In this single center, ambidirectional cohort study, patients who received de-escalation of antibiotics, discontinuation of gastric acid suppression, and early CDI testing before 72 hours of admission. The primary outcome was incidence of HO-CDI. Appropriate statistical tests were used to measure significance. We used a time-series change-point analysis to estimate the time before diagnosis in which symptoms of dengue became more prominent. We conducted a bootstrap-based simulation analysis to estimate the duration and frequency of missed diagnostic opportunities.

Results. We identified 4,449 cases of dengue fever that met eligibility criteria. We found that 2,791 (62.7%) had ≥1 healthcare visit(s) prior to diagnosis with characteristic symptoms of dengue recorded. Our simulations analysis supports that 32.9% (95% CI: 31.3–35.0) experienced 1 or more missed opportunities for diagnosis. Among these patients, the average duration of diagnostic delay was 8.26 (CI: 6.32–11.38) days and ~21% of patients had a diagnostic delay of 2 or more weeks. Patients with a delayed diagnosis averaged 2.2 (CI: 1.11–2.29) healthcare visits which represented missed opportunities. Missed opportunities were more likely during the weekend, ED or outpatient visits.

Conclusion. Dengue fever is not considered in the majority of patients at the time of the initial symptomatic evaluation in the US, indicating delays in diagnosis are common. Enhanced education of providers about dengue fever could lead to more prompt diagnosis that should help optimize patient management.

Disclosures. All Authors: No reported disclosures

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745. Evaluation of a Pharmacist-driven Risk Factor Tool for the Prevention of Hospital-onset Clostridium difficile Infection in a Community Hospital Jennifer Weiss, PharmD; Gargi Patel, PharmD; Joseph Cavanaugh, PharmD, BCPS, BCCCP; Community Medical Center, Toms River, New Jersey

Session: P-36. HAI: C difficile

Background. Clostridium difficile infection (CDI) is the most frequently reported nosocomial infection and is the major cause of healthcare and antibiotic associated diarrhea. Guideline recommended preventative strategies include antibiotic stewardship, hand hygiene, barrier precautions, and disinfection of environmental spaces to reduce the risk of hospital onset CDI (HO-CDI); however, there is no standardized scoring method to tactically detect high-risk patients in order to prevent HO-CDI. The objective of this study was to implement a risk stratification procedure for a pharmacist to prospectively identify high-risk patients and make early interventions to prevent the incidence of HO-CDI.

Methods. In this single center, ambidirectional cohort study, patients who acquired HO-CDI from January 2019 to June 2020 were identified and evaluated to determine which modifiable risk factors were most prominent. A pharmacist prospectively screened patients who were admitted from October 2019 to February 2021 using a web-based screening tool to detect high-risk patients based on the previously identified risk factors. An interdisciplinary approach was used to make early interventions for high-risk patients such as discontinuation or de-escalation of antibiotics, discontinuation of gastric acid suppression, and early CDI testing before 72 hours of admission. The primary outcome was incidence of HO-CDI per 10,000 patient days and secondary outcomes were length of hospital stay and duration of non-CDI antibiotic therapy.

Results. The primary outcome of HO-CDI cases per 10,000 patient days occurred at a median rate of 3.95 (IQR: 3.38–6.30) per 10,000 patient days and secondary outcomes were length of hospital stay and secondary outcomes were length of hospital stay and duration of non-CDI antibiotic therapy or length of hospital stay.

Baseline Characteristics

| Characteristic               | Retrospective (n = 67) | Prospective (n = 466) |
|-----------------------------|------------------------|-----------------------|
| Age in years – mean ± SD    | 75.39 ± 11.39          | 80.30 ± 8.18          |
| Age ≥ 65 – n (%)            | 57 (85.1)              | 464 (100)             |
| Comorbidities               |                         |                       |
| Diabetes                    | 58 (86.6)              | 453 (97.2)            |
| Hypertension                | 58 (86.6)              | 331 (71.3)            |
| Renal disease               | 32 (47.8)              | 131 (28.0)            |
| Heart failure               | 21 (31.3)              | 273 (58.6)            |
| Stroke                      | 22 (32.8)              | 127 (27.2)            |
| Intra-abdominal disease     | 14 (21.0)              | 61 (13.1)             |

Conclusion. In patients at high-risk of developing HO-CDI, pharmacist intervention resulted in a reduced rate of HO-CDI cases per 10,000 patient days.

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746. Clinical and Microbiological Characteristics of Clostridioides difficile Infection After a Change in Diagnostic Testing Algorithm Andrew S. Crane, MD; Andrew M. Skinner, MD; Adam Cheknis, B.A.; Stuart Johnson, M.D.; Susan M. Pacheco, M.D.; Loyola University Medical Center, Chicago, Illinois; Edward Hines Jr. VA Hospital, Hines, Illinois; Hines VA Hospital, Hines, Illinois; Loyola University Medical Center and Edward Hines, Jr. VA Hospital, Hines, Illinois

Session: P-36. HAI: C difficile

Background. There is a lack of consensus on the most appropriate testing for C. difficile infection (CDI). The objective of this study was to determine the clinical and microbiological characteristics of CDI following a switch from stool PCR testing only to PCRF reordered to toxin testing.

Methods. We reviewed the characteristics and outcomes of 50 consecutive patients who tested positive for CD by PCR (Xpert CD, Cepheid) between October 2019 and January 2020 at the Hines VA Hospital. Cases were defined by results of reflex toxin testing (Cdiff quick check complete, AlereTechLab) after a positive PCR result. Baseline characteristics, symptoms, initial laboratory data, and treatments were compared as well as patient outcomes, including hospital readmission due to CDI at 30 days, and recurrent CDI (rCDI) at 30 and 90 days. The cycle threshold for the stool PCR result was recorded. Stools were cultured anaerobically for CD, and restriction...
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-in-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 test. (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 stool 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 B1 strain was recovered in 11% of the cases.

Conclusions. 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 B1 strain was uncommon.

Disclosures. Stuart Johnson, MD, Aurox Pharmaceuticals (Advisor or Review Panel member); Bio-K+ (Advisor or Review Panel member); Ferring Pharmaceuticals (Advisor or Review Panel member)

747. Association of Clostridioides difficile Infection Incidence With Renewed Vigor in Infection Prevention Practices With the Onset of the COVID-19 Pandemic
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Session: P-36. HA-CDI. C. difficile

Background. Clostridioides difficile is the leading cause of hospital associated infections. In 2017 it is lead to an estimated 233,900 cases, 12,800 deaths and $1 billion in attributable healthcare costs.1-3 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 the increased 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 NAT and 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 69.3%. 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 not substantial difference 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 assigning the extent to which patient care providers adhered to infection prevention strategies and a change in the testing strategy for C difficile diagnosis during this time.

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748. The Changing Epidemiology of Clostridioides difficile Infection and the NAP1/027 Strain in Two Quebec Hospitals
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Session: P-36. HA-CDI. C difficile

Background. In 2003, many hospitals in Quebec, 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 Montreal 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 Montreal, Quebec. 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 1536 DDDs per 1,000 patient-days. Infection Control interventions included empirically targeting isolation, diagnosis, disinfection, and antibiotic stewardship. These included 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 Montreal 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 contributed to the major observed reduction in HA-CDI incidence.

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749. A Nurse-Driven Protocol for Early Detection of Clostridioides difficile Infections
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Session: P-36. HA-CDI. C difficile

Background. Clostridioides 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 was defined as any CDI diagnosis 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.

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 CD-CDI did not significantly change (12.4 ± 11.5 months 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 - Clostridioides difficile rates

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