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1299. An Assessment of 2016 National Healthcare Safety Network (NHSN) and National Electronic Disease Surveillance System (NEDSS) C. difficile Infections (CDI) in Nebraska

Cotlin Pedani, MD, MPH1; Madison Sullivan, BA2; Margaret Drake, MT, ASCP3; CRC4; Alison Keyser, MPH4; Tom Safrank, MD5; and Maureen Tierney, MD, MSc6;

1Epidemiology Unit, Nebraska Department of Health and Human Services, Lincoln, NE, 2Centers for Disease Control and Prevention, Atlanta, GA, 3Division of Epidemiology, Nebraska Department of Public Health, Lincoln, Nebraska, 4Nebraska Department of Health and Human Services, Lincoln, Nebraska, 5Nebraska Health and Human Services System, Lincoln, Nebraska

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Background. In 2016 all acute care hospitals, inpatient rehabilitation facilities, and PPS-exempt cancer facilities in Nebraska were required to report laboratory identified (LabID) C. difficile infections (CDIs) to the National Healthcare Safety Network (NHSN). Test results indicating CDI must be reported to the Nebraska Department of Health and Human Services (NDHHS) via the National Electronic Disease Surveillance System (NEDSS). NHSN and NEDSS represent unique sources of CDI reports in Nebraska.

Methods. The NHSN Nebraska database was queried for CDIs reported in 2016. All lab tests indicating a CDI in 2016 were extracted from NEDSS. These extracts were analyzed to assess descriptive epidemiologic variables and compared for differences.

Results. In 2016 there were 1,546 CDI LabID events reported to NHSN Nebraska from 28 facilities. There were 249 outpatient CDIs and 1,297 inpatient CDIs. Infections were further characterized as community-onset (N = 773), community-onset, health-care facility associated (N = 206), and hospital onset (N = 587). An average of 128 CDIs were reported per month (range: 111–155). In 2016 there were 2,177 lab results indicating a CDI reported to NEDSS among Nebraska residents from 42 facilities. Patient ages ranged from 4 months to 104 years (mean = 58 years). An average of 181 CDIs were reported per month (range: 151–218).

Conclusion. Nearly half of C. difficile LabID events were not true HO CDI, but inappropriate or delayed tests. Prioritization matrix identified medicine and psychiatry as areas where diagnostic stewardship interventions could affect most on facility C. difficile LabID.

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1300. Antibiotic Exposure and Risk of Community-associated C. difficile Infection (CA-CDI): A Self-Controlled Case Series Analysis

Giulio DiDiodato, MD MPH1; and Lauren Frutch, MD, MD2; Royal Victoria Regional Health Centre, Barrie, ON, Canada, 2Barrie 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 (CCSs) 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 exposure 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 poisson 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 groups. 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)).

Antibiotic exposure increases the risk of CA-CDI, with IRR 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 | IRR (95% CI) |
|----------|-------------|
| Antibiotic Exposure Group | P-value |
| None | Yes | 0.80 (0.62–1.03) | 0.09 |
| Low risk | Yes | 1.95 (0.94–4.24) | 0.09 |
| High risk | Yes | 1.20 (0.42–3.40) | 0.73 |
| Overall | | 2.03 (1.19–3.47) | 0.009 |
| High risk | | 2.26 (1.29–3.90) | 0.005 |

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1301. Predictors of 30-day All-cause Mortality in Veterans with First Recurrence of C. difficile Infection (CDI)

Haley Morrill, PharmD1, 2, 3; Maya Beganan, PharmD, MPH1, 4; Aisling Caffrey, PharmD, MS1, 4; and Kerry LaPlante, PharmD, FCCP1, 2, 3; College of Pharmacy, University of Rhode Island, Kingston, Rhode Island, 1Rhode Island Infectious Diseases Research Program, Providence Veterans Affairs Medical Center, Providence, Rhode Island, 2Center of Innovation in Long-Term Support Services, Providence Veterans Affairs Medical Center, Providence, Rhode Island, 3Providence Veterans Affairs Medical Center, Providence, Rhode Island, 4Division 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 recurrent 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 matched to 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