapse       | 123             | 130         | 58     |
| Reinfection   | 26 (21.3%)      | 24 (17.6%)  | 7 (12.1%) |
| Unknown       | 6 (4.9%)        | 5 (3.7%)    | 2 (3.4%) |

P value for relapse vs reinfection 0.03 0.13

*Includes all treatment groups: ACTO, ACT+BEZ, BEZ, and PBO

**Disclosures.** M. B. Dorr, Merck & Co., Inc.: Employee and Shareholder, may own stock/hold stock options in the Company; Z. Zeng, Merck & Co., Inc.: Employee, may own stock/hold stock options in Company; M. Wilcox, Merck & Co., Inc.: Consultant, Consulting fee; Cubist: Consultant, Grant Investigator and Speaker's Bureau, Consulting fee, Grant recipient and Speaker honorarium; Alere, Actelion Pharma, Astellas, Optimier, sanofi pasteur, Summit Pharma, bioMerieux, Da Volterra, Qagen, Cereza, Abbott, AstraZeneca, Pfizer, Durata Therapeutics, Seres Therapeutics, Valneva, Nabriva Therapeutics, Roche, The Medicines Company, Basilea P: Consultant, Consulting fee; Alere, Actelion Pharmaceuticals, Pharmaceuticals, Astellas, Optimier Pharmaceuticals, sanofi pasteur, Summit Pharmaceuticals, bioMerieux, Da Volterra, Qagen, Cereza, and Abbott: Grant Investigator, Grant recipient; J. Li, BGI-Shenzhen: Employee, Salary; H. Zhao, BGI-Shenzhen: Employee, Salary; X. Li, BGI-Shenzhen: Employee, Salary; D. Guris, Merck & Co., Inc.: Employee, may own stock/hold stock options in the Company; P. Shaw, Merck & Co., Inc.: Employee, may own stock/hold stock options in Company.

1272. Gastrointestinal Tract Microbiome Dynamics Following Treatment with SER-109, an Investigational Oral Microbiome Therapeutic to Reduce the Recurrence of Clostridium difficile Infection (CDI)

Matthew Henn, PhD; Christopher Ford, PhD; Edward O’Brien, PhD; Jennifer Wortman, PhD; Sheri Simmons, PhD; Liyang Diao, PhD; Kevin Licitisky, PhD; Patricia Bernardo, Sc.D.; John Aunins, PhD; David Cook, PhD and Michele Trucksis, PhD, MD, Seres Therapeutics, Inc., Cambridge, Massachusetts

**Session:** 148. C. difficile: From the Bench to Bedside

**Background.** Recurrence of CDI occurs within a few weeks after treatment due to antibiotic-induced dysbiosis. SER-109, an investigational, first-in-class microbiome drug, was designed to sustain a clinical response through microbiome restoration with a purified ecology of spores. In an open-label Phase 1b (Ph1b) trial of SER-109 for prevention of recurrent CDI, 26 of 30 subjects did not recur following treatment. In a Phase 2 (Ph2) double-blind controlled trial of SER-109 (n = 59) vs. placebo (n = 30), no significant difference was observed in the proportions of subjects with recurrence (44.1% vs. 53.3%, respectively). Here we contrast gut microbiome changes among subjects in both trials to understand differences in clinical outcomes observed 8 weeks after dosing.

**Methods.** We used 16S v4 and high-resolution whole metagenomic shotgun (WMS) sequencing to characterize microbiome changes from stool samples collected at baseline and 1, 4, and 8 weeks post-treatment. Microbiome analyses focused on subjects diagnosed with recurrence via EIA toxin testing (high confidence

**Results.** Significantly greater richness of commensal spore-former species was observed in Ph2 subjects treated with SER-109 compared with PBO at weeks 1 and 4 post-treatment (Mann-Whitney P = 0.008, P = 0.044, respectively) compared to controls. In addition, the number of spore-forming species at 1 week post-treatment was significantly greater in non-recurrent subjects vs. HCR subjects (Mann-Whitney P = 0.011). Furthermore, we identified 10 spore-former species that were significantly more prevalent in both SER-109 and non-recurrent subjects (Fig 1). In comparison to...
1273. Initial Oral Vancomycin vs. Oral Vancomycin After Metronidazole for Severe Clostridium difficile Infection
Sunish Shah, PharmD1; Benjamin Ereshfoisky, PharmD2; BCPS3; Laura Pontiggia, PhD4; and Michael Cawley, PharmD, RRT, CPTT, FCCM1; 1University of the Sciences in Philadelphia, Philadelphia, PA; 2Seres Therapeutics: Employee and Shareholder, Salary; 3Seres Therapeutics: Employee and Shareholder, Salary and Stock options; 4Cade Nylund, MD; Department of Pediatrics, Uniformed Services University of the Health Sciences, Bethesda, Maryland

Abstract. Prolonged hospital stays, financial costs, and the potential for recurrent infection in patients hospitalized with Clostridium difficile (CDI) can have a significant impact on the healthcare community. Our study aims to characterize the epidemiology of CDI among hospitalized patients in the US military health care system (MHS).

Methods. We performed a retrospective cohort study of patients with CDI using MHS database billing records. Cases included all active duty patients, their dependents, or retirees admitted to a US military treatment facility for ≥2 days from October 1, 2008 to September 30, 2015 with a positive sample positive for Clostridium difficile via enzyme immunoassay, tissue cytotoxin assay, toxigenic culture, or polymerase chain reaction (PCR). Patient case-mix adjusted outcomes including in-hospital mortality, length of stay, and hospitalization cost were evaluated by high-dimensional propensity score adjusted logistic regression.

Results. Among 1,156,672 admissions within the MHS from 2008–2015, we identified 1,640 (0.14%) patients with CDI and found a significant increase in the trend of CDI over the 7-year study period (P < 0.001). Median age (IQR) was 63 (41–76) in the CDI hospitalized group and 26 (6–46) in the non-CDI hospitalized group. Male gender was a risk factor for CDI (adjusted odds ratio, 1.94; 95% confidence interval 1.76–2.14) and the majority of patients (84.5%) were associated with large-size medical centers. Patients hospitalized with CDI had significantly higher hospitalization cost (attributable difference [AD] $51,959, P < 0.001), prolonged hospital stay (AD 11.8 days, P < 0.001), and in-hospital mortality (case-mix adjusted odds ratio 3.28; 95% confidence interval 2.69–4.00).

Conclusion. CDI in hospitalized patients within the MHS is associated with advanced age, large medical centers, and an increased length of stay, hospitalization cost, and in-hospital mortality. We identified a significantly increased burden of hospitalization among patients admitted with CDI, highlighting the importance of infection control and antimicrobial stewardship initiatives aimed at decreasing the spread of this pathogen.

Disclosures. All authors: No reported disclosures.

1275. Clostridium difficile Infection in Hematopoietic Stem Cell Transplant Patients: A Single-center Experience
Aneela Majeed, MD1; Marti Larriva, PharmD2; Ahmad Iftikhar, MD3; Nagesha Khadil, Graduate student3; and Mike Hamdan, MD4; 1Infectious Diseases Fellowship Program University of Arizona College of Medicine – Tucson, Tucson, Arizona; College of Pharmacy, Tucson, Arizona; 3University of Arizona, Tucson, Tucson, Arizona; 4Department of Medicine, Division of Infectious Diseases, University of Arizona College of Medicine, Tucson, Arizona, “Department of Medicine, Division of Hematology, Oncology, Blood and marrow transplantation, University of Arizona, Tucson, Arizona

Background. Cancer is a major risk factor for Clostridium difficile (CD) infection. CD infection is the most common cause of nosocomial infections in U.S. and leading cause of gastroenteritis associated death. Incidence of CDI in hematopoietic stem cell transplant (HSCT) patients has been reported between 5.7% to 24.7% during first year after HSCT. Literature review reveals many risk factors i.e., allogenic HSCT, extremes of age, myeloblastic conditioning, prior vancomycin resistance (VRE) colonization, pre transplant C. difficile colonization, severe mucositis, graft vs. host disease (GVHD), duration and type of antibiotics used, immunosuppression, proton pump inhibitor use and NAP1 C difficile strain.

Methods. To study incidence and different variables for CDI, we performed a retrospective review of medical records of adult patients who underwent HSCT between 2013 and 2016 at our center. REDCap database was used to record key variables related to each patient's HSCT and CDI, keeping in mind HIPPRA guidelines. Categorical data were summed up as percentages and counts and numeric data as means, medians, standard deviations and ranges.

Results. A total of 181 HSCT recipients were included. Incidence of CDI was 10% (18 Patients). Cohort's most common underlying malignancy was multiple myeloma (35.4%). 70% had autologous HSCT and 30% had allogenic HSCT. Among allogenic transplant, 53% had matched unrelated donor. Peripheral blood was the most common stem cell source (93%). Most common myeloblastic conditioning regimen was melphalan (70%). 27% patients were on PPIs. 2% had PEG/NG tube placed and 12% were on TPN. 10% had diabetic mellitus. 5 patients had previous episodes of CDI. 69% developed mucositis. 5% patients developed acute GVHD, 6% had VRE colonization, while 66% had no documentation for VRE. Out of positive CDI cases, 17% were NAP1 positive. No episode of ileus or mega colon was documented. Most common treatment regimen were metronidazole 500 mg per orally every 8 hours (65%) and vancomycin 125 mg per orally four times a day (58.8%).

Conclusion. This single-center study demonstrates that CDI has 10% incidence in patients undergoing HSCT. Risk factors include neupropenia, high dose chemotherapy, mucosal damage and provision of broad spectrum antibiotic prophylaxis. Data on CDI prophylaxis in these patients is emerging and randomized prospective trials are needed.

Disclosures. All authors: No reported disclosures.

1276. Longitudinal Trends of Clostridium difficile Infection (CDI) within Department of Veterans Affairs (VA) Medical Centers—Acute Care and Long-term Care
Stephen Krakovic, MD, MPH, FSHEA1;2,3; Martin Evans, MD, FIDSA, FSHEA1;2,3, 4Loretta Simbartl, MS1 and Gary Roselle, MD, FIDSA, FSHEA1;2,3; National Infectious Diseases Service, Department of Veterans Affairs, Washington, DC, 2Internal Medicine/Division of Infectious Diseases, University of Cincinnati College of...