and public health need. Patients may have multiple isolates. The 7 AR Lab Network regional laboratories used matrix-assisted laser desorption ionization-time of flight (MALDI-TOF) or DNA sequencing for species identification. AFST was performed using broth microdilution for azoles and echinocandins (anidulafungin and micafungin) and Etest for amphotericin B. This analysis focuses on non-*albicans Candida* species with Clinical and Laboratory Standards Institute M60 minimum inhibitory concentration breakpoints and *C. auris*, which has CDC-proposed tentative breakpoints.

Results: Participation increased from healthcare facilities from 2 states submitting in 2016 to 35 states in 2019. Species identification was performed on 5,234 non-*albicans* isolates. AFST was performed on 4,222 (81%) isolates, including 2,395 *C. glabrata*, 815 *C. auris*, 267 *C. parapsilosis*, 125 *C. tropicalis*, 35 *C. guilliermondii*, and 32 *C. krusei*. Of isolates with AFST and body site indicated, 22% (900/4,102) were from blood. We found 85% of *C. auris*, 8% of *C. glabrata*, and 5% of *C. parapsilosis* isolates were resistant to azoles; 33% of *C. auris* isolates were resistant to amphotericin B; and 2% of *C. glabrata*, 1% of *C. auris*, and 1% of *C. parapsilosis* isolates were resistant to echinocandins. Although intrinsically resistant to fluconazole, *C. krusei* isolates were not resistant to voriconazole. Multidrug resistance was present in 32% of *C. auris* and 1% of *C. glabrata* isolates.

Conclusion: AR Lab Network has expanded access to rapid *Candida* testing, including AFST, and provides real-time surveillance. Results can be used to detect emerging species and resistance and guide public health action and healthcare practices.

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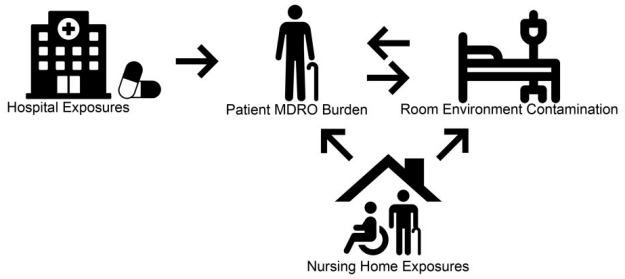
156. How Does Exposure to C. Diffogenic Antibiotics Impact Multidrug-resistant Organism Colonization and Environment Contamination in Nursing Homes?

Kyle J. Gontjes, MPH[1]; Kristen Gibson, MPH[2]; Bonnie Lansing, LPN[2]; Julia Mantey, MPH, MUP[2]; Karen Jones, MPH, RN, CIC[2]; Marco Cassone, MD, PhD[2]; Joyce Wang, PHD[2]; John Mills, MD[2]; Lona Mody, MD, MS[2]; Payal K. Patel, MD, MPH[2]; [1]University of Michigan Medical School, Ann Arbor, Michigan; [2]University of Michigan, Ann Arbor, Michigan

Session: O-30. MDRO Epidemiology and Transmission

Background: Antimicrobial stewardship program (ASP) outcomes are often measured in the acute care setting, less is known about the effect of acute care antibiotic exposures on multidrug-resistant organism (MDROs) colonization of nursing home (NH) patients. We assessed exposure to antibiotics commonly associated with *Clostridioides difficile* (C. diffogenic agents) on post-acute care patient colonization and room environment contamination (Figure 1).

Figure 1. Conceptual Diagram of Hospital Antibiotic Exposure's Influence on Patient Colonization and Room Environment Contamination with Multidrug-Resistant Organisms



Methods: MDRO surveillance of post-acute care patients in 6 NHs between 2013–16. We screened patient hands, nares, oropharynx, groin, perianal area, and high-touch room environment surfaces for methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and resistant Gram-negative bacilli (rGNB). C. diffogenic agents were defined as fluoroquinolones, 3rd/4th generation cephalosporins, penicillin combinations, lincosamides, and carbapenems. Multivariable logistic regression was used to assess whether hospital antibiotic exposure is an independent risk factor for MDRO colonization and room environment contamination on study enrollment.

Results: We enrolled 618 patients: average age was 74.4 years; 57.4% female; 62.3% white; 9.9% had indwelling devices (Table 1). Three hundred-fifty patients (56.6%) were MDRO colonized on enrollment: 98 (15.9%), MRSA; 208 (33.7%); VRE; 196 (31.7%), rGNB. Sixty-eight percent of patient rooms were MDRO contaminated: 166 (26.9%), MRSA; 293, (47.4%). VRE; 182 (29.5%), rGNB.

A majority (59.4%) of patients were exposed to an antibiotic before admission. Of which, 239 (65.1%) were exposed to a C. diffogenic antibiotic. In multivariable analysis, C. diffogenic antibiotic exposure was an independent risk factor for MDRO colonization (OR, 1.94; 95% CI, 1.35–2.79), MDRO room environment contamination (OR, 1.94; 95% CI, 1.43–2.63), VRE colonization (OR, 4.23; 95% CI, 2.59–6.90), and VRE room environment contamination (OR, 2.58; 95% CI, 2.00–3.33).

Table 1. Clinical Characteristics and MDRO Burden on Study Enrollment, Stratified by Hospital Antibiotic Exposure Status

Characteristic	All Patients (N=618)	No Antibiotic Exposure History (N=251)[1]	Low-Risk Antibiotic Exposure History (N=128)[1]	High-Risk Antibiotic Exposure History (N=239)[1]
Patient Characteristics				
Age, y, mean (SD)	74.4 (12.1)	74.5 (12.8)	73.9 (11.2)	74.5 (11.9)
Male Sex, No. (%)	263 (42.6)	104 (41.4)	61 (47.7)	98 (41.0)
Non-Hispanic White, No. (%)	385 (62.3)	135 (53.8)	91 (71.1)	159 (66.5)
Charlson Comorbidity Score, mean (SD)	2.6 (2.1)	2.6 (2.1)	2.3 (2.0)	2.7 (2.1)
Physical Self-Maintenance Score, mean (SD)	14.3 (4.5)	14.1 (4.2)	13.6 (4.4)	14.9 (4.8)
Indwelling Device Use, No. (%)[2]	61 (9.9)	15 (6.0)	13 (10.2)	33 (13.8)
Hospital Stay > 2 weeks, No. (%)	60 (9.7)	12 (4.8)	12 (9.4)	36 (15.1)
NH Days to Enrollment, mean (SD)	5.6 (3.0)	5.7 (3.1)	5.0 (2.9)	5.7 (2.9)
Proximal Outcome: Patient Colonization				
Any MDRO Colonization, No. (%)	350 (56.6)	119 (47.4)	71 (55.5)	160 (67.0)
MRSA, No. (%)	98 (15.9)	42 (16.7)	15 (11.7)	41 (17.2)
VRE, No. (%)	208 (33.7)	46 (18.3)	44 (34.4)	118 (49.4)
rGNB, No. (%)	196 (31.7)	71 (28.3)	40 (31.3)	85 (35.6)
Distal Outcome: Room Environment Contamination				
Any MDRO Contamination, No. (%)	418 (67.6)	150 (59.8)	87 (68.0)	181 (75.7)
MRSA, No. (%)	166 (26.9)	63 (25.1)	32 (25.0)	71 (29.7)
VRE, No. (%)	293 (47.4)	87 (34.7)	66 (51.6)	140 (58.6)
rGNB, No. (%)	182 (29.5)	77 (30.7)	32 (25.0)	73 (30.5)

[1] High-risk antibiotic exposure was defined as exposure to one or more of the following antibiotics that predispose patients to a high-risk of *Clostridioides difficile* infection prior to admission to the nursing facility: fluoroquinolones, 3rd/4th generation cephalosporins, penicillin combinations, lincosamides, and carbapenems. Patients without a high-risk antibiotic exposure, but with exposure to other antibiotics were classified as having a low-risk antibiotic exposure history.

[2] Indwelling device use was defined as the presence of a feeding tube or indwelling urinary catheter on study enrollment.

Notes: MDRO, multidrug-resistant organism; MRSA, methicillin-resistant *Staphylococcus aureus*; NH, nursing home; rGNB, resistant Gram-negative bacilli; SD, standard deviation; VRE, vancomycin-resistant enterococci.

Multivariable Analysis of Hospital Antibiotic Exposure Status as Risk Factor for Proximal and Distal MDRO Outcomes

Characteristic	Any MDRO aOR (95% CI)[1]	MRSA aOR (95% CI)[1]	VRE aOR (95% CI)[1]	rGNB aOR (95% CI)[1]
Proximal Outcome: Patient Colonization				
No Antibiotic Exposure	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Low-Risk Exposure History[2]	1.34 (0.91-1.96)	**0.66 (0.44-0.98)**	**2.54 (1.42-4.56)**	1.10 (0.77-1.55)
High Risk Exposure History[2]	**1.94 (1.35-2.79)**	0.94 (0.51-1.73)	**4.23 (2.59-6.90)**	1.22 (0.80-1.85)
Distal Outcome: Room Environment Contamination				
No Antibiotic Exposure	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)	1.00 (Referent)
Low-Risk Exposure History[2]	1.45 (0.79-2.64)	0.96 (0.55-1.67)	**2.24 (1.21-4.14)**	0.77 (0.43-1.38)
High Risk Exposure History[2]	**1.94 (1.43-2.63)**	1.19 (0.89-1.60)	**2.58 (2.00-3.33)**	0.91 (0.53-1.56)

[1] Multivariable logistic regression model was adjusted for age, sex, race, Charlson Comorbidity Index score, Physical Self-Maintenance score, indwelling device (urinary catheter or feeding tube) present on enrollment, hospital stay greater than 14 days, and nursing home days to enrollment. All regression analyses were cluster adjusted.

[2] High-risk antibiotic exposure was defined as exposure to one or more of the following antibiotics that predispose patients to a high-risk of *Clostridioides difficile* infection prior to admission to the nursing facility: fluoroquinolones, 3rd/4th generation cephalosporins, penicillin combinations, lincosamides, and carbapenems. Patients without a high-risk antibiotic exposure, but with exposure to other antibiotics were classified as having a low-risk antibiotic exposure history.

Notes: aOR, adjusted odds ratio; Bold, p < 0.05; CI, confidence interval; MDRO, multidrug-resistant organism; MRSA, methicillin-resistant *Staphylococcus aureus*; rGNB, resistant Gram-negative bacilli; VRE, vancomycin-resistant enterococci.

Conclusion: Hospital exposure to antibiotics is associated with an increased risk of VRE colonization and room environment contamination on NH study enrollment. These observations highlight the potential influence of hospital-based ASPs on MDRO prevalence and transmission in NHs.

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157. patient to Environment Transmission of Multidrug-resistant Bacteria Within Intensive Care Units

Matthew J. Ziegler, MD MSCE[1]; Brendan Kelly, MD, MSCE[2]; Michael Z. David, MD PhD[2]; Lauren Dutcher, MD[1]; Pam C. Tolomeo, MPH, CCRP[1]; Selamawit Bekele, BS[1]; Sean Loughrey, BS[1]; Emily Reesey, MS[1]; Laurel Glaser, MD, PhD[1]; Ebbing Lautenbach, MD, MPH, MSCE[1]; [1]University of Pennsylvania, Philadelphia, Pennsylvania; [2]Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania

For the Centers for Disease Control and Prevention (CDC) Prevention Epicenters Program

Session: O-30. MDRO Epidemiology and Transmission

Background: Identifying risk factors for environmental contamination with multidrug-resistant organisms (MDROs) is essential to prioritize methods for prevention of hospital transmission.

Methods: Patients admitted to an ICU with an MDRO detected on clinical culture in the prior 30 days were enrolled. Patients (4 body sites) and high-touch objects (HTO) (3 composite sites) in ICU rooms were sampled. Environmental transmission was defined by shared MDRO species cultured on patient and HTO cultures obtained on multiple time points during the patient's stay. Risk factors for environmental transmission were identified with logistic regression.

Results: Forty-five patients were included (median 2 days of longitudinal sampling [IQR 1–4 days]). Enrollment anatomic cultures included extended-spectrum beta-lactamase-producing Enterobacterales (ESBLE) (n=12, 27%), carbapenem-resistant organisms (CRO) (n=4, 9%), methicillin-resistant *S.aureus* (MRSA) (n=11, 24%), vancomycin-resistant Enterococci (VRE) (n=4, 9%), and *C.difficile* (CDIFF) (n=14, 31%). Patient colonization during serial sampling was common with CRO (n=21, 47%), ESBLE (n=16, 36%), and VRE (n=16, 36%) and less so with MRSA (n=7, 16%) and CDIFF (n=5, 11%). Detection of MDROs on environmental surfaces was also common with identification of CRO in 47% of patient rooms (n=21) and ESBLE in 29% (n=13); MRSA (n=2, 4%), VRE (n=9, 20%), and CDIFF (n=3, 7%) were rarer. Patient to environment transmission was observed in 40% of rooms (n=18). Thirteen (29%) rooms had foreign MDRO contamination (i.e., one not detected on a body culture), most (n=10) with CRO. Environmental MDROs were most common in bathroom/