

factors, symptoms, allergies, diagnostic results, and time to stability. Hospital rurality was defined using the Rural–Urban Continuum Codes (RUCC) score. We defined rural as a score ≥ 4 and very rural as a score of 7–9. We used *t* tests to compare the mean percentage of patients with antibiotic overuse at discharge between nonrural and rural (and very rural) hospitals. **Results:** Across 41 hospitals, we included 23,449 patients with CAP or UTI. There were 5 rural (and 3 very rural) hospitals with 2,039 (and 1,082) patients. Antibiotic overuse at discharge was present in 43.1% of patient cases in nonrural hospitals, 52.5% in rural hospitals ($P = .04$ vs nonrural) and 58.1% in very rural hospitals ($P = .007$ vs nonrural). Compared to nonrural hospitals, the mean percentage of cases with antibiotic overuse at discharge in rural hospitals was 9.4% higher (15.1% higher in very rural hospitals). Results were similar in a subgroup analysis of only patients with UTI (47.0% in rural vs 37.5% in nonrural, mean difference, 9.5%; $P = .03$) but were not statistically significant in patients with CAP (53.8% vs 48.0%, respectively; mean difference, 5.8%; $P = 0.23$). **Conclusions:** In this retrospective study, rural hospitals—especially very rural hospitals, had higher rates of antibiotic overuse at discharge than nonrural hospitals. Our findings suggest that antibiotic stewardship interventions tailored toward the unique differences in infrastructure, resources, and needs of rural hospitals are essential to community health.

Disclosures: None

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Presentation Type:

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Subject Category: Antibiotic Stewardship

Validation of antibiotic stewardship metrics for genitourinary infection management in Veterans Affairs outpatient settings

Jordan Braunfeld; Matthew Samore; Jacob Crook; McKenna Nevers; Kelly Echevarria; Ben Brintz; Matthew Goetz and Karl Madaras-Kelly

Background: Diagnosis and management of suspected urinary tract infection (UTI) in outpatient settings has been shown to be suboptimal. We previously developed a set of stewardship metrics for UTIs based on electronic health record (EHR) data (*Antimicrobial Stewardship & Healthcare*

Tier	Antibiotic Prescribed	Cases reviewed (N)	Age (SD)	Female (%)	Reviewer diagnosed GU infection, N (%)	Reviewer recommended antibiotics, N (%)
1/2	Yes	33	63.1 (15)	8 (24.2)	23 (69.7)	20 (60.6)
	No	45	64.7 (18.3)	6 (13.3)	3 (6.7)	5 (11.1)
3	Yes	29	71.4 (13.1)	0	2 (6.9)	4 (13.8)
	No	41	71.5 (11.6)	4 (9.8)	1 (2.4)	0

Epidemiology 2022;2 suppl 1:S5–S6. doi:10.1017/ash.2022). A tier-based approach was used to more fully capture antibiotic use associated with genitourinary (GU) symptoms and diagnoses. Herein we report a preliminary analysis of validity and reliability of these metrics based on chart abstraction. **Methods:** The study cohort consisted of patients who visited Veterans Affairs emergency departments or primary care clinics between 2015 and 2022 and who had a GU diagnosis based on *International Classification of Disease, Tenth Revision* (ICD-10) codes, divided into 3 categories: tier 1 (antibiotics always indicated), tier 2 (antibiotics sometimes indicated), and tier 3 (antibiotics not indicated). Visits related to urological procedures, nontarget settings, or concomitant non-GU infections were excluded. Cases were randomly sampled for manual review from within 8 strata based on tier, use of antibiotics, and visit type. An infectious disease physician and pharmacist abstracted charts using a standardized data-collection instrument. Clinical judgments regarding diagnosis and treatment were recorded on a Likert scale without knowledge of how the patient was managed. The intraclass correlation coefficient (ICC) was used to estimate interrater reliability. **Results:** To date, 148 cases have been reviewed (50 by both reviewers). Mean (SD) age was 67.5 (15.3) years and 12.2% were female. In a majority of tier 1 and 2 visits in which antibiotics were given, the reviewers found evidence for GU infection (69.7%) and favored prescribing of antibiotics (60.6%) (Table). In contrast, most patients in the tier 3 category who received antibiotics were judged to have noninfectious conditions (eg, benign prostatic hypertrophy) and to not require antibiotics. In the subset of records examined by both reviewers, the interrater reliability of judgments of whether antibiotics were warranted was good (ICC = .704). **Conclusions:** This preliminary validation provides support for a tier-based approach for stewardship metrics for GU conditions that relies upon electronic data to identify patients for whom antibiotics are generally not indicated.

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Understanding clinician perspectives on antibiotic associated adverse events to inform feedback

Jerald Cherian; George Jones; Taylor Helsel; Zunaira Virk; Alejandra Salinas; Suzanne Grieb; Sara Keller; Pranita Tamma and Sara Cosgrove

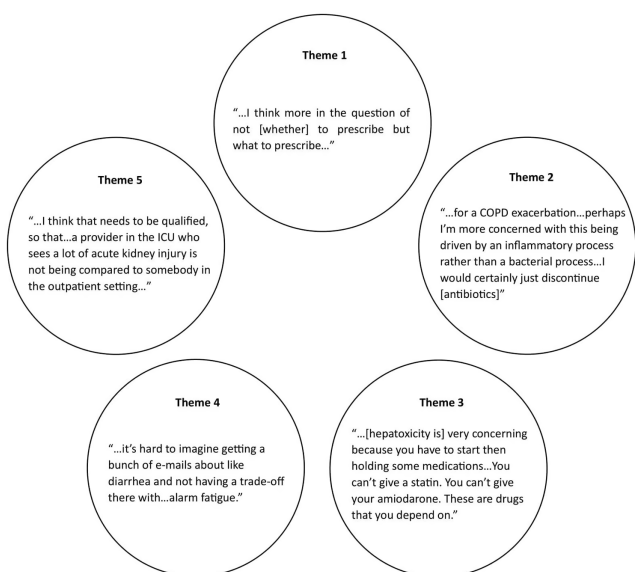
Background: Feedback regarding antibiotic-associated adverse events (ABX-AEs) may assist clinicians with antibiotic decision making. We

Table. Categorization of Antibiotic-Associated Adverse Events by Degree of Clinical Concern

Prespecified Categorization	Votes (n)*		
	Very Concerning	Moderately Concerning	Mildly Concerning
Very Concerning			
Nephrotoxicity – Requiring dialysis	12	-	-
<i>Clostridioides difficile</i> infection – Severe	12	-	-
Neuropathy	12	-	-
Stevens-Johnson syndrome	12	-	-
Anaphylaxis	12	-	-
DRESS Syndrome	11	1	-
Moderately Concerning			
Nephrotoxicity – Not requiring dialysis	-	11	1
<i>Clostridioides difficile</i> infection – Non-severe	-	10	2
Hepatotoxicity	1	4	4
Encephalopathy	2	9	-
Seizures	7	5	-
Hemolytic anemia	-	10	-
Neutropenia	1	9	-
Thrombocytopenia	1	8	1
Prolonged QTc	1	10	-
Mildly Concerning			
Diarrhea, nausea, or emesis	-	1	10
Non-hives rash	-	-	10
Myositis	-	-	10

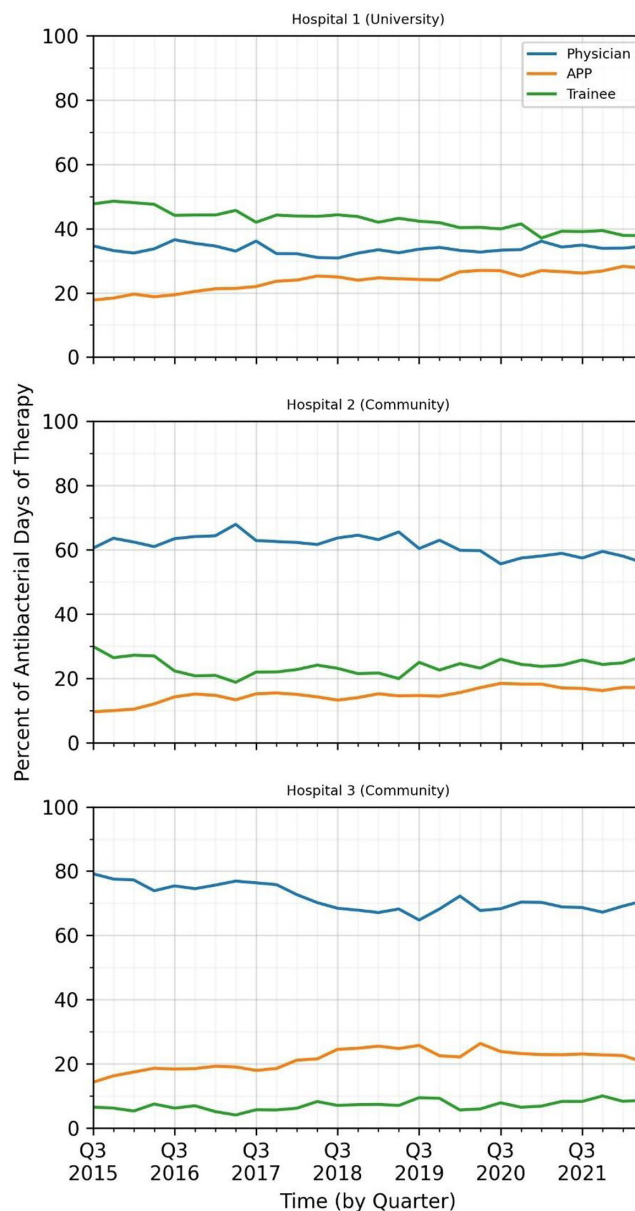
*Not all participants voted for each adverse event

Figure. Exemplary Quotes by Theme



Percent of antibacterial days of therapy by provider type and hospital

July 2015 through June 2022



sought to understand how clinicians account for ABX-AEs when prescribing and their preferences for ABX-AE feedback. **Methods:** We conducted 1-hour virtual focus groups with 3–5 physicians or advance practice practitioners (APPs) per session at Johns Hopkins Hospital. Participants discussed the role of ABX-AEs in antibiotic decision making and feedback preferences. Participants evaluated prespecified categorization (mildly, moderately, or very concerning) of several ABX-AEs. Focus groups were recorded and transcribed. Transcripts were coded inductively by 2 independent reviewers; discrepancies were resolved by consensus. Codes were used to conduct thematic analysis. **Results:** Overall, 3 focus groups were conducted with 12 participants: 41.6% were house staff, 16.7% were attending physicians, and 41.6% were APPs. Most were female (91.6%) and were white (41.7%) or Asian (41.7%). Clinicians generally agreed with the prespecified categorizations of ABX-AEs based on degree of clinical concern (Table). We identified 5 themes: (1) The risk of ABX-AE is considered during initial prescribing but influences agent selection more than the decision to prescribe antibiotics. (2) The occurrence of an ABX-AE leads to assessment of need for continued antibiotic therapy. (3) The impact of an ABX-AE on other management decisions is as important as the direct harm of the ABX-AE when assessing severity. (4) Feedback must be curated to prevent clinicians from being overwhelmed with data. (5) Clinicians will be more receptive to feedback regarding ABX-AEs if feedback is contextualized (Fig.). **Conclusions:** The themes identified and assessment of ABX-AEs of greatest clinical concern may help inform the development of effective ABX-AE feedback methods to improve antibiotic safety.

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Teams in transition: Increasing role of advanced practice providers in inpatient antimicrobial use

Reinaldo Perez; Michael Yarrington; Connor Deri; Michael Smith; Jillian Hayes; Rebekah Wrenn and Rebekah Moehring

Background: Antimicrobial stewardship strategies must be tailored to effectively engage prescribers with distinct training, experiences, and career paths. Advanced practice providers (APPs) have taken on increasing roles as primary team members in acute-care hospitals, but the impact of this practice shift on antimicrobial prescribing is unknown. We describe

Table 1. Change in Rate of Antimicrobial Use by Agent Category, 3 Hospitals, July 2015–June 2022

Agent group	Rate of change in DOT/1000 days present per Quarter	Rate Ratio comparing Q28 vs. Q1
Antibacterial	0.9931 (0.9917–0.9945)	0.8296 (0.7981–0.8624)
Antiviral	1.0121 (1.0045–1.0198)	1.3835 (1.1283–1.6964)
Antifungal	1.0014 (0.9988–1.0040)	1.0386 (0.9693–1.1130)
Protected	0.9933 (0.9895–0.9971)	0.8334 (0.7519–0.9236)

Note: DOT=days of therapy. Q=quarter. Longitudinal estimates from generalized estimating equations negative binomial regression based on quarterly measures of DOT with offset of 1000 days present.

longitudinal trends in antimicrobial days of therapy (DOT) by attributed provider type in 3 hospitals. **Methods:** We performed a retrospective time-series analysis of antimicrobial use for the 7-year period of July 2015–June 2022 to investigate the changes by provider type at 3 hospitals: a major university hospital and 2 community hospitals. DOT, antibacterial, and