a rank based on percent of inappropriate tests giving an overall prioritization score for where intervention resources could potentially best be used.

Results. There were 490 C. difficile LabID events; 284 (58%) were HO-CDI; 206 (42%) were inappropriate or delayed testing. Of the 190 with available medical records at time of retrospective review, reasons for not meeting the HO-CDI included laxative use within the previous 48 hours (41%), no clinically significant diarrhea (49.5%), delayed testing (9.5%). See figure. Of 172 patients with inappropriate testing, 159 (92%) were treated for CDI. Medicine and psychiatry ranked first and second on prioritization matrix. See table.

Conclusions. NHSS and NEDSS represent two unique data sources that allow for a more comprehensive assessment of CDIs. The number and type of facility that report to each system is slightly different but there is some overlap. Therefore, this comparison allows for detection of a greater number of reports overall and also provides an opportunity for data validation. This assessment identified discrepancies in reporting among 5 facilities that can be targeted for further collaborative efforts to improve CDI reporting and management in Nebraska.

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1300. Antibiotic Exposure and Risk of Community-associated Clostridium difficile Infection (CA-CDI): A Self-Controlled Case Series Analysis Giulio DiDiodato, MD MPH1, 2; Lawrence Fruchter, MD, 3; Royal Victoria Regional Health Centre, Barrie, ON, Canada, 3; Barrie and Community Family Health Team, Barrie, ON, Canada.

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Background. CA-CDI accounts for up to 50% of all CDIs. Case–control studies (CCS) have been used to estimate the odds ratio (OR) of CA-CDI associated with antibiotic exposure. These ORs demonstrate significant heterogeneity across studies. Unlike CCS, a self-controlled case series (SCCS) design can be used to control for all time-invariant confounders leading to less biased effect estimates.

Methods. Adults (≥18 years) registered (N = 139,670) with the Barrie and Community Family Health Team (BCFHT) were included in the study. Cases were defined as any patient with an incident case of CA-CDI and ≥1 antibiotic prescription occurring between January 1, 2011 and December 31, 2016. The SCCS model was used to estimate the association between antibiotic exposure and CA-CDI. The SCCS model yields estimates of the relative incidence rate of CA-CDI in exposure periods relative to non-exposure periods within a case. Exposure periods were defined as starting two days after any antibiotic prescription and ending 60 days later. Multiple exposure periods and time-varying confounders due to calendar year were included in the final model. The relative incidence rate ratio (IRR) was estimated using conditional Poison regression analysis. Proton pump inhibitor (PPI) use was included as an effect modifier. Antibiotics were divided into high-risk (fluoroquinolone, clindamycin, and cephalosporin) and low-risk exposures. Research ethics approval was obtained from the BCFHT research ethics board.

Results. Among 544 total CDI cases, N = 189 CA-CDI cases met the inclusion criteria. Any antibiotic exposure increases the risk by 2.2-fold, with no difference observed between high and low-risk groups (IRR=1.11, 95% CI 0.53–2.36) (Table 1). Among those exposed, antibiotic exposure increases the risk of CA-CDI, with risk estimates similar to those observed for healthcare-associated-CDI. This, along with the control of all time-invariant confounders by the SCCS method suggests a less biased effect estimate previously reported from CCS.

Table 1

| Variable | 95% Confidence Interval | P-value |
|----------|-------------------------|---------|
| Antibiotic Exposure Group | | |
| None | 0.80 | (0.62–1.03) | 0.09 |
| Low | 1.95 | (0.94–4.24) | 0.09 |
| High | 1.20 | (0.42–3.40) | 0.73 |
| Overall | 2.03 | (1.19–3.47) | 0.009 |
| Low | 2.26 | (1.29–3.96) | 0.005 |

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1301. Predictors of 30-day All-cause Mortality in Veterans with First Recurrence of Clostridium difficile Infection (CDI) Haley Morrill, PharmD1, 2; Maya Beganovic, PharmD, MPH1, 2; Asling Caffrey, PhD, MS1, 2; and Kerry LaPlante, PharmD, FCCP1, 2, 3, 4, College of Pharmacy, University of Rhode Island, Kingston, Rhode Island, 3Rhode Island Infectious Diseases Research Program, Providence Veterans Affairs Medical Center, Providence, Rhode Island, 4Center of Innovation in Long-Term Support Services, Providence Veterans Affairs Medical Center, Providence, Rhode Island, 5Providence Veterans Affairs Medical Center, Providence, Rhode Island, 6Division of Infectious Diseases, Warren Alpert Medical School of Brown University, Providence, Rhode Island

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Background. Recurrent CDI is an important cause of mortality, however few studies have evaluated independent predictors of mortality in patients with recurrent CDI.

Methods. We conducted a case–control study nested in a national cohort of adult veterans with a CDI episode (defined as a positive stool sample for C. difficile toxin(s)) & receipt of ≥2 days of CDI treatment [IV or PO metronidazole, PO or PR vancomycin, or fidaxomycin]) during an inpatient admission or outpatient encounter at a Veterans Affairs facility from 2010–2014. Only patients with a first recurrence were included, defining a subsequent CDI episode within 30 days from the end of treatment of the first CDI occurrence. Cases were those that experienced 30-day all-cause mortality and controls included survivors matched to cases on year of episode, facility, and severity. Multivariable conditional logistic regression was used to identify predictors of mortality. Results. 1,140 cases were included in 1,140 controls (1:1). Five predictors of mortality were identified including concurrent use of any antibiotic (OR 4.61, 95% CI 2.45–8.69), pulmonary heart disease (OR 4.70, 95% CI 1.30–17.06), the use of proton

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pump inhibitors within 7 days prior to CDI treatment (OR 3.59, 95% CI 2.01–6.42), nutrition deficiency (OR 2.62, 95% CI 1.28–5.38) and age (OR 1.04, 95% CI 1.02–1.07).

Conclusion. Increasing age, proton pump inhibitors, previous antibiotic exposure, and underlying comorbidities were important predictors of death among those with first recurrence of CDI. Our data is among the first to investigate predictors of morality in patients with first recurrence, and these data may assist healthcare providers in optimizing patient care.

Disclosures. H. Morrill, The University of Rhode Island: Investigator; Research grant; A. Caffrey, Merck: Grant Investigator, Research grant; The Medicines Company; Grant Investigator, Research grant; Pfizer: Grant Investigator, Research grant; K. LaPlante, Merck: Grant Investigator, Grant recipient; Pfizer: Grant Investigator, Grant recipient; Commpra: Scientific Advisor, Consulting fee; The Medicines Company; Grant Investigator, Grant recipient; Allergan: Scientific Advisor, Consulting fee; Bard/Davol: Scientific Advisor, Consulting fee; Ocean Spray: Grant Investigator and Scientific Advisor, Consulting fee and Grant recipient; Zavanté: Scientific Advisor, Consulting fee; Achaogen: Scientific Advisor, Consulting fee, P = 0.0005) while antimicrobial(s) use (32.6) 30 (32.6) 1127 1127 727 727 71 (97.3) (97.3) 0.8120). Results. The incubation period of C. difficile infection (CDI) is highly variable. Infections may be diagnosed weeks after initial acquisition of bacterial spores. Such cases of CDI have onset in the community after a recent hospitalization, or upon readmission, and are characterized as community-onset nosocomial healthcare-associated (CO-HCFA) by current surveillance methods.

Aim: With the application of multi-locus sequence typing (MLST), our study seeks to characterize genetic concordance between CO-HCFA cases and prior unit-based contacts (donors) sharing the same strain type (ST).

Methods. For all laboratory-identified cases of CDI from January 1, 2015, through December 31, 2016, patients with CDI onset within 8 weeks of hospital discharge were included in the study. Infection control database was queried to identify putative donors using the following criteria: previous unit occupants with CDI who had discharged from the same unit less than 4 weeks, 4-8 weeks, and 8-12 weeks before admission of CO-HCFA cases. Intensity of exposure was further characterized by same room or same unit occupancy. Analysis was restricted to endemic strains at our institution (ST 1, 2, 3, 8, 11 and 42).

Results. During the two year period, 1330 cases were diagnosed with a new CDI episode, 425 community-onset (32%), 440 hospital-onset (33%) and 465 CO-HCFA (35%) cases. Among the 314 unique CO-HCFA patients due to endemic CDI episode, 425 community-onset (32%), 440 hospital-onset (33%) and 465 CO-HCFA (35%) cases. The proportion of concordant same unit occupants did not differ by time between cases (P = 0.8120).

Conclusion. CO-HCFA cases account for a third of all new cases of CDI. Genotypic concordance as potential donors was observed among 8% of all indirect unit based CDI contacts of CO-HCFA cases. This association did not vary significantly as the interval between potential exposure and CDI onset in CO-HCFA cases increased.

1303. Association of Acid Suppression and Antimicrobial Use with Clostridium difficile Infection in Children

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Background. Clostridium difficile infections (CDIs) can cause severe diarrhea and be potentially life-threatening, especially in children. Possible risk factors include age, being immunocompromised, prior antibiotic exposure, the use of anti-mitotics, and diseases that alter intestinal microbiota. Data in adults are vast while limited data is available in children. The objectives of this study are to identify pediatric risk factors and determine if an association between acid suppression and CDI in children exists.

Methods. A retrospective study was conducted between November 1, 2013 and October 31, 2016 at Arkansas Children’s Hospital. Children ages 1 – 18 years with a positive C. difficile PCR test and ≥3 loose stools documented were included. Cases were excluded if previous positive PCR was within 60 days. Data collection included age, sex, encounter type (inpatient or outpatient), acid suppressing agents, previous antimicrobials within last 90 days and comorbidities including transplant, chronic pulmonary, hematologic/oncology, and GI tract diseases. Statistical methods included descriptive analyses, χ² test, and Kruskal-Wallis test.

Results. A total of 139 cases of CDI among 123 patients were evaluated. Of these cases, the median (IQR) age was 8 years (3–13) with 77 (55.4%) being male and 86 (61.9%) of CDI cases identified inpatient of which 75 came from outpa-tient. Pediatric risk factors identified in C. difficile cases included exposure to acid suppressing agents [61 (43.9%)] and antimicrobials [98 (70.5%)] with 90 (64.7%) having ≥1 comorbidities. Cases having ≥1 comorbidities were found to be asso-ciated with previous antacid exposure (P < 0.0005) while antimicrobial(s) use was associated with CDI hospitalization (P = 0.001). Similarly, exposure to either antacid suppression or antimicrobials or both with comorbidities were found to have a significant association (P < 0.0005) and associated with CDI hospitaliza-tion (P = 0.001).

Conclusion. Exposure to acid suppression in patients with comorbidities was associated with increased risk of CDI. Antimicrobial usage was associated with increased risk for hospitalization due to CDI. As pediatric outpatient antimicrobial stewardship evolves, improving CDI rates can center on improving antimicrobial and acid suppressive agents usage.

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1304. Association Between Hospital-Onset Clostridium difficile infection and Admission to a Multi-Bed Room: A Case–control Study

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Background. Few studies have directly examined the link between assignment to a multi-bed vs. single-bed room and the risk for hospital onset C. difficile infection (HO-CDI). Therefore, in this case–control study, we investigated whether assignment to a single-bed room reduced the risk of HO-CDI in adult inpatients on medical/surgical floors.

Methods. Consecutive cases of HO-CDI, defined as adult patients admitted to San Francisco General Hospital with a new positive C. difficile stool test >2 hours after admission, were identified for the period between January 1, 2010 to December 31, 2015. Patients who first tested positive for C. difficile in the ICU or who had a history of CDI within the last 12 months were excluded. Controls were selected from the general medical/surgical inpatient population using incidence density sampling and matched to cases on the basis of admission unit and length of admission. A multi-bed room was defined as any room with one or more roommates. A multivariate cox proportional hazard model was used to estimate the relationship between room assignment (single vs. multi-bed) and development of HO-CDI. Variables included in the model, on the basis of a directed acyclic graph, were length of admission, HIV infection, and age.

Results. 184 cases and 373 controls were identified during the study period. The median ages of cases and controls were 60 years and 56 years, and mean Charlson comorbidity scores were 3.8 and 3.7, respectively. The hazard ratio for the development HO-CDI associated with multi-bed room exposure was 2.32 (P = 0.03) with a 95% CI of the hazard ratio of 1.05 to 5.17.

Conclusion. In this study, assignment of patients to multi-bed rooms on general medical and surgical wards was associated with an increased risk for hospitalization of HO-CDI. This finding, especially if confirmed in other institutions, could have implications for patient room assignment and hospital design.

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