Background. The number of adults afflicted with community-associated Clostridium difficile infection (CA-CDI) has increased dramatically over the past 10 years. Exposure to infants, a population known to be asymptomatic when colonized by C. difficile (CD), has been identified as a risk factor for CA-CDI, implying that infants may be a reservoir for adult infection. In the present study, we determined the distribution of CD ribotypes isolated from adults with CA-CDI and compared them to the ribotypes of strains excrated asymptomatically among a cohort of healthy infants from the same geographical location.

Methods. Adult subjects submitted to a referral university hospital microbiology laboratory as part of routine care were identified as CD+ by PCR amplification and stored at −80°C; the subset of samples from patients meeting IDSA criteria for CA-CDI were selected for further analysis. A cohort of healthy infants attending a suburban, demographically diverse pediatric practice 6 miles from the hospital were enrolled at birth and prospectively followed at 2-, 6-, and 12-month well-visits. Stool collected at each infant visit was cultivated for CD using routine techniques. DNA from both sets of organisms was extracted and subjected to fluorescent PCR ribotyping. FMTs were assigned to specific ribotypes through sequence analysis, using the nomenclature proposed previously (J Clin Microbiol 2015;53:1192).

Results. To date, 29 adult samples (collected between Aug 1, 2016 and Jan 31, 2018) and 32 infant samples (collected between July 1, 2016 and March 31, 2018) have been ribotyped. Eleven (18%) organisms could not be typed (3 adult; 8 infant). The most representative ribotype identified in the adult CA-CDI samples was F014-020 (54%), with small numbers scattered among six other ribotypes. The most prominent ribotypes in infants were F106 (33%), F109 (17%), and F012 (17%); two (8%) infants were colonized with ribotype F014-020. Except for F014-020, there was no concordance of ribotypes among adult CA-CDI and infant isolates.

Conclusion. In this population, a small proportion of asymptomatic infants were colonized by a prominent CA-CDI ribotype in adults, but other ribotypes were unique to each age group.

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508. High Rates of Cure and Long Term Symptom Resolution With Both Capsule and Lower Gastrointestinal Fecal Microbiota Transplantation for Recurrent Clostridium difficile Infection

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Background. Fecal microbiota transplantation (FMT) is the treatment of choice for recurrent C. difficile infection (CDI), but limited data exist on long-term real-world outcomes of FMT and optimal routes of administration.

Methods. We performed a survey of patients who received FMT for CDI at UCLA Health. The online survey was adapted from the NH PROMIS gastrointestinal (GI) symptom scale to assess various GI symptoms in the week prior to FMT and the week prior to taking the survey (long-term follow-up). Additional questions addressed route of FMT, timing of improvement, and recurrence of symptoms or CDI. Chart review provided demographic information and time to follow-up. Changes (pre/post) were assessed using the Wilcoxon signed-rank test.

Results. Ninety-six FMTs were performed from December 2014 through September 2017. Forty-five of 88 alive patients completed the survey (response rate 51%). Ages ranged from 18 to 90 years old (average 61.2 years, SD 18.0). Time from FMT to survey completion ranged from 14 to 1044 days (average 526 days, SD 253.9). Route of initial FMT included 14 capsule and 31 lower GI tract FMTs (28 colonoscopies, three other). Five patients had a second FMT after initial failure (second FMTs: one capsule and four colonoscopies). In total, we included 50 FMTs (15 capsule [30%] and 35 lower [70%]). Overall success rate was 76% (38/50), with 10 failed FMTs (20%) and 2 of unclear outcome. There was a higher success rate of lower FMTs at 85.7% (30/35) compared with capsule at 66.7% (10/15), but this difference was not statistically significant (P = 0.312). Comparing GI symptoms pre- and post-FMT, there was a statistically significant decrease in days with diarrhea (P < 0.001), frequency and severity of abdominal pain (both P < 0.001), bloated feeling (P < 0.001), and improvement in appetite (P < 0.001) at long-term follow-up. Comparing capsule vs. lower FMTs, post-FMT symptoms appeared similar.

Conclusion. FMT led to a high rate of long-term cure, with significant improvement in multiple GI symptoms months to years after transplant. The route of FMT did not impact symptom relief, but there was a higher rate of failure with capsule FMT compared with lower FMTs. More studies are needed to understand the impact of routes of FMTs on long-term outcomes of patients with CDI.
Conclusion. Our analysis of the UHHC CDI cases shows significant spatio-temporal clustering in the observed CDI clusters. These results suggest that direct or environmental transmission may play a significant role in CDI acquisition at the UHHC.

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510. First Environmental Investigation of Toxigenic Clostridium difficile Strains in Texas Hospitals
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Background. Clostridium difficile is the most common cause of infectious diarrhea in hospitalized patients in the developed world and an emerging pathogen in developing countries due to increased use of broad-spectrum antibiotics worldwide. Spores of toxigenic C. difficile can survive and disseminate in any environs and act as sources for human colonization or infections. Although likely ubiquitous in any environs, the prevalence of C. difficile spores in the hospital environment of Texas hospitals is poorly understood. The objectives of the study are to isolate and characterize C. difficile from the hospital environs of three hospitals in three cities in Texas.

Methods. As part of a Texas hospital-wide surveillance effort, we collected shoe-bottom swabs from hospital employees, patients, and visitors inside three large hospital from these cities. Samples were analyzed for C. difficile using anaerobic enrichment culture and molecular methods. Suspected colonies from cycloserine cefoxitin fructose agar (CCFA) plates were identified by PCR (tcdA, tcdB, cdfA, cdfB, tpi) and genotyped using fluorescent PCR ribotyping.

Results. A total 229 of 1079 (21.2%) surface swab and 81 of 121 (66.9%) shoe swab samples were culture positive for toxigenic C. difficile (tcdA and tcdB). A total of 29 distinct ribotypes were identified from 166 C. difficile isolates tested. Predominant ribotypes were F106, F019, F014-020, F002, and F255. Interestingly, ribotype F027 was not a predominant strain among the swab samples. Each hospital had widely diverse strains. Shoes were the most contaminated item in all the hospitals.

Conclusion. We identified a high prevalence of toxigenic C. difficile with diverse ribotypes from hospital environmental shoe-bottom swabs and high touch surface swabs in hospitals in three cities of Texas. Our findings suggest that patients might be at higher risk for C. difficile colonization or infection in these hospitals.

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511. What Is The Current State of Patient Education after Clostridium difficile Infection
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Background. Clostridium difficile infection (CDI) is a common healthcare-associated infection that often recurs after treatment and is associated with reduced quality of life. High-quality patient engagement and education could reduce the risk for transmission and reinfection.

Methods. We surveyed 18 institutions, including academic, Veterans Affairs, and community hospitals, to evaluate if they had CDI-specific patient education practices in place. For three of the institutions, we surveyed CDI patients immediately after hospital discharge regarding the CDI education provided and assessed their knowledge of patient-based prevention measures.

Results. Of the 15 hospitals responding to the survey, 11 (73%) reported having standardized written educational materials regarding CDI. However, Infection Prevention personnel from four (27%) of these hospitals were not confident that the education was being implemented and five (33%) were not confident that the patients understood the education. Of 24 CDI patients surveyed, only 13 (54%) reported receiving any education about CDI from hospital personnel, and only three (12.5%) reported receiving written information. Seven of the 24 (29%) CDI patients reported looking up information online about CDI. Of the 24 CDI patients, three (12.5%) were not aware that soap and water should be used for hand hygiene, 7 (29%) were not aware that bleach should be used for cleaning their bathroom, and 13 (54%) did not choose taking antibiotics as the major risk for recurrence.

Conclusion. Although most hospitals reported having standardized educational materials for CDI patients, our survey of patients demonstrated substantial deficiencies in the education provided and in patients’ knowledge of CDI prevention measures. Engagement of CDI patients in prevention efforts will require improvement in education practices.

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512. Tracking the Use ofSoap and Sanitizer for Hand Hygiene After Caring for Clostridium difficile Patients
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Background. Soap and water is more effective than alcohol-based hand rub (ABHR) at removing Clostridium difficile spores from hands. Our institution mandates that healthcare workers (HCW) use soap and water after contact with the patient or their environment for any C. difficile infection (CDI). CDC and SHEA recommend this only in outbreak settings for three main reasons: lack of evidence that preferential soap and water use reduces CDI, concerns that inconsistent messaging may result in decreased hand hygiene overall, and that glove use obviates soap and water use. The objective of this study was to investigate hand hygiene practices after caring for CDI patients.

Methods. CDI cases from July 2016 to December 2017 residing in any of 4 units in the hospital (1 medical ICU, 1 stepdown, 2 med/surg) were identified. These units have an electronic hand hygiene (EHH) monitoring system. Using radio frequency identification badges worn by HCW and sensors on each dispenser, handwashing