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1238. A National Comparison of Antibiograms Between Veterans Affairs Long-Term Care Facilities and Affiliated Hospitals

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Session: 138. Healthcare Epidemiology: Non-acute Care Settings
Friday, October 5, 2018: 12:30 PM

Background. Nebraska (NE) Infection Control Assessment and Promotion Program (ICAP) is a quality improvement initiative supported by the NE Department of Health and Human Services. This initiative utilizes subject matter experts (SMEs) including infectious diseases physicians and certified infection preventionists (IP) to assess and improve infection prevention and control programs (IPCP) in various healthcare settings. NE ICAP conducted on-site surveys and observations of IPCP in many volunteer facilities to include long-term care facilities (LTCF) between November 2015 and July 2017. SMEs provided on-site coaching and made best practice recommendations (BPR) for priority implementation. Impact of this intervention on LTCF IPCP was examined.

Methods. Using a standardized questionnaire, follow-up phone calls were made with LTCF to evaluate implementation of the BPR one-year post-assessment. Descriptive analyses were performed to examine BPR implementation in LTCF that had follow-up between 4/4/17 to 4/17/18 and to identify factors that promoted or impeded BPR implementation.

Results. Overall, 45 LTCF were assessed. The top 5 IC categories requiring improvement were audit and feedback practices (28 of 45, 62%), PPE supplies at point of use (62%), IC risk assessments (58%), TB risk assessments (56%), and supply and linen storage practices (56%). Follow-up assessments were completed for 270 recommendations in 25 LTCF. Recommendations reviewed ranged from three to 26 per LTCF (median = 15). The majority of the 270 recommendations ($n = 162$, 60%) had been either completely (35%) or partially (25%) implemented by the time of the follow-up calls. The ICAP visit itself was reported as the most helpful resource for BPR implementation (77 of 162). Lack of staffing was the most commonly mentioned barrier to implementation when LTCF implemented BPR partially or implementation was not planned (37 of 85). BPR implementation most frequently involved additional staff training (64 of 162), review of policies and procedures (38 of 162), and implementing audit (34 of 162) and/or feedback (23 of 162) programs.

Conclusion. Numerous IC gaps exist in LTCF. Peer-to-peer feedback and coaching by SMEs facilitated implementation of many BPR directed toward mitigating identified IC gaps.

Disclosures. All authors: No reported disclosures.

1237. New York State Outpatient Regional Antibigram for Urinary Pathogens: Have We Reached a Post Antibiotic Era for the Treatment of UTIs?

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Background. Outpatient prescribing for acute uncomplicated cystitis is a significant driver of antimicrobial use. Empiric therapy should be based on local susceptibility data. However, there is limited guidance on regional susceptibility trends in outpatient settings. This study describes the epidemiology and prevalence of antimicrobial resistance in uropathogens in New York State outpatient settings to help inform empiric treatment decisions.

Methods. Retrospective analysis of positive urine cultures sent to Quest Diagnostics in 2016 from outpatient settings. Cultures that grew $\geq 10^5$ CFU/mL were included from 17 NYS counties. Bacterial identification and antimicrobial sensitivities were determined on the Vitek-2 using CLSI M-100 S-25 breakpoints. Data were summarized as proportions and stratified by age (<17, 18-64, ≥ 65) and sex.

Results. Over 78,000 isolates were included (Table 1). The most prevalent isolates were *Escherichia coli* (65.2%), *Enterococcus* spp. (11.9%), and *Klebsiella pneumoniae* (9.9%). *E. coli* was highly susceptible to nitrofurantoin (NTF, 97.2%) and cefazolin (CFZ, 89.9%) and less susceptible to trimethoprim-sulfamethoxazole (TMP-SMX, 72.9%) and ciprofloxacin (CIP, 78.0%). *Enterococcus* spp. was highly susceptible to NTF (99.0%) and ampicillin (99.8%). *K. pneumoniae* was highly susceptible to TMP-SMX (90.0%) and CIP (95.2%) and markedly less susceptible to NTF (42.0%). *E. coli* was more prevalent in females (69.7% vs. 39.6%, $P < 0.001$). *Enterococcus* was more prevalent in males (39.6% vs. 10.1%, $P < 0.001$). The prevalence of *K. pneumoniae* was similar in men and women (9.6% vs. 10.1%, $P = 0.08$). Resistance was more prevalent in males (NTF: 6.3% vs. 4.2%; TMP-SMX: 26.3% vs. 22.7%; CIP: 35% vs. 17.3%) and for adults ≥ 65 (NTF: 6.2% vs. 3.6%; TMP-SMX: 25.1% vs. 22.1%; CIP: 30.0% vs. 14.0%) $P < 0.001$ for all comparisons.

Conclusion. NTF appears to be the best empiric choice for outpatient treatment of acute uncomplicated cystitis in New York State. TMP-SMX and ciprofloxacin should be avoided empirically. These data also highlight the necessity to obtain uropathogen sensitivity data to confirm empiric therapy or make appropriate adjustments in the outpatient setting.

Table 1. Summary of Antimicrobial Susceptibilities

Bacteria	N	Ampicillin	Cefazolin	Ceftriaxone	Ciprofloxacin	Nitrofurantoin	Gentamicin	Levofloxacin	Pip/Tazo	Tobramycin	TMP-SMX	Colistin	Trimethoprim	Quinolone	Franklin	Vancocin
Gram negative																
<i>Citrobacter diversus</i>	933	X	99.7	X	99.0	90.2	99.6	98.9	99.4	99.8	98.7	99.7	99.8	X	X	X
<i>Citrobacter freundii</i>	316	X	99.1	X	94.6	95.6	97.1	92.8	94.5	97.7	85.3	98.8	99.0	X	X	X
<i>Enterobacter aerogenes</i>	785	X	93.8	X	58.6	19.1	95.5	98.5	96.6	99.7	98.6	94.4	83.3	X	X	X
<i>Enterobacter cloacae</i>	404	X	91.1	X	54.8	44.8	96.5	90.0	X	96.0	86.1	87.6	99.3	X	X	X
<i>Escherichia coli</i>	54,533	54.3	94.9	89.9	78.0	97.2	89.8	77.8	96.8	90.0	72.9	92.5	99.9	X	X	X
<i>Klebsiella pneumoniae</i>	7741	96.7	94.2	95.2	42.0	96.9	95.2	94.8	95.9	90.0	95.0	99.8	X	X	X	X
<i>Proteus mirabilis</i>	1381	78.6	99.3	91.0	89.5	X	93.9	90.8	99.8	95.1	86.2	98.1	25.5	X	X	X
<i>Providencia rettgeri</i>	40	X	92.5	X	85.0	X	95.0	77.1	94.7	100.0	84.6	97.4	97.5	X	X	X
<i>Pseudomonas aeruginosa</i>	1105	X	89.2	X	75.8	X	87.8	67.6	91.9	95.3	X	88.3	X	X	X	X
<i>Serratia marcescens</i>	264	X	98.5	X	97.2	X	96.1	97.8	X	89.2	96.7	96.8	X	X	X	X
<i>Stenotrophomonas maltophilia</i>	53	X	X	X	X	X	83.0	X	X	100.0	X	X	X	X	X	X
Gram Positive																
<i>Enterococcus</i> spp.	9,222	99.8	X	X	X	99.0	X	X	X	X	X	X	X	X	X	99.6
<i>Enterococcus faecium</i>	35	96.3	X	X	X	97.1	X	X	X	X	X	X	X	X	X	91.2
<i>Staphylococcus aureus</i>	823	X	X	X	85.9	98.4	99.5	86.3	X	99.2	X	98.8	99.8	X	X	0.0
<i>Staphylococcus epidermidis</i>	1,107	X	X	X	43.6	95.6	92.7	44.3	X	84.6	X	82.6	98.8	X	X	0.0
<i>Staphylococcus haemolyticus</i>	337	X	X	X	45.4	99.7	90.9	47.8	X	89.3	X	69.1	97.0	X	X	0.0
<i>Staphylococcus hominis</i> spp. <i>hominis</i>	51	X	X	X	47.2	96.2	100.0	49.2	X	93.1	X	92.8	100.0	X	X	0.0
<i>Staphylococcus saprophyticus</i>	84	X	X	X	93.2	100.0	94.8	95.2	X	97.6	X	95.1	28.0	X	X	0.0
<i>Staphylococcus simulans</i>	113	X	X	X	62.2	99.1	100.0	63.0	X	100.0	X	94.1	84.8	X	X	0.0

Disclosures. T. P. Lodise Jr., Motif BioSciences: Board Member, Consulting fee.

1238. A National Comparison of Antibigrams Between Veterans Affairs Long-Term Care Facilities and Affiliated Hospitals

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Session: 138. Healthcare Epidemiology: Non-acute Care Settings
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Background. Long-term care facilities (LTCFs) face several barriers to creating antibigrams. Here, we evaluate if LTCFs can use antibigrams from affiliated hospitals as their own antibigram.

Methods. Facility-specific antibigrams were created for all Veterans Affairs (VA) LTCFs and VA Medical Centers (VAMCs) for 2017. LTCFs and affiliated VAMCs were paired and classified as being on the same campus or geographically distinct campuses based on self-report. For each pair, *Escherichia coli* susceptibility rates (%) to cefazolin, ceftriaxone, cefepime, ciprofloxacin, nitrofurantoin, sulfamethoxazole/trimethoprim, ampicillin/sulbactam, piperacillin/tazobactam, and imipenem were compared. As guidelines discourage empiric use of antibiotics if susceptibility rates are <80%, we assessed clinical discordance between each LTCF and affiliated VAMC antibiogram at a threshold of 80% susceptible. The proportions of concordant susceptibilities between LTCFs and VAMCs on the same campus vs. geographically distinct campuses were compared using Chi-square tests.

Results. A total of 119 LTCFs and their affiliated VAMCs were included in this analysis, with 70.6% ($n = 84$) of facilities located on the same campus and 29.4% ($n = 35$) on geographically distinct campuses. The table below shows the overall clinical concordance (agreement) of LTCFs with their affiliated VAMC in regards to *E. coli* %S to the compared antibiotics. No significant differences were found when comparing LTCFs on the same campus vs. geographically distinct campuses.

Agreement Rates between LTCFs and Affiliated VAMCs	Antibiotics
90-100%	Ampicillin/sulbactam Imipenem Nitrofurantoin
80-89%	Cefepime Ciprofloxacin
70-79%	Piperacillin/tazobactam
60-69%	Sulfamethoxazole/trimethoprim Cefazolin Ceftriaxone

Conclusion. Antibigrams between LTCFs and affiliated VAMCs had a high concordance, except for sulfamethoxazole/trimethoprim, cefazolin and ceftriaxone in regards to susceptibility rates of *E. coli*. Facilities on the same campus were found to have similar concordance rates to geographically distinct facilities. Future studies are needed to investigate how the various approaches to creating LTCF-specific antibigrams are associated with clinical outcomes.

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grant. **V. Lopes**, Veterans Affairs: Investigator, Research grant. **D. Dosa**, Veterans Affairs: Grant Investigator, Research grant. **K. LaPlante**, Veterans Affairs: Investigator, Research grant.

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 (sOHDC) and those without CA performed better in a few areas. For example, a higher proportion of sOHDC 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

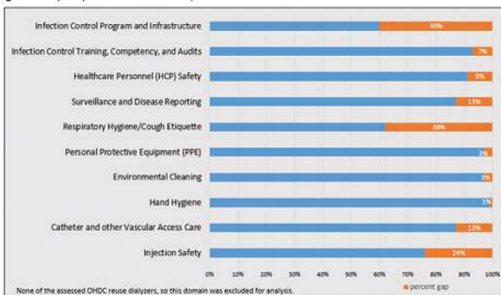


Figure 2. Most Frequently Identified Infection Control Gaps in Outpatient Hemodialysis Centers

Best Practice Recommendations	Gap Frequencies (N=15)
Dialysis center has signs posted that encourage patients to take an active role in and express their concerns about facility infection control practices	93%
Routine application of antibiotic ointment or povidone-iodine ointment to catheter exit sites during dressing changes is performed at the facility	67%
Facility provides space and encourages persons with symptoms of respiratory infection to sit as far away from others as possible, in non-clinical areas	67%
Facility has the ability to separate symptomatic patients (by at least 6 feet) from other patients and their stations during dialysis treatment?	67%
Facility has work-exclusion policies that encourage reporting of illnesses and do not penalize	60%

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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, respectively.

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

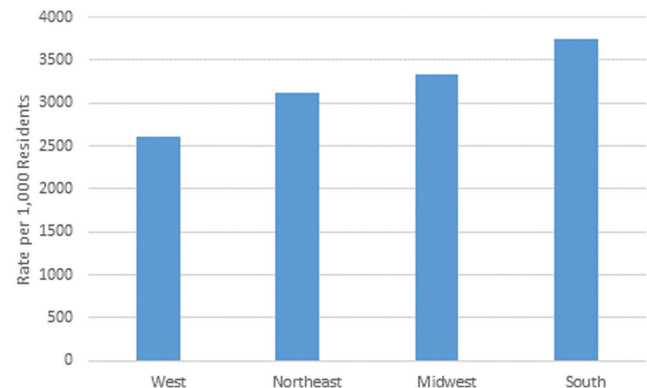


Figure. Antibiotic prescribing rates in long-term care by U.S. census regions

Disclosures. All authors: No reported disclosures.

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