endonuclease analysis (REA) strain typing was performed on the recovered CD isolates.

Results. Toxin testing was positive in 19/50 (38%) cases. Compared to stool toxin-negative cases, toxin-positive cases were older (95% vs. 71% were age ≥ 65, p = 0.06), more likely to have a history of CDI (37% vs. 23%, p = 0.34), and have ≥ 1 CDI episodes within 6 months (37% vs. 19%, p = 0.26). Treatment for CDI was more common in patients who had a positive toxin text. (95% vs 61%, p= 0.009). Among the 38 patients that received treatment, 33 received vancomycin (87%) and 8 patients (21%) had rCDI at 30 days. Of the 8 patients with rCDI, 2 were re-admitted to the hospital for CDI. The average PCR cycle threshold was lower in the toxin-positive stools compared to toxin-negative stools (24.46 and 29.96, p< 0.001; Fig. 1) The endemic REA group Y was the most common CD strain recovered (30%) and the previously epidemic and virulent REA group BI strain was recovered in 11% of the cases.

Conclusion. CDI cases diagnosed by positive stool PCR and positive toxin tests had more typical risk factors for CDI, a lower PCR cycle threshold and were more likely to have been treated for CDI. Outcomes were similar in this setting where infection with the virulent BI strain was uncommon.

Disclosures. **Stuart Johnson, MD**, **Acurx Pharmaceuticals** (Advisor or Review Panel member)**Bio-K+** (Advisor or Review Panel member)**Ferring Pharmaceutical** (Advisor or Review Panel member)

747. Association of *Clostridiodes difficile* Infection Incidence With Renewed Vigor in Infection Prevention Practices With the Onset of the COVID-19 Pandemic

Ahmed A. Khan, MD[1]; Sana Waqar, MD[2]; [1]Southern Illinois University School of Medicine, Springfield, IL; [2]Southern Illinois University, Springfield, IL

Session: P-36. HAI: C. difficile

Background. *Clostridioides difficile* is the leading cause of hospital associated infections. In 2017 it lead to an estimated 223,900 cases, 12,800 deaths and $1 billion in attributable healthcare costs.[1] Judicious use of antibiotics and good hand hygiene practices form the cornerstone of prevention. During the COVID-19 pandemic there has been a focus on infection control practices such as hand hygiene, which would also lead to decreased incidence of other contagious infections such as *C. difficile* diarrhea.

Methods. We looked at the incidence of *C. difficile* infection in a tertiary care hospital, 1 year before and 1 year after the start of the COVID-19 pandemic. We looked at the absolute number of hospital associated *C. difficile* infections and the rate per 1000 patient days. The testing methodology changed during the time of the study. Initially it included NAAT for *C. difficile*, however in March of 2020 the testing strategy included testing for GDH antigen and toxin A/B to differentiate between infection and asymptomatic colonization.

Results. From January 1st and December 31st 2019 there were a total of 182 *C. difficile* infections with a rate of 1.29% per 1000 patient days. Between January 1st and December 31st 2020 there were a total of 51 *C. difficile* infections with a rate of 0.39% per 1000 patient days. There was an absolute risk reduction of 0.9% and relative risk reduction of 69.7%. Hand hygiene audits did not show a difference in adherence between the two periods, with a compliance rate of 98% for both.

Conclusion. Our data suggests that there was a substantial reduction in *C. difficile* infection rate after widespread knowledge of COVID-19 and implementation of enhanced infection prevention strategies. These included frequent reminders of hand washing, gowning and social distancing to name some. This information was conveyed in the form of widely disseminated signs in highly visible areas, frequent reminders electronically and in person between staff and providers. There are limitations in our study, which include difficulty in longitudinally assessing the extent to which patient care providers adhered to infection prevention strategies and a change in testing strategy for *C. difficile* diagnosis during this time.

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

748. The Changing Epidemiology of *Clostridioides difficile* Infection and the NAP1/027 Strain in Two Quebec Hospitals

Sandrine Couture, M.D.,C.M.[1]; Charles Frenette, MD, FRCPC[1]; Rowin Alfaro, B. Sc[1]; Lorne Schweitzer, MD[1]; Ian Schiller, MSc[1]; Nancy Doherty, College Diploma[1]; Rahul Nanda, M.D.,C.M.[1]; Yves Longtin, MD[2]; Daniel Thirion, PharmD[1]; Vivian Loo, MD, M.Sc.[3]; [1]McGill University Health Centre, Montreal, Quebec, Canada; [2]Jewish General Hospital, Montreal, Montreal, QC, Canada; [3]McGill University, Montreal, Quebec, Canada

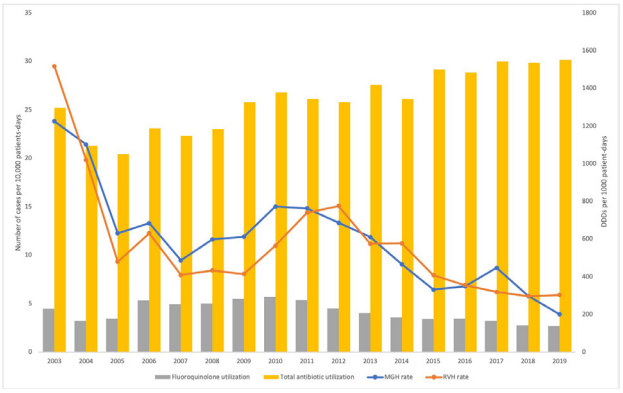
Session: P-36. HAI: C. difficile

Background. In 2003, many hospitals in Québec, Canada experienced an increase in the incidence of healthcare-associated *C. difficile* infection (HA-CDI) associated with increased morbidity and mortality. This increase was associated with the dissemination of the NAP1/027 strain. The objective of this study was to describe the epidemiology of HA-CDI in two tertiary care hospitals based in Montréal from 2003 to 2019.

Methods. Surveillance for HA-CDI was performed using standard definitions from 2003 to 2019 at the Montreal General Hospital (MGH) and Royal Victoria Hospital (RVH), in Montréal, Québec. *C. difficile* was isolated from stool specimens using standard methods. Pulsed field gel electrophoresis and ribotyping were performed to determine genotype. Antibiotic utilization and infection control interventions implemented over the same time period were reviewed.

Results. A total of 4314 cases of CDAD were identified during the study period: 2295 at the RVH and 2019 at the MGH. The incidence decreased from 29.5 to 5.9 cases per 10,000 patient-days between 2003 and 2019 at the RVH and from 23.8 to 3.9 cases per 10,000 patient-days at the MGH. Of the 124 isolates available for genotyping in 2003, 112 were NAP1 (90.3%) compared to 5 out of 53 (9.4%) in 2019. Fluoroquinolone utilization decreased from 230 to 139 DDDs per 1,000 patient-days between 2003 and 2019, whereas total antibiotic utilization increased from 1296 to 1550 DDDs per 1,000 patient-days. Infection Control interventions included empirically placing patients with diarrhea on precautions, intensified cleaning measures, formal antibiotic stewardship, introduction of a real-time PCR *C. difficile* test in June 2010, and a move to a facility with only single rooms at the RVH in April 2015.

Incidence of HA-CDI at the RVH and MGH and antibiotic utilization between 2003 and 2019



Conclusion. An important change in HA-CDI epidemiology was observed in two Canadian tertiary care hospitals based in Montréal between 2003 and 2019. There was a significant decrease in incidence of HA-CDI and a genotype shift from a predominance of NAP1 strains to non-NAP1 strains. Utilization of fluoroquinolones, to which the NAP1 strain is resistant, concurrently decreased. Infection control interventions targeting isolation, diagnosis, disinfection, and antibiotic stewardship have contributed to the major observed reduction in HA-CDI incidence.

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

749. A Nurse-Driven Protocol for Early Detection of Clostridiodes difficile Infections

Shannon Beckman, RN, BSN[1]; Jonathan Chia, DO[1]; Bethany Stibbe, MASCP[1]; Monica Rykse, MPH, CHES[1]; Michael S. Wang, MD[2]; [1]Spectrum Health, Saint Joseph, Michigan; [2]Spectrum Health Lakeland, St Joseph, Michigan

Session: P-36. HAI: C. difficile

Background. *Clostridiodes difficile* infections (CDI) are a significant cause of hospital acquired infections, resulting in significant morbidity and mortality. Early detection of CDI has been shown to reduce the spread of CDI within the hospital. As nurses are frequently at the patient's bedside, we proposed to empower the nursing staff to assess, collect stool samples, and order *C. difficile* testing.

Methods. Rates of CDI were measured by our Infection Control Department. Hospital-onset CDI (HO-CDI) was defined as a positive *C. difficile* PCR assay after 3 days of admission, defined as a stay of at least 3 midnights. Community-onset CDI (CO-CDI) was defined as any case that was diagnosed in the Emergency Department or inpatient ward < 3 days of hospitalization based on stool testing as above. Nursing was instructed and empowered to assess, collect stool specimens, and place an order for *C. difficile* testing, based on the criteria of ≥3 loose or watery stools over 24 hours. Nursing was also educated to not order a test if patients had received stool softeners, enemas, or laxatives within 24 hours. The protocol was initiated in February 2019.

Results. Rates of HO-CDI increased during the intervention period, rising from 2.6 cases/10000 patient days and peaking at 17.7 cases/10000 patient days (average 6.7 vs. 12.1 monthly cases per 10,000 patient days. Rates of CO-CDI did not significantly change (12.4 vs. 11.5 monthly cases per 10000 patient days). Due to concerns of inappropriate testing, which included testing after laxatives, enemas, or sending specimens despite < 3 stools over 24 hours, the protocol was discontinued in June 2019. Although the HO-CDI rate remained elevated over the next month, the rate subsequently decreased over the next several months (12.1 vs. 8.0 cases per 10000 patient days). Overall testing also increased over the study period (148.3 vs. 169.9 cases/per 10000 patient days).

Figure 1 - Clostridiodes difficile rates

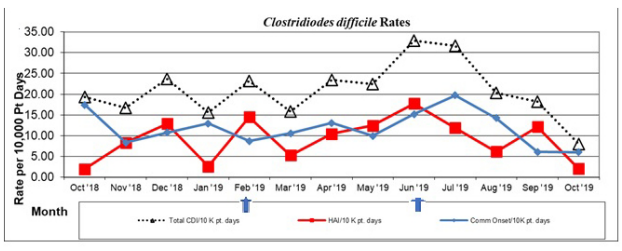
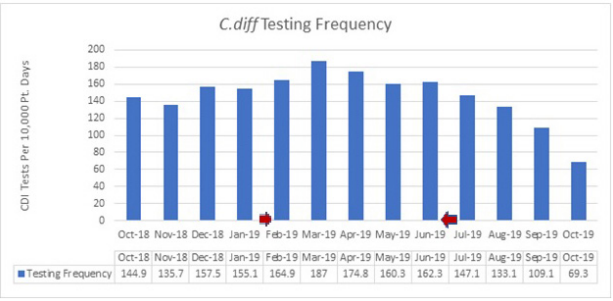


Figure 2 - CDI testing rates



Conclusion. A nursing driven protocol resulted in increased HO-CDI and overall CDI rates suggesting that the intervention may have been a factor in increasing the frequency of HO-CDI diagnoses, although the possibility of misdiagnosis of colonization for true CDI cannot be excluded. Further education of nursing staff may be a potential intervention in improving appropriate CDI testing.

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

750. Retrospective Evaluation of the Three-Step EIA/PCR Algorithm as a Cost-Effective Method for Detection and Treatment of Clostridium Difficile Infection

Bakri Kulla, MD[1]; patrick Haggerty, MD[1]; [1]EVMS, Norfolk, Virginia

Session: P-36. HAI: C. difficile

Background. *Clostridium difficile* infection (CDI) is the primary cause of infectious diarrhea in the United States. With an estimated 453,000-500,000 burden cases that are associated with 15,000-30,000 deaths annually in the United States. Because of its prevalence, there is a projected 3.2-4.8 billion dollar annual cost for inpatient care related to CDI. For these reasons, accurate and timely detection of CDI is crucial to reduce the morbidity, mortality, and medical costs.

Methods. This is a retrospective cohort study. Adult patients, aged 18 through 80 years, admitted between 9/1/2016 and 9/30/2017, who presented with diarrhea and received a CDI algorithm test. To assess bivariate associations between true positive and indeterminate positive groups, categorical variables were compared using Chi-Square or Fisher's exact tests when appropriate, and continuous variables were analyzed using independent samples t-tests.

Results. The study included 1031 stool samples, of which 853 (82.7%) were CDI negative and 178 (17.3%) were CDI positive. Of the full sample, 265 (25.7%) were GDH (+), 94 (9.1%) were toxin (+), and 84 (8.1%) were PCR (+).

In order to examine patient-level variables, the first positive from each patient was included to ensure independence of data points, resulting in 830 unique tests and patients. The true positive rate of this sub-sample was 9.4% (n = 78) and indeterminate positive rate was 8.7% (n = 72).

An important findings of the study is that of the patients who were GDH (+)/toxin (-), 87 (50.9%) were PCR (-) and 84 (49.1%) were PCR (+).

Table 1

Variable	Frequency (%)	GDH (+)/Toxin(+) n= 78 (9.4% of total; 52% of T/I)	GDH (+)/Toxin (-)/PCR (+) n= 72 (8.7% of total; 48% of T/I)	p
Risk factors				
PPI Use				
No	382 (46%)	43 (60.6%)	36 (65.5%)	.573
Yes	290 (34.9%)	28 (39.4%)	19 (34.5%)	
Missing	158 (19%)			
H2RA use				
No	443 (53.4%)	47 (66.2%)	30 (54.5%)	.183
Yes	229 (27.6%)	24 (33.8%)	25 (45.5%)	
Missing	158 (19%)			
Antibiotics use				
No	64 (7.7%)	0 (0%)	0 (0%)	--
Yes	608 (73.3%)	71 (100%)	55 (100%)	
Missing	158 (19%)			
Chemo				
No	657 (79.2%)	59 (96.7%)	55 (93.2%)	.435*
Yes	53 (6.4%)	2 (3.3%)	4 (6.8%)	
Missing	120 (14.5%)			
Steroid				
No	610 (73.5%)	54 (88.5%)	51 (86.4%)	.730
Yes	100 (12%)	7 (11.5%)	8 (13.6%)	
Missing	120 (14.5%)			
Outcome				
Recurrent CDI w/in # Days				
1-30 Days	10 (1.2%)	5 (6.4%)	2 (2.8%)	.445*
31-60 Days	2 (0.2%)	0 (0%)	1 (1.4%)	.480*
61-90 Days	0 (0%)	--	--	
91-180 Days	1 (0.1%)	--	--	
181-365 Days	11 (1.3%)	0 (0%)	4 (5.6%)	.051*
30 Day Mortality				
No	796 (95.9%)	72 (92.3%)	69 (95.8%)	.498*
Yes	34 (4.1%)	6 (7.7%)	3 (4.2%)	
Readmit w/in 30 Days				
No	458 (55.2%)	41 (52.6%)	38 (52.8%)	.979
Yes	372 (44.8%)	37 (47.4%)	34 (47.2%)	

Variable	Frequency (%)	GDH (+)/Toxin(+) n= 78 (9.4% of total; 52% of T/I)	GDH (+)/Toxin (-)/PCR (+) n= 72 (8.7% of total; 48% of T/I)	p
Morbidities and Complications related to CDI				
ICU				
ICU When CDI Pos	167 (20.1%)	17 (54.8%)	18 (69.2%)	.266
ICU After CDI Pos	26 (3.1%)	5 (16.1%)	1 (3.8%)	.205*
ICU Before CDI Pos	95 (11.4%)	9 (29%)	7 (26.9%)	.860
Toxic Mega Colon				
No	825 (99.4%)	76 (97.4%)	70 (97.2%)	1.00*
Yes	5 (0.6%)	2 (2.6%)	2 (2.8%)	
Ileus				
No	781 (94.1%)	69 (88.5%)	68 (94.4%)	.250*
Yes	49 (5.9%)	9 (11.5%)	4 (5.6%)	
Colectomy				
No	753 (90.7%)	73 (93.6%)	65 (90.3%)	.455
Yes	77 (9.3%)	5 (6.4%)	7 (9.7%)	
G-Tube				
No	0 (0%)	0	0	--
Yes	66 (8%)	11 (100%)	7 (100%)	
Blank	764 (92%)			
Level of Care @Admit				
CCU	90 (10.8%)	9 (18%)	7 (22.6%)	.196
Critical Care	9 (1.1%)	1 (2%)	0 (0%)	
Intermediate Care	121 (14.6%)	10 (20%)	11 (35.5%)	
Med Surg	234 (28.2%)	30 (60%)	13 (41.9%)	
Blank	376 (45.3%)			
Medical v. Surgical				
Medical	512 (61.7%)	44 (72.1%)	40 (67.8%)	.604
Surgical	204 (24.6%)	17 (27.9%)	19 (32.2%)	
Blank	114 (13.7%)			
Lab Values				
Creatinine (severe)	330 (39.8%)	39 (52.7%)	27 (44.3%)	.329
Albumin (severe)	305 (36.7%)	38 (59.4%)	24 (46.2%)	.156
WBC (low)	15 (1.8%)	2 (2.7%)	1 (1.6%)	.584*
WBC (>15000)	331 (39.9%)	38 (51.4%)	28 (44.4%)	.420
WBC (>35000)	43 (5.2%)	8 (10.8%)	7 (11.1%)	.955

Variable	Frequency (%)	GDH (+)/Toxin(+) n= 78 (9.4% of total; 52% of T/I)	GDH (+)/Toxin (-)/PCR (+) n= 72 (8.7% of total; 48% of T/I)	p
Gender				
Female	461 (55.5%)	40 (51.3%)	39 (54.2%)	.724
Male	369 (44.5%)	38 (48.7%)	33 (45.8%)	
Age 65+				
No	568 (68.4%)	49 (62.8%)	51 (70.8%)	.298
Yes	262 (31.6%)	29 (37.2%)	21 (29.2%)	
Medical History				
Diabetes Mellitus				
No	623 (75.1%)	51 (65.4%)	58 (80.6%)	**.037**
Yes	207 (24.9%)	27 (34.6%)	14 (19.4%)	
Hypertension				
No	425 (51.2%)	38 (48.7%)	39 (54.2%)	.505
Yes	405 (48.8%)	40 (51.3%)	33 (45.8%)	
ESRD				
No	722 (87.0%)	62 (79.5%)	61 (84.7%)	.404
Yes	108 (13.0%)	16 (20.5%)	11 (15.3%)	
Heart Disease				
No	713 (85.9%)	67 (85.9%)	57 (79.2%)	.276
Yes	117 (14.1%)	11 (14.1%)	15 (20.8%)	
HIV				
No	790 (95.2%)	73 (93.6%)	70 (97.2%)	.445*
Yes	40 (4.8%)	5 (6.4%)	2 (2.8%)	
Solid Organ Transplant				
No	759 (91.4%)	68 (87.2%)	62 (86.1%)	.848
Yes	71 (8.6%)	10 (12.8%)	10 (13.9%)	
Stem Cell Transplant				
No	829 (99.9%)	78 (100%)	72 (100%)	--
Yes	1 (.1%)	0 (0%)	0 (%)	
GI Surgery				
No	777 (93.6%)	67 (85.9%)	68 (94.4%)	.104*
Yes	53 (6.4%)	11 (14.1%)	4 (5.6%)	

Conclusion. The study found that of the patients who are GDH (+) and Toxin (-), the PCR test serves as a proxy for the CDI test. In addition, we demonstrated that whether the patient was true positive by the GDH/Toxin test or indeterminate positive, the outcomes were the same. The only difference was the antibiotic selections for treatment. Performing PCR tests as a part of three-step algorithm prevented nearly half of discrepant patients from being unnecessarily treated with antibiotics and placed on enteric precaution, thereby extending their hospital stay. Finally, by preventing unnecessary antibiotic use, isolation and hospital length of stay, it is proposed that the three-step algorithm effectively reduces hospital cost.

Variable	Frequency (%)	GDH (+)/Toxin(+) n= 78 (9.4% of total; 52% of T/I)	GDH (+)/Toxin (-)/PCR (+) n= 72 (8.7% of total; 48% of T/I)	p
CDI Treatment				
Metro Treatment 1st Episode (Yes)	242 (29.3%)	67 (85.9%)	48 (66.75%)	**.005**
Vanco Treatment 1st Episode (Yes)	421 (50.7%)	59 (75.6%)	39 (54.2%)	**.006**
Fido Treatment 1st Episode (Yes)	18 (2.2%)	12 (15.4%)	5 (6.9%)	.103

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