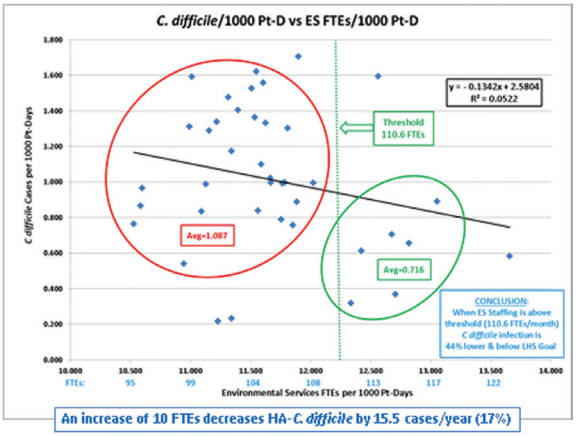
Figure 3.



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

532. Recurrent *C. difficile* in Children: Not Easy to Cure

Philip Lee, PharmD[1,2]; Olga Aroniadis, MD[3]; Sarah Noble, M4 Medical Student[4]; Fatimah Rimawi, M4 Medical Student[4] and David Goldman, MD[1,5]; [1]Division of Pediatric Infectious Disease, Children's Hospital at Montefiore, Bronx, New York, [2]Department of Pharmacy, Children's Hospital at Montefiore, Bronx, New York, [3]Division of Gastroenterology, Montefiore Medical Center, Bronx, New York, [4]Albert Einstein College of Medicine, Bronx, New York, [5]Microbiology and Immunology, Albert Einstein College of Medicine, Bronx, New York

Session: 59. Healthcare Epidemiology: Updates in *C. difficile*
Thursday, October 4, 2018: 12:30 PM

Background. Little is known about the clinical characteristics and appropriate treatment of children with repeated *C. difficile* infections (rCDI). Current IDSA treatment recommendations for rCDI include oral vancomycin (VAN) or metronidazole (MTZ) based on weak/low-quality evidence.

Methods. We performed a retrospective chart review of children hospitalized at CHAM with rCDI from September 2009 to October 2017. This cohort was extracted using ICD 9 or 10 codes from the electronic health record. Subsequent full chart review was performed to identify patients with rCDI, which was defined as symptomatic diarrhea in the context of repeat positive *C. difficile* toxin assay and diarrhea. Recurrence (recr), relapse (rspd), and cure with relapse (CWR) were defined based on time to new CDI: >14–60, ≤365, and >365 days, respectively. Global cure (G/C) was defined as the absence of rCDI up to April 2018. Symptoms severity was graded based on the presence of WBC >12 or <2 k/μL, elevated creatinine adjusted by age, and serum albumin <3 mg/dL. Fisher's exact, χ^2, Mann–Whitney were used for analyses.

Results. We identified 28 children with rCDI (12 males and 16 females) with an average age of 9 ± 6 years. The threemost common diseases associated with rCDI were (*n*, %): stem cell transplantation (8, 28.6%), malignancy (6, 21.4%), and IBD (5, 17.9%). After the first episode of rCDI, 53.5% (95% CI 34–72%) experienced recr, rspd or CWR with an average number of 1.27 ± 0.46 repeat CDI episodes. The symptoms of rCDI were generally mild (*n* = 24; 85.7%), while moderate (*n* = 3; 10.7%), and severe disease (*n* = 1; 3.6%) were significantly less common (*P* = <0.001). Antibiotics used to treat first episode of rCDI are shown in Table 1. Average number of days from treatment of first to second rCDI did not significantly differ among treatment courses (MTZ: 123 days vs. VAN: 60 days; *P* = 0.91). The frequency of G/C increased with treatment course as follows: first (46.4%), second (60%) and third (83.3%) (χ^2 for trend, *P* = 0.09, Table 1).

Table 1: Antibiotics used for children with rCDI

	n	1st rCDI	2nd rCDI	3rd rCDI	4th rCDI
MTZ	Recurrence	6	1	-	-
	Relapse	5	-	-	-
	Cure with Relapse	-	1	-	-
	Global Cure	10	4	2	-
VAN	Recurrence	3	1	1	-
	Relapse	-	-	-	-
	Cure with Relapse	-	-	-	-
	Global Cure	2	3	3	-
VAN Taper	Recurrence	-	1	-	-
	Relapse	1	1	-	-
	Cure with Relapse	-	-	-	-
	Global Cure	-	-	-	1
NTZ	Recurrence	-	1	-	-
	Relapse	-	-	-	-
	Cure with Relapse	-	-	-	-
	Global Cure	1	2	-	-

- Denotes no outcome was present

Conclusion. Multiple rCDI occurred in a significant proportion of children with relatively poor clinical response. MTZ was disproportionately used in the treatment of rCDI. The use of NTZ appears to be associated high rate of G/C although our numbers were very small. Additional multi-site study is indicated to determine the optimal treatment of children with rCDI.

Disclosures. **P. Lee**, Astra Zenena: Consultant, Consulting fee.

533. Scaling Pediatric Access to Fecal Microbiota Transplantation in the United States: A Time-Series Geospatial Analysis

Pratik Panchal, MD MPH[1,2]; Stacy Kahn, MD[3]; Caroline Zellmer, BS[1]; Zain Kassam, MD MPH[1,4]; Majdi Osman, MD MPH[1]; Jessica Allegretti, MD, MPH[5]; Monica Seng, AB[1]; Shrish Budree, MD[1,6] and NASPGHAN FMT Special Interest Group; [1]OpenBiome, Somerville, Massachusetts, [2]Global Health and Population, Harvard University T.H. Chan School of Public Health, Boston, Massachusetts, [3]Boston Children's Hospital, Boston, Massachusetts, [4]Finch Therapeutics, Somerville, Massachusetts, [5]Gastroenterology, Brigham and Women's Hospital, Boston, Massachusetts, [6]Pediatrics, University of Cape Town, Cape Town, South Africa

Session: 59. Healthcare Epidemiology: Updates in *C. difficile*
Thursday, October 4, 2018: 12:30 PM

Background. The rising prevalence of recurrent *Clostridium difficile* infection (CDI) in pediatrics is a public health concern. Fecal microbiota transplantation (FMT) is an effective treatment and is recommended in US guidelines. Universal stool banks (USB) have enabled widespread FMT access among adult patients; however, the progression of FMT uptake in pediatrics is unknown. We present a geospatial timeseries analysis of growth in pediatric FMT providers within the United States between 2013 and 2018.

Methods. A list of healthcare facilities associated with a USB and an FMT special interest group was geocoded using Google Maps. Spatial network analysis methods were used to create drive-time polygons for each healthcare facility with simulated traffic for 12 pm on a Wednesday. US Census data were used to estimate the percentage population living within 1, 2, and 4-hour drive time to a pediatric FMT provider cumulatively from 2013 to March 2018.

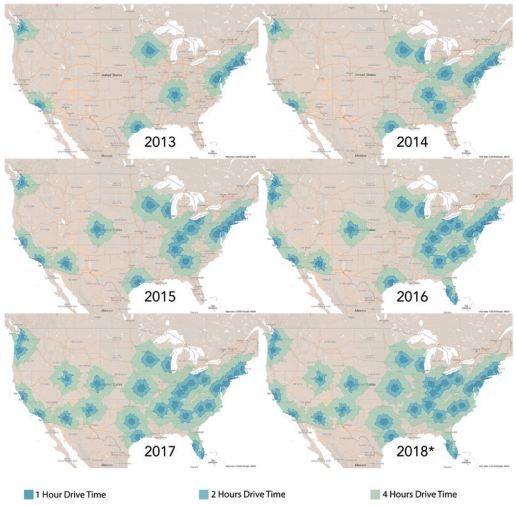
Results. Between 2013 and 2018, there was a rapid expansion in access to FMT to include 45 pediatric healthcare facilities (Figure 1). As of March 2018, 40.51% of the US population lives within a 1-hour drive, 62.73% within a 2-hour drive, and 89.38% within a 4-hour drive of an FMT provider (Table 1). The largest percentage increases in access occurred between 2013 and 2014 (28.43% increase within a 1-hour drive time). These 45 FMT providers include 6 community hospitals, seven private practices, and 32 academic centers.

Conclusion. Although these results demonstrate a rise in pediatric FMT providers across the United States, there remains a significant discrepancy in access between adult and pediatric populations, despite growing evidence of safety and efficacy of FMT. Additional efforts are needed to address barriers to FMT and improve access for pediatric patients with recurrent CDI.

Table 1: Pediatric FMT Facilities Within a 1, 2, and 4-Hour Drive Time

Year	No. of Partners	Time (hours)	% of US Population
2013	10	1	17.74
		2	28.28
		4	44.09
2014	15	1	22.79
		2	36.88
		4	60.74
2015	23	1	28.54
		2	45.54
		4	70.17
2016	33	1	34.14
		2	55.23
		4	79.57
2017	41	1	39.20
		2	61.26
		4	88.76
2018	45	1	40.51
		2	62.73
		4	89.38

Figure 1. Pediatric Access to FMT From 2013 to 2018.



Disclosures. **P. Panchal**, OpenBiome: Employee, Salary.