infection control practices and extensive colonization screening to identify asymptomatic case-patients. Multiple species with NDM-5 were identified, highlighting the potential role of genotype-based surveillance.

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of Michigan Medical School; David Ratz, University of Michigan; Elizabeth McLaughlin, University of Michigan; Scott A. Flanders, University of Michigan Medical School

Background: Nearly half of hospitalized patients with bacteriuria or treated for pneumonia receive unnecessary antibiotics (noninfectious or nonbacterial syndrome such as asymptomatic bacteriuria), excess duration (antibiotics prescribed for longer than necessary), or avoidable fluoroquinolones (safer alternative available) at hospital discharge.\textsuperscript{1-3} However, whether antibiotic overuse at discharge varies between hospitals or is associated with patient outcomes remains unknown. Methods: From July 2017 to

Figure 1. Antibiotic Overuse at Discharge in Patients with Bacteriuria vs. Patients Treated for Pneumonia, N=16,855 patients, 44 hospitals

Figure 2: Association of Antibiotic Overuse at Discharge with 30-Day Adverse Outcomes

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Antibiotic Overuse (n = 7662), n (%)\textsuperscript{f}</th>
<th>No Antibiotic Overuse (n = 9419), n (%)</th>
<th>Unadjusted OR per Day of Antibiotic Overuse (95% CI)\textsuperscript{g}</th>
<th>Unadjusted P Value</th>
<th>Adjusted OR per Day of Antibiotic Overuse (95% CI) \textsuperscript{h}</th>
<th>Adjusted P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>149 (1.9)</td>
<td>384 (4.1)</td>
<td>0.87 (0.84–0.91)</td>
<td>&lt;.0001</td>
<td>0.97 (0.86–1.10)</td>
<td>0.62</td>
</tr>
<tr>
<td>Readmission</td>
<td>926 (12.1)</td>
<td>1526 (16.2)</td>
<td>0.95 (0.93–0.98)</td>
<td>&lt;.0001</td>
<td>0.98 (0.94–1.02)</td>
<td>0.37</td>
</tr>
<tr>
<td>Emergency department visit</td>
<td>888 (11.6)</td>
<td>1184 (12.6)</td>
<td>0.99 (0.97–1.01)</td>
<td>0.40</td>
<td>0.98 (0.95–1.02)</td>
<td>0.37</td>
</tr>
<tr>
<td>Antibiotic-associated adverse event</td>
<td>268 (3.5)</td>
<td>298 (3.2)</td>
<td>1.01 (0.99–1.03)</td>
<td>0.24</td>
<td>1.02 (0.99–1.04)</td>
<td>0.21</td>
</tr>
<tr>
<td>Clostridioides difficile infection</td>
<td>30 (0.4)</td>
<td>60 (0.6)</td>
<td>0.93 (0.84–1.04)</td>
<td>0.22</td>
<td>0.98 (0.86–1.12)</td>
<td>0.80</td>
</tr>
<tr>
<td>Provider-documented</td>
<td>131 (1.7)</td>
<td>181 (1.9)</td>
<td>0.98 (0.94–1.03)</td>
<td>0.38</td>
<td>0.98 (0.94–1.03)</td>
<td>0.42</td>
</tr>
<tr>
<td>Patient-reported\textsuperscript{§§}</td>
<td>134/3875 (3.5)</td>
<td>83/4290 (1.9)</td>
<td>1.05 (1.02–1.08)</td>
<td>0.0003</td>
<td>1.05 (1.02–1.07)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Composite adverse outcome</td>
<td>1843 (24.1)</td>
<td>2687 (28.5)</td>
<td>0.97 (0.96–0.99)</td>
<td>0.0002</td>
<td>0.98 (0.95–1.01)</td>
<td>0.18</td>
</tr>
</tbody>
</table>

OR = odds ratio.

Outcomes, collected via the medical record and a follow-up telephone call at 30 days, and their associations with days of antibiotic overuse at discharge are shown. Outcomes were adjusted for hospital clustering, inverse probability of treatment weighted, and were adjusted for known predictors of the outcome of interest. For mortality, readmission, emergency department visit, and “composite adverse outcome,” we controlled for diagnosis, age, gender, sepsis on admission, nursing home utilization prior to hospitalization, Charlson comorbidity index, Medicaid insurance, race, and length of stay. For Clostridioides difficile infection, we controlled for age, antibiotic use prior to admission, obesity, inflammatory bowel disease, receipt of chemotherapy, presence of gastric tube, proton-pump inhibitor use, and length of stay. For antibiotic-associated adverse-drug events (patient, physician reported) we controlled for age, Charlson comorbidity index, and gender. For overall antibiotic-associated adverse-drug events we controlled for age, history of antibiotic use, obesity, inflammatory bowel disease, receipt of chemotherapy, gastric tube, proton-pump inhibitor use, length of stay, Charlson comorbidity index, and gender.

\textsuperscript{§§} Proportions shown are among patients who were able to be reached by telephone. Of those who were eligible for a telephone call, 57% (8165/14,315) of patients were reached (56% [4220/7688] with no antibiotic overuse at discharge vs. 58% [3875/6627] with antibiotic overuse at discharge; P = 0.001).

Patients were considered to have had an antibiotic-associated adverse event if they answered “yes” to the question “Have you had any side effects from your prescribed antibiotic?” during their 30-day post-discharge call.
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. 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 < .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 over-prescribing at discharge. Thus, discharge stewardship may be needed to target multiple diseases.

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Disclosures: Valerie M. Vaughn reports contracted research for Blue Cross and Blue Shield of Michigan, the Department of VA, the NIH, the SHEA, and the APIC. She also reports receipt of funds from the Gordon and Betty Moore Foundation Speaker’s Bureau, the CDC, the Pew Research Trust, Sepsis Alliance, and the Hospital and Health System Association of Pennsylvania.

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Presentation Type: Poster Presentation

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

Khalil Chedid, University of Michigan School of Public Health; Michael Hayashi, University of Michigan School of Public Health; Peter DeJonge, University of Michigan School of Public Health; Olivia Yancey, University of Michigan School of Public Health; Elianne Siebert, University of Michigan School of Public Health; Amy Getz, University of Michigan School of Public Health; Joseph Eisenberg, University of Michigan School of Public Health; Andrew Hashikawa, University of Michigan, Department of Emergency Medicine; Emily Martin, University of Michigan School of Public Health

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), Vancomycin-resistant Enterococcus (VRE), and extended-spectrum β-lactamase (ESBL)-producing Enterobacteriaceae. Single-plex 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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Presentation Type: Poster Presentation

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

Dana Goodenough, Georgia Emerging Infections Program/Foundation for Atlanta Veterans’ Education and Research/Atlanta VA Medical Center; Carolyn Mackey, Georgia Emerging Infections Program/Foundation for Atlanta Veterans’ Education and Research/Atlanta VA Medical Center; Michael Woodworth, Division of Infectious Diseases, Department of Medicine, Emory University, Atlanta, GA; Max Adelman, Emory University; Scott Fridkin, Emory Healthcare and Emory University

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