

Healthcare-Associated Influenza According to “Traditional” vs “Traditional Plus Enhanced” Definitions by Season

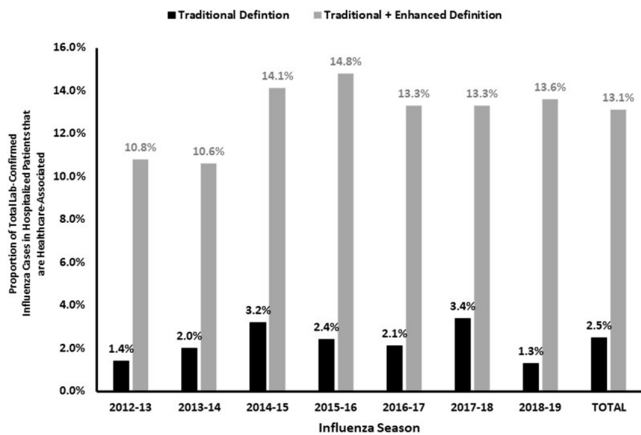


Figure 1.

1.3%–3.4%) were deemed healthcare associated (Figure 1). Adding the cases identified using the enhanced definition, an additional 317 (5.4%, range 2.3%–6.7%) cases were noted in patients transferred from a chronic care facility for the current acute-care admission and 336 cases (5.7%; range, 4.1%–7.4%) were noted in patients with a prior acute-care facility admission in the preceding 7 days. Using our expanded definition, the total proportion of healthcare-associated influenza in this cohort was 772 of 5,904 (13.1%; range, 10.6%–14.8%). **Conclusion:** HA-VRI due to influenza is an under-recognized infection in hospitalized patients. Limiting surveillance assessment of this important outcome to just those patients with a positive influenza test after hospital day 3 captured only 19% of possible healthcare-associated influenza infections across 7 influenza seasons. These results suggest that the traditionally used definitions of healthcare-associated influenza underestimate the true burden of cases.

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Presentation Type:

Poster Presentation - Top Poster Award

Subject Category: Surveillance/Public Health

Evaluation of Electronic Health Record and Long-Term Care Pharmacy Data for Tracking and Reporting Antibiotic Use in the United States

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Background: Antibiotics are frequently prescribed in nursing homes, often inappropriately. Data sources are needed to facilitate measurement and reporting of antibiotic use to inform antibiotic stewardship efforts. Previous analyses have shown that the type of nursing-home stay, that is, short stay (<100 days), is a strong predictor of high antibiotic use compared to longer nursing-home stays. The study objective was to compare 2 different data sources, electronic health record (EHR) and long-term care (LTC) pharmacy data, for surveillance of antibiotic use and type of nursing-home stay. **Methods:** EHR and pharmacy data during 2017 were included from 1,933 and 1,348 US-based nursing homes, respectively. We compared data elements available in each data source for antibiotic use reporting. In each data set, we attempted to describe antibiotic use as the proportion of residents on an antibiotic, days-of-therapy (DOT) per 1,000 resident days (RD), and distribution of antibiotic course duration, overall and at the facility level. Facility proportion of short-stay and long-stay (>100 days) nursing-home residents were calculated using admission dates and census data in the EHR data set and a payor variable in the pharmacy data set (Figure 1). The 2 data sources also provided

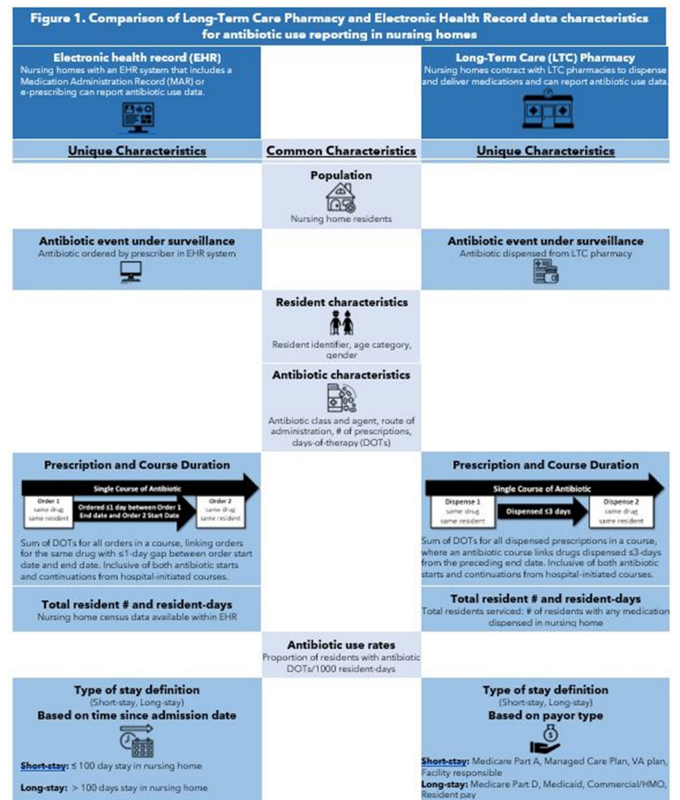


Figure 1.

Table 1. Comparison of Electronic Health Record and Long-Term Care Pharmacy antibiotic use data in nursing homes, 2017

	Electronic Health Record Data N (%) or Median (IQR)*	Long-term Care Pharmacy Data N (%) or Median (IQR)
Total number of facilities	1933	1348
Total number of residents†	381,132	326,713
Short-stay residents	308,619	279,257
Long-stay residents	72,513	117,031
Total number of residents receiving antibiotics	191,831 (50%)	146,794 (45%)
Facility proportion of residents prescribed antibiotics	51% (44-58%)	46% (39-54%)
Total number of resident-days	50,165,839	38,137,191
Short-stay resident-days	10,465,420 (21%)	19,201,236 (50%)
Long-stay resident-days	39,700,419 (79%)	18,935,865 (50%)
Total antibiotic days-of-therapy/1000 resident-days	90	86
Facility antibiotic days-of-therapy/1000 resident-days	77 (49-119)	79 (54-109)
Route of Administration		
Oral	484,810 (81%)	277,115 (85%)
Intravenous/Intramuscular	117,470 (19%)	47,118 (15%)
Antibiotic course duration		
1-7 days	357,837 (60%)	176,087 (54%)
8-14 days	194,542 (33%)	113,333 (35%)
15-30 days	29,417 (5%)	22,193 (7%)
31+ days	13,602 (2%)	12,693 (4%)

*N=number, IQR=interquartile range
† Residents in long-term care pharmacy data may be categorized as both short-stay and long-stay over the course of the year, therefore sum does not reflect the total unique number of residents

antibiotic characteristics, including antibiotic class, agent, and route of administration. The deidentified nature of facility data prevented direct comparison of antibiotic use measures between facilities. **Results:** The EHR and pharmacy data sets contained 381,382 and 326,713 residents, respectively (Table 1). Within the EHR, 51% of residents were prescribed an antibiotic in 2017, at a median rate of 77 DOT per 1,000 RD. In the LTC pharmacy, 46% of residents were prescribed an antibiotic at a median rate of 79 DOT per 1,000 RD (Table 1). Short-stay residents contributed a smaller proportion of total RDs in the EHR relative to the pharmacy cohort (21% vs 50%, respectively). **Conclusions:** Nursing-home antibiotic use data obtained from EHR and pharmacy vendors can be used for calculating antibiotic use measures, which is important for antibiotic use reporting and facility-level tracking to identify opportunities for improving prescribing

practices and provide facility-level benchmarks. Further validation of both data sources in the same facilities is needed to compare antibiotic use rates and to determine the most appropriate proxy for type of nursing-home stay for facility-level risk adjustment of antibiotic use rates.

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Presentation Type:

Oral Presentation

Subject Category: Antibiotic Stewardship

The Impact of Social Role Identity on Communication in Hospital-Based Antimicrobial Stewardship

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Background: Evidence-based hospital antimicrobial stewardship interventions, such as postprescription review with feedback, prior authorization, and handshake stewardship, involve communication between stewards and frontline prescribers. Hierarchy, asymmetric responsibility, prescribing etiquette, and autonomy can obstruct high-quality communication in stewardship. Little is known about the strategies that stewards use to overcome these barriers. The objective of this study was to identify how stewards navigate communication challenges when interacting with prescribers. **Methods:** We conducted semistructured interviews with antimicrobial stewards recruited from hospitals across the United States. Interviews were audio recorded, transcribed, and analyzed using a flexible coding approach and the framework method. Social identity theory and role theory were used to interpret framework matrices. **Results:** Interviews were conducted with 58 antimicrobial stewards (25 physicians and 33 pharmacists) from 10 hospitals (4 academic medical centers, 4 community hospitals, and 2 children's hospitals). Respondents who felt empowered in their interactions with prescribers explicitly adopted a social identity that conceptualized stewards and prescribers as being on the "same team" with shared goals (in-group orientation). Drawing on the meaning conferred via this social role identity, respondents engaged in communication strategies to build and maintain common bonds with prescribers. These strategies included moderating language to minimize defensive recommendations when delivering stewardship recommendations, aligning the goals of stewardship with the goals of the clinical team, communicating with prescribers about things other than stewardship, compromising for the sake of future interactions, and engaging in strategic face-to-face interaction. Respondents who felt less empowered in their interactions thought of themselves as outsiders to the clinical team and experienced a heightened sense of "us versus them" mentality with the perception that stewards primarily serve a gate-keeping function (ie, outgroup orientation). These respondents expressed deference to hierarchy, a reluctance to engage in face-to-face interaction, a feeling of cynicism about the impact of stewardship, and a sense of low professional accomplishment within the role. Respondents who exhibited an in-group orientation were more likely than those who did not to describe the positive impact of stewardship mentors or colleagues on their social role identity. **Conclusions:** The way antimicrobial stewards perceive their role and identity within the social context of their healthcare organization influences how they approach communication with prescribers. Social role identity in stewardship is shaped by the influence of mentors and colleagues, indicating the importance of supportive relationships for the development of steward skill and confidence.

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Presentation Type:

Oral Presentation

Subject Category: Antibiotic Stewardship

Optimizing Urine Collection Represents an Important Stewardship Opportunity in Primary Care

Larissa Grigoryan; Jennifer Matas; Michael Hansen; Samuel Willis; Lisa Danek; Anna Katta; Kenneth Muldrew; Mohammad Zare; Forrest Hudson; Robert Atmar; Andrew Chou and Barbara Trautner

Background: Urine cultures are the most common microbiological tests in the outpatient setting and heavily influence treatment of suspected urinary tract infections (UTIs). Antibiotics for UTI are usually prescribed on an empiric basis in primary care before the urine culture results are available. However, culture results may be needed to confirm a UTI diagnosis and to verify that the correct antibiotic was prescribed. Although urine cultures are considered as the gold standard for diagnosis of UTI, cultures can easily become contaminated during collection. We determined the prevalence, predictors, and antibiotic use associated with contaminated urine cultures in 2 adult safety net primary care clinics. **Methods:** We conducted a retrospective chart review of visits with provider-suspected UTI in which a urine culture was ordered (November 2018–March 2020). Patient demographics, culture results, and prescription orders were captured for each visit. Culture results were defined as no culture growth, contaminated (ie, mixed flora, non-uropathogens, or ≥ 3 bacteria isolated on culture), low-count positive (growth between 100 and 100,000 CFU/mL), and high-count positive ($>100,000$ CFU/mL). A multivariable multinomial logistic regression model was used to identify factors associated with contaminated culture results. **Results:** There were 1,265 visits with urine cultures: 264 (20.9%) had no growth, 694 (54.9%) were contaminated, 159 (12.6%) were low counts, and 148 (11.7%) were high counts. Encounter-level factors are presented in Table 1. Female gender (adjusted odds ratio [aOR], 15.8; 95% confidence interval [CI], 10.21–23.46; $P < .001$), pregnancy (aOR, 13.98; 95% CI, 7.93–4.67; $P < .001$), and obesity (aOR, 1.9; 95% CI 1.31–2.77; $P < .001$) were independently associated with contaminated cultures. Of 264 patients whose urine cultures showed no growth, 36 (14%) were prescribed an antibiotic. Of 694 patients with contaminated cultures, 153 (22%) were prescribed an antibiotic (Figure 1). **Conclusions:** More than half of urine cultures were contaminated, and 1 in 5 patients were treated with antibiotics. Reduction of contamination should improve patient care by providing a more accurate record of the organism in the urine (if any) and its susceptibilities, which are relevant to managing future episodes of UTI in that patient. Optimizing urine collection represents a diagnostic stewardship opportunity in primary care.

Table 1.

Table 1. Characteristics of visits (n=1265), n (%)	
Age, years	43.2 (± 15.8)
Gender and Pregnancy Status	
Male	203 (16)
Female non-pregnant	671 (53)
Female pregnant	391 (31)
Race/ethnicity	
White	40 (3)
African American	240 (19)
Latino/Hispanic	941 (74)
Other	44 (4)
Obesity	431 (34)
Elixhauser score	1.4 (± 4.9)
UTI symptoms	
Asymptomatic	152 (12)
Symptomatic	1113 (88)