December 2018, trained abstractors at 46 Michigan hospitals collected detailed data on a sample of adult, non–intensive care, hospitalized patients with bacteriuria (positive urine culture with or without symptoms) or treated for community-acquired pneumonia (CAP; includes those with the disease formerly known as healthcare-associated pneumonia [HCAP]). Antibiotic prescriptions at discharge were assessed for antibiotic overuse using a previously described, guideline-based hierarchical algorithm.[3] Here, we report the proportion of patients discharged with antibiotic overuse by the hospital. We also assessed hospital-level correlation (using Pearson's correlation coefficient) between antibiotic overuse at discharge for patients with bacteriuria and patients treated for CAP. Finally, we assessed the association of antibiotic overuse at discharge with patient outcomes (mortality, readmission, emergency department visit, and antibiotic-associated adverse events) at 30 days using logit generalized estimating equations adjusted for patient characteristics and probability of treatment. **Results:** Of 17,081 patients (7,207 with bacteriuria; 9,874 treated for pneumonia), nearly half (42.2%) had antibiotic overuse at discharge (36.3% bacteriuria and 51.1% pneumonia). The percentage of patients discharged with antibiotic overuse varied 5-fold among hospitals from 14.7% (95% CI, 8.0%–25.3%) to 74.3% (95% CI, 64.2%–83.8%). Hospital rates of antibiotic overuse at discharge were strongly correlated between bacteriuria and CAP (Pearson's correlation coefficient, 0.76; $P \leq .001$) (Fig. 1). In adjusted analyses, antibiotic overuse at discharge was not associated with death, readmission, emergency department visit, or *Clostridioides difficile* infection. However, each day of overuse was associated with a 5% increase in the odds of patient-reported antibiotic-associated adverse events after discharge (Fig. 2). **Conclusions:** Antibiotic overuse at discharge was common, varied widely between hospitals, and was associated with patient harm. Furthermore, antibiotic overuse at discharge was strongly correlated between 2 disparate diseases, suggesting that prescribing culture or discharge processes—rather than disease-specific factors—contribute to overprescribing at discharge. Thus, discharge stewardship may be needed to target multiple diseases.

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Presentation Type:
Poster Presentation

Antimicrobial Bacteria and Viruses Detected Through Systematic Sampling in the Childcare Environment

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Background: Approximately two-thirds of children aged <5 years receive out-of-home child care. Childcare attendees have an increased risk of infections compared to children not in childcare settings, possibly due to their close contact in a shared environment. As multidrug-resistant organisms (MDROs) increasingly move from healthcare-associated to community settings, childcare can provide a venue for further transmission of these pathogens. Our objective was to evaluate the bioburden of pathogens present on fomites in childcare centers and how surface contamination changes over time. **Methods:** The study was conducted in the single-room play area of an Ypsilanti, Michigan, childcare center caring for children aged 3–5 years. Polyester swabs were used to collect surface samples from 16 locations in the room, including (1) laminate, wood and plastic tabletops and furniture; (2) a stainless steel sink and adjacent plastic trash bin; and (3) wood, metal and plastic toys. A water sample was also collected at a 17th site. Samples were collected twice weekly for 5 of 6 weeks, followed by 1 additional collection (September–October 2019). Tryptic soy agar was used for standard plate counts and selective media were used to identify methicillin-resistant *Staphylococcus aureus* (MRSA), Vvancomycin-resistant *Enterococcus* (VRE), and extended-spectrum β-lactamase (ESBL)–producing *Enterobacteriaceae*. Singleplex RT-PCR was used to detect norovirus and adenovirus. **Results:** Among 175 samples collected on 11 days, MRSA and ESBL-producing *Enterobacteriaceae* were detected from 10.3% (18 of 175) and 8.0% (14 of 175), respectively, of environmental specimens. No specimens were positive for VRE or norovirus. Adenovirus was detected in 20 of 175 specimens (11.4%). Median bioburden by site ranged from 85 CFU/mL to 2,510 CFU/mL. The highest median bioburden was observed at the sink (2,510 CFU/mL), followed by the plastic building block table (1,620 CFU/mL), the small wood blocks (1,565 CFU/mL) and water from a water play area and an adjacent tabletop (1,260 and 1,100 CFU/mL respectively). The highest single day bioburden was 273,000 CFU/mL at the sink. **Conclusion:** The presence of MDROs on childcare center fomites raised concern for exposure to these pathogens among vulnerable populations. More study is needed to determine the degree to which these contaminated fomites drive transmission between children. We found the highest bioburdens on sites where children played or washed with water, identifying potential targets for more frequent cleaning.

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Are Patients Preferentially Receiving Oral Vancomycin for *Clostridioides difficile* Infection in 2018? A Population Perspective

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Background: Historically, metronidazole was first-line therapy for *Clostridioides difficile* infection (CDI). In February 2018, the Infectious Diseases Society of America (IDSA) and Society for

Healthcare Epidemiology of America (SHEA) updated clinical practice guidelines for CDI. The new guidelines recommend oral vancomycin or fidaxomicin for treatment of initial episode of CDI in adults. We examined the changes in treatment of CDI during 2018 across all types of healthcare settings in metropolitan Atlanta. **Methods:** Cases were identified through the Georgia Emerging Infections program (funded by the Centers for Disease Control and Prevention), which conducts active population-based surveillance in an 8-county area including Atlanta, Georgia (population, 4,126,399). An incident case was a resident of the catchment area with a positive *C. difficile* toxin test and no additional positive test in the previous 8 weeks. Recurrent CDI was defined as >1 incident CDI episode in 1 year. Clinical and treatment data were abstracted on a random 33% sample of adult (>17 years) cases. Definitive treatment categories were defined as the single antibiotic agent, metronidazole or vancomycin, used to complete a course. We examined the effect of time of infection, location of treatment, and number of CDI episodes on the use of metronidazole only. **Results:** We analyzed treatment information for 831 adult sampled cases. Overall, cases were treated at 29 hospitals (568 cases), 4 nursing homes (6 cases), and 101 outpatient providers (257 cases). The mean age was 60 (IQR, 34–86), and 111 (13.4%) had recurrent infection. Moreover, ~28% of first-incident CDI episodes, 8% of second episodes, and 6% of third episodes were treated with metronidazole only. Compared to facility-based providers, outpatient providers were more likely to treat initial CDI episodes with metronidazole only (44% vs 21%; relative risk [RR], 2.1; 95% CI, 1.7–2.7). Treatment changed over time from 56% metronidazole only in January to 10% in December (Fig. 1). First-incident cases in the first quarter of 2018 were more likely to be treated with metronidazole only compared to those in the fourth quarter (RR, 2.76; 95% CI, 1.91–3.97). **Conclusions:** Preferential use of vancomycin for initial CDI episodes increased throughout 2018 but remained <100%. CDI episodes treated in the outpatient setting and nonrecurrent episodes were more likely to be treated with metronidazole only. Additional studies on persistent barriers to prescribing oral vancomycin, such as cost, are warranted.

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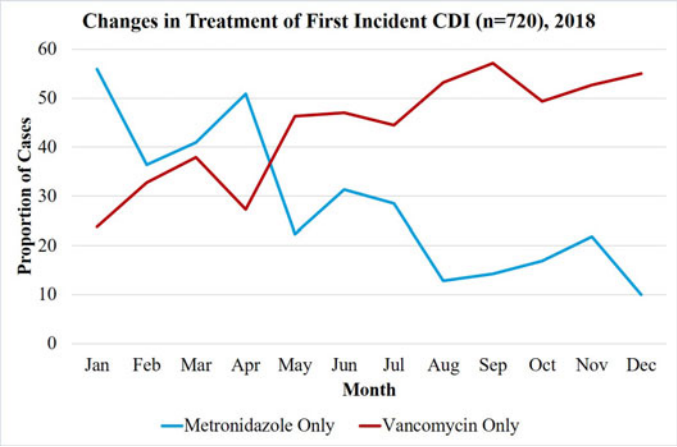

Fig. 1

Presentation Type:
Poster Presentation

Carbapenem-Resistant *Acinetobacter baumannii* Incidence Trends Identified Through the Emerging Infections Program, 2012–2018

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Background: Carbapenem-resistant *Acinetobacter baumannii* (CRAB) is a serious threat to patient safety due to limited treatment options and propensity to spread in healthcare settings. Using Emerging Infections Program (EIP) data, we describe changes in CRAB incidence and epidemiology. **Methods:** During January 2012 to December 2018, 9 sites (Colorado, Connecticut, Georgia, Maryland, Minnesota, New Mexico, New York, Oregon, and Tennessee) participated in active laboratory- and population-based surveillance. An incident case was defined as the first isolation of *A. baumannii* complex, in a 30-day period, resistant to ≥1 carbapenem (excluding ertapenem) from a normally sterile site or urine of a surveillance area resident. Cases were considered hospital-onset (HO) if the culture was collected >3 days after hospital admission; all others were community-onset (CO). Cases were classified as device-associated (DA) if the patient had 1 or more medical devices (ie, urinary catheter, central venous catheter (CVC), endotracheal/nasotracheal tube, tracheostomy, or another indwelling device) present in the 2 days prior to culture collection. Temporal trends were estimated using generalized linear models adjusted for age, race, sex, and EIP site. **Results:** Overall, 984 incident CRAB cases were identified, representing 849 patients. Among these patients, 291 (34%) were women, 510 (61%) were nonwhite, and the median age was 62 years (mean, 59; range, 0–102). Among the cases, 226 (23%) were HO; 758 (77%) were CO; and 793 (81%) were DA. Overall incidence rates in 2012 and 2018 were 1.58 (95% CI, 1.29–1.90) and 0.60 (95% CI, 0.40–0.67) per 100,000 population, respectively. There was a 15% annual decrease in incidence (adjusted rate ratio [aRR] 0.85; 95% CI: 0.82-0.88, $P < .0001$). Decreases were observed among sterile site (aRR 0.88; 95% CI, 0.84–0.93) and urine cases (aRR 0.83; 95% CI, 0.80–0.87). Annual decreases occurred for HO cases (aRR, 0.78; 95% CI, 0.73–0.85) and CO cases (aRR, 0.86; 95% CI, 0.83–0.9). The DA cases decreased 16% annually overall (aRR, 0.84; 95%