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1239. Frequently Identified Infection Control Gaps in Outpatient Hemodialysis Centers

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Background. Little is known about infection control (IC) practice gaps in outpatient hemodialysis centers (OHDC). Hence, we examined the frequency of IC gaps and the factors associated with them.

Methods. The Nebraska (NE) Infection Control Assessment and Promotion Program (ICAP) in collaboration with NE Department of Health and Human Services conducted on-site visits to assess infection prevention and control programs (IPCP) in 15 OHDC between June 2016 and March 2018. The CDC Infection Prevention and Control Assessment Tool for Hemodialysis Facilities was used for IPCP evaluation. A total of 124 questions, 76 of which represented best practice recommendations (BPR) were analyzed in 10 IC domains. Gap frequencies were calculated for each BPR. Fisher's exact test was used to study the association of the identified gaps with typical patient census of the facilities and chain affiliation (CA).

Results. Of the 15 OHDC, seven were large centers (typically following >50 patients) and 11 were part of national chains. Important IC gaps exist in all OHDC. A median of 64 (range 57–70) of 76 BPR were being followed by OHDC or were nonapplicable to them. The IC Program and Infrastructure domain had the highest frequency of IC gaps (Figure 1). Figure 2 describes the top 5 IC gaps. Smaller OHDC (sODHC) and those without CA performed better in a few areas. For example, a higher proportion of sODHC had work exclusion policies that encourage reporting of illness without any penalty when compared with larger OHDC (75% vs. 0, *P* = 0.01). Similarly, a higher proportion of sOHDC provided space and encouraged persons with symptoms of respiratory infection to sit as far away from others as possible in nonclinical areas (63% vs. 0, *P* < 0.05). None of the nonchain OHDC had shared computer charting terminals when compared with 64% of OHDC with CA (*P* = 0.08) and a majority of nonchain OHDC provided space and encouraged persons to maintain distance with others when having respiratory symptoms as opposed to a minority of OHDC with CA (75% vs. 18%, 0.08).

Conclusion. Important IC gaps exist in OHDC and require mitigation. Informing OHDC of existing IC gaps may help in BPR implementation. Larger scale studies should focus on identifying factors promoting certain BPR implementation in smaller and nonchain OHDC.

Figure 1. Frequency of Infection Control Gaps within Individual Infection Control Domains
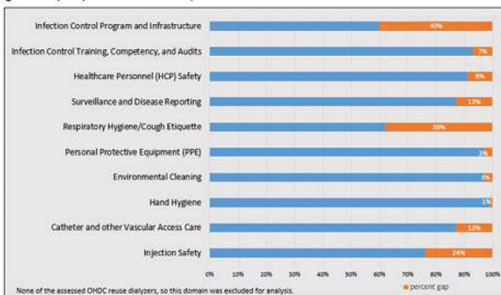

Figure 2. Most Frequently Identified Infection Control Gaps in Outpatient Hemodialysis Centers

Disclosures. All authors: No reported disclosures.

1240. Antibiotic Prescribing in US Nursing Homes Using National Pharmacy Transaction Data

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Background. Antibiotics are frequently prescribed inappropriately in nursing homes (NHs); however, national estimates of NH antibiotic use are limited. We aimed to describe antibiotic prescribing in US NHs to identify potential targets for antibiotic stewardship.

Methods. A descriptive analysis was conducted using the 2014 proprietary IQVIA long-term care (LTC) Xponent database, which captures oral and intravenous antibiotic prescription transactions from sampled LTC pharmacies representing 70–85% of the LTC market. The data are projected to 100% of the US LTC market. Denominators for rate calculations were captured from the 2014 Minimum Data Set as the number of residents with at least one resident day in an NH in 2014. Antibiotic transaction counts and rates were calculated by resident gender, age, US census region, route of administration, antibiotic class and agent, and total transaction counts were summarized by provider type. Prescribing patterns for antibiotic classes and agents stratified by resident age were also calculated.

Results. In 2014, there were over 14 million antibiotic transactions in LTC pharmacies, for a rate of 3,302 per 1,000 residents. Female residents accounted for 62% of antibiotic transactions at a rate of 3,305 transactions per 1,000 residents compared with 3,240 per 1,000 male residents. Antibiotic prescribing was highest in the South at 3,752 transactions per 1,000 residents (vs. 2,601 per 1,000 residents in the West). Oral antibiotics accounted for 85% of transactions. Fluoroquinolones were the most frequently prescribed antibiotic class (22%; 723 transactions per 1,000 residents) and the most common agents were levofloxacin, ciprofloxacin, and sulfamethoxazole–trimethoprim. Stratified by age, the percent change in prescribing rates among residents aged <85 to residents aged ≥85 was largest for fluoroquinolones (645 vs. 883) and urinary anti-infectives (210 vs. 319). Internal medicine and family practice providers accounted for 37% and 32% of all antibiotic transactions.

Conclusion. A potential antibiotic stewardship target in NHs is fluoroquinolone prescribing. Targeting states in the South for interventions may have the largest impact.
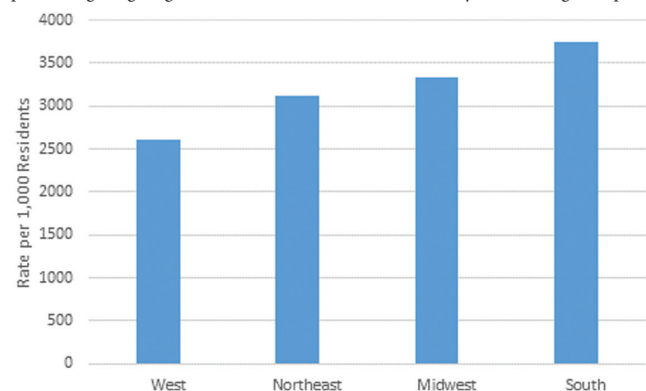

Figure. Antibiotic prescribing rates in long-term care by U.S. census regions

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1241. Surveillance for Viral Respiratory Infections in Pediatric Chronic Care Facilities

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Background. Residents of pediatric chronic care facilities (PCCFs) are vulnerable to acute respiratory infections (ARIs) due to their underlying medical conditions and infection control challenges in congregate living.

Methods. We conducted active, prospective surveillance for ARIs (defined as ≥2 new signs/symptoms of respiratory illness) among all residents in three PCCFs near New York City from December 7, 2016 to May 7, 2017. The parents/guardians of some residents also provided consent for research specimen collection at the start of the study. In that subset, nasopharyngeal swabs were obtained ≤4 days of ARI symptom

onset and weekly for 4 weeks of follow-up to assess viral shedding. Influenza, respiratory syncytial virus (RSV), rhinovirus (RV), coronavirus (229E, NL63, OC43, HKU1), parainfluenzavirus (PIV 1–4), metapneumovirus (MPV), adenovirus (AdV), bocavirus (BoV), enterovirus, parechovirus, and *M. pneumoniae* were tested by the Fast Track Diagnostics Respiratory Pathogens 21 real-time RT-PCR panel.

Results. Subset with research specimen collection: Among 79 residents (aged 0–20 years, median = 8), 60 ARIs were reported in 37 (47%) residents. Swabs were obtained at illness onset for 53/60 ARI episodes; among these, there were 25 single-virus detections and five co-detections. An additional 33 single- and five co-detections occurred in 175 follow-up swabs (table). Molecular typing of 32 RV+ specimens identified 13 RV types.

All residents: During the 2016–2017 influenza season, 308/322 (96%) age-eligible residents received influenza vaccine and 168/364 (46%) received prophylactic antivirals for influenza exposures. Although influenza was not detected in research swabs, it was detected in 3/200 tests conducted for *clinical* purposes.

Conclusion. ARIs were common among residents of three PCCFs, and a variety of respiratory viruses were detected. The rarity of influenza may reflect strong infection control practices in these facilities, including vaccination and prophylactic use of antivirals.

Table: Viral Detections by Timing of Collection (*n* = 53 ARI Episodes)

	Viral Detections	
	Onset	Follow-up
Single detections		
RV	14	8
229E	1	1
OC43	3	2
MPV	1	3
BoV	3	17
RSV	2	2
Co-detections[a]	5	5
Total	30	38

Note: There were no detections for pathogens not shown.

[a]Co-detections also included PIV3 and AdV.

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1242. Quantitative Analysis of Microbial Burden on LTCF Environmental Surfaces

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Background. There is a lack of data on environmental surface contamination in long-term care facilities (LTCF), despite multiple reports of outbreaks of multi-drug-resistant organisms in these settings. Therefore, we conducted a quantitative analysis of the microbial burden and prevalence of epidemiologically important pathogens (EIP) found on LTCF environmental surfaces.

Methods. Microbiological samples were collected using Rodac plates from resident rooms and common areas in five LTCFs. At each facility, five samples from up to 10 different available environmental surfaces were collected from a room of a resident reported to be colonized with EIP, as well as from a room of a resident reported to be non-colonized. In addition, five samples from up to 10 different environmental surfaces were collected from two common areas in the facility. EIPs were defined as MRSA, VRE, *C. difficile* and multi-drug-resistant Gram negative bacilli. Data were analyzed for each environmental site sampled in a resident room or common area based on total bacterial colony forming units (CFU), mean CFU per Rodac, total EIP by site, and mean EIP counts per Rodac.

Results. The below table summarizes total EIP recovered from environmental sites by reported EIP colonization status of the resident. Rooms of residents with reported colonization had much greater EIP counts per Rodac (8.32, 95% CI 8.05, 8.60) than rooms of non-colonized residents (0.78, 95% CI 0.70, 0.86). MRSA was the most common EIP recovered from Rodacs, followed by *C. difficile*. Very few EIPs were recovered from the common areas sampled at these LTCFs.

Conclusion. We found varying levels of CFU and EIP on environmental sites at LTCFs. Colonization status of a resident was a strong predictor of higher levels of EIP being recovered from his/her room.

Table: Total EIP Recovered From Environmental Sites in Residential Rooms

Site	Number of Rodac Samples	Total EIP by Site	Mean EIP Counts per Rodac	Number of Rodac Samples	Total EIP by Site	Mean EIP Counts per Rodac
	Non-Colonized Resident Rooms			Colonized Resident Rooms		
Bathroom Floor	54	35	0.65	55	1820	33.09
Bed Rail	48	20	0.42	45	614	13.64
Over Bed Table	48	24	0.50	55	123	2.24
Nightstand	55	1	0.02	49	223	4.55
Sink	55	251	4.56	49	371	7.57
Chair	35	1	0.03	44	361	8.20
Overall Sites Sampled	433	337	0.78	428	3561	8.32

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1243. Comparative Analysis of Antimicrobial-related Adverse Events in the Outpatient Treatment of Staphylococcal Infections

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Background. Limited data exist to evaluate safety-related outcomes in Outpatient Parenteral Antimicrobial Therapy (OPAT) patients treated with antimicrobial agents for Gram-positive infections.

Methods. This retrospective, single-center study enrolled Mayo Clinic OPAT patients between 2013 and 2017. The primary objective of the study compared rates of therapy modification due to drug-related toxicity for staphylococcal infections treated with ceftriaxone, cefazolin, nafcillin, oxacillin, vancomycin, daptomycin, ceftaroline, linezolid, or ertapenem. Secondary objectives included determination of the frequency and type of adverse drug events (ADEs) attributed to OPAT and rate of readmission due to ADEs attributed to OPAT.

Results. One hundred seventy-two patients were identified (cefazolin *n* = 54, ceftriaxone *n* = 49, vancomycin *n* = 30, daptomycin *n* = 16, nafcillin *n* = 9, ertapenem *n* = 6, ceftaroline *n* = 4, oxacillin *n* = 3, linezolid *n* = 1). The overall treatment completion rates were high (153/172, 89.0%). Patients completed an average of 35.3 days (7 to 95) of therapy with their original antibiotic. Fourteen patients required change to a different antibiotic due to antimicrobial toxicity (ceftriaxone=5; vancomycin=2; cefazolin = 2; daptomycin = 2; ceftaroline = 1; nafcillin = 1; oxacillin = 1) and five patients experienced treatment failure required an additional agent (ceftriaxone = 2; nafcillin = 2; linezolid = 1). Adverse drug events (ADEs) were the most common reason for antimicrobial adjustment (14/19, 73.7%). The most common ADEs were hypokalemia (28/172, 16.3%) and diarrhea (25/172, 14.5%). There were only two cases of *Clostridium difficile*. Thirty-day readmissions due to antimicrobial therapy were low with 11 patients.

Conclusion. OPAT with Gram-positive agents used for staphylococcal infections is effective, but antimicrobial modifications still occur. Clinicians should be aware of the risk of ADEs and readmissions in OPAT patients. A multidisciplinary approach may enhance management of ADEs and possibly preventing readmissions

Disclosures. **All authors:** No reported disclosures.

1244. Evaluation of Antibiotic Prescribing Practices for Geriatric Patients in the Outpatient Setting in a Veterans Affairs Hospital: Identification of Stewardship Targets

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Background. Antibiotics are frequently overused in the outpatient setting, however it is unknown how antibiotic use differs with age. Infections are a leading cause of hospitalization in elderly patients. Prescribing appropriateness for patients less than 65 years old was compared with patients at or above ≥65 years old in order to identify targets for antimicrobial stewardship in this population.

Methods. A retrospective review of all outpatient antibiotic prescriptions between June and September of 2017. Prescriptions were reviewed based on alerts in the electronic medical record when orders for antibiotics were signed by the provider. Appropriateness of antibiotics was assessed based on clinical practice guidelines. Retreatment and hospital admissions were documented. Those aged <65 were compared with those ≥65 years of age using Student's *t*-test and chi-squared tests. A multivariate logistic regression model was constructed to identify risk factors for inappropriate use of antibiotics between the two age groups.