Conclusion. Patients receiving chemotherapy for AL remain at risk for IFI despite the use of antifungal prophylaxis. In our study, prophylaxis with posaconazole suspension was found to be an independent risk factor for breakthrough IFI. Mortality was high among patients with breakthrough IFI.

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972. Asymptomatic Carriage of Clostridioides difficile and Risk of Subsequent Infection
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Session: 126. Healthcare Epidemiology: The Poop Pager and Other Novel Perspectives on C. difficile in the Healthcare Setting
Friday, October 5, 2018: 10:30 AM

Background. C. difficile is one of the most common healthcare-associated infections in the United States. Studies of patients with asymptomatic carriage of toxigenic C. difficile have reported conflicting results on the risk of subsequent C. difficile infection (CDI). Older studies suggest that the risk was low and colonization may be protective. Subsequent studies indicate that asymptomatic carriers have a 6-fold greater risk of developing CDI. The aims of our study were to assess the burden of asymptomatic C. difficile carriage and risk of subsequent CDI.

Methods. Adult inpatients at NorthShore University HealthSystem, Illinois hospitals between August 1, 2017 and February 28, 2018 were eligible for the study. Focused admission screening of patients at high risk of C. difficile carriage was performed: (1) history of CDI or colonization, (2) prior hospitalization past 2 months, or (3) a positive C. difficile screening in the long-term care facility. A rectal culture was collected and tested using the cobas Cdiff Test (Roche) real-time PCR. The development of hospital onset CDI (HO-CDI) in colonized patients was monitored prospectively for at least 2 months. HO-CDI testing of colonized patients was performed using the Cephedi Genotype RT-PCR. HO-CDI was defined as patients hospitalized for at least 72 hours with 3 or more episodes of diarrhea/24 hours, in the absence of other potential causes of diarrhea. Patient demographics were collected using a standardized form and data analyzed using VassarStats.

Results. There were 6,104 patients enrolled in the study and 528 (8.7%) were positive on admission for toxigenic C. difficile carriage. The mean age of colonized patients was 75.5 years (range 24–103) and 56.4% (298 patients) were females. Of 528 colonized patients, 21 (4%) had a positive CDI test. A total of 7 patients (1.3%) developed HO-CDI. Mean time to positive CDI was 46.1 days (range 5–120 days). Of 537 patients that were negative for C difficile carriage or colonized, 14 (0.3%) patients developed HO-CDI. The relative risk of HO-CDI was 5.28 (95% CI: 2.14–13.03, P = 0.005).

Conclusion. We found that 8.7% of at-risk admissions were asymptomatic toxigenic C difficile carriers. While only 1.3% developed HO-CDI, asymptomatic carriers had a 5 times higher risk of subsequent CDI compared with non-carriers.

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973. Inter-facility Patient Sharing and Clostridioides difficile Incidence in the Ontario Hospital Network: A 13-Year Longitudinal Cohort Study of 116 Hospitals
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Background. Inter-facility patient movement plays an important role in the dissemination of antimicrobial resistance and C. difficile infection (CDI) throughout healthcare systems. However, the relative performance of different patient sharing metrics for predicting CDI incidence is not known. We compared 3 different measures of inter-facility sharing as they relate to CDI incidence in Ontario facilities.

Methods. A retrospective cohort analysis was used to predict incidence CDI (CDC 10 = A04.7 identified from Discharge Abstract Database records) across Ontario hospitals (N_interhospital = 116) between April 1, 2003 to March 31, 2016. Patients with a stay of <3 days and those with a history of CDI in the prior 90 days were excluded from the risk set but not from patient sharing metrics. Poisson regression models with facility-level random effects were used to predict facility CDI incidence (per 1,000 admissions) and measure the percent change in facility-level variance (PCV). The 3 metrics of inter-facility patient sharing included: (1) ‘importation’—the rate of patients with a discharge from another distinct facility in the prior 90 days, (2) ‘incidence-weighted importation’—equal to importation weighted by the incidence of CDI in the previous facility, and (3) ‘case importation’—importation of patients with a history of CDI.

Results. Over the 13-year period, we observed 58,427 cases of healthcare-associated CDI among 12,750,000 admissions. Facility CDI incidence ranged from 2.9 to 19.6 per 1,000 admissions (6.8-fold range). Patient sharing metrics were strongly related to facility CDI incidence (figure). In models adjusting for facility risk factors, all 3 measures still explained an important portion of inter-facility variation in CDI incidence: importation (PCV = 5%, P = 0.01), incidence-weighted importation (PCV = 15%, P < 0.001), and ‘case importation’ (PCV = 46%, P < 0.001).

Conclusion. We observed a substantial variation in facility CDI incidence that was explained by linkages between acute care facilities, especially linkage to other facilities with a high incidence of CDI. Facility infection prevention staff should consider incorporating the facility CDI incidence into risk stratification assessments of patient transfers.

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974. Impact of Mandatory Infectious Disease (ID) Specialist Approval on Hospital-Onset Clostridioides difficile (HO-CDI) Testing and Infection Rates:
Results of a Pilot Study
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Background. The 2017 IDSA C difficile guidelines recommend the use of nucleic acid amplification testing alone for detection of HO-CDI if appropriate stool specimens are collected (e.g., patients not receiving laxatives and 2 or fewer stools in 24 hours). The potential role of ID specialists in enforcing appropriate C difficile testing is unclear.

Methods. At a single academic hospital, we performed a pilot study of an ID specialist-led approval process for C difficile testing during the baseline period (January 2016 and November 2017). HO-CDI testing appropriateness was enforced using a computerized decision support tool that discouraged inappropriate testing based on detected laxative use and stool frequency criteria; however, clinicians frequently ignored the computer alerts. During the intervention period (December 2017 and March 2018), all HO-CDI testing on hospital day 4 or later triggered a computer alert requesting mandatory testing approval by an ID specialist. Approvals were provided via telephone consultation 7 days a week between 8 a.m. and 5 p.m. (in both periods, CDI testing was not performed overnight). We analyzed differences HO-CDI testing and infection rates (defined by CDC’s LabID event) per 10,000 patient days using Poisson models. We also analyzed the number of approval pager calls, rates of C difficile testing approval, and time burden.

Results. Two infectious diseases specialists (M.Y.L.; J.S.) primarily answered C difficile pager approval requests; the remainder of approvals were provided by ID specialists already consulted on the patients. During the intervention period, ordering providers made 119 calls to the approval pager; 119 (75%) received approval. HO-CDI testing and infection rates declined between the baseline and intervention periods (figure). There was a mean of 1.3 pager approval requests per day (range, 0–4) with an average of 3 minutes of time spent per request.

Impact of Mandatory ID Specialist Testing Approval on HO-CDI Testing and Infection Rates