

micafungin to identify opportunities for antifungal stewardship. **Methods:** We identified all micafungin completed orders and microbiological test result data from July 2018 to November 2020 among hospitalized patients in Barnes-Jewish Hospital. Continuous micafungin courses with <48 hours of interruption were considered independent courses. We evaluated micafungin use in 3 scenarios in which its use may be unnecessary: (1) patients with blood cultures negative for *Candida* spp, (2) patients with recovery of yeast or *Candida* spp from tracheal aspirates, and (3) patients with recovery of yeast or *Candida* spp from urine cultures. We only included micafungin courses if they were initiated within 5 days of blood culture collection or up to 4 days after tracheal or urine culture collection to account for incubation and decision to initiate treatment. **Results:** We found 3,381 micafungin courses in 3,287 admissions. Of these, 2,532 courses had blood culture collection around micafungin initiation and were included in the first analysis: 1,879 (74%) were negative, 149 (6%) had *Candida* spp isolated in the blood, and 504 (20%) had positive blood cultures for other organisms. Micafungin was given for a median duration of 3 days (IQR, 2–7) to those with negative blood cultures and for 3 days (IQR, 1–5) to those with positive blood cultures without candidemia ( $p < 0.001$ ), and prolonged durations of more than 5 days was seen in 768/1879 (41%) and 143/504 (28%) of courses, respectively ( $p < 0.001$ ). A total of 487 micafungin courses were initiated after tracheal aspirate culture collection. Those with yeast isolated ( $n = 100$ , 21%) received similar micafungin duration compared to those that had no yeast isolated [3 (2–7 IQR) vs. 3 (2–7) days, respectively;  $p = 0.56$ ]. Finally, a total of 844 micafungin courses started after urine culture collection. A total of 49 (6%) had yeast isolated from the urine and treatment duration was similar to those that did not [3 (1–6 IQR) vs. 3 (2–6) days, respectively;  $p = 0.87$ ]. **Conclusions:** Echinocandin treatment courses did not differ when a yeast was identified from a tracheal isolate or urine specimen. However, a substantial proportion of treatment courses were prolonged in those with negative *Candida* spp in the blood, suggesting opportunities for antifungal stewardship interventions.

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#### Presentation Type:

Poster Presentation

**Subject Category:** Antibiotic Stewardship

#### Veteran Satisfaction for Upper Respiratory-Tract Infection (URI) Visits Is Not Associated with Antibiotic Receipt But Is Associated with Antibiotic Expectation

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**Background:** Antibiotics are not recommended but are often prescribed for upper respiratory-tract infections (URIs). Prescribers cite patient expectation as a driver of inappropriate antibiotic prescribing; prior literature has demonstrated higher satisfaction scores in patients who receive antibiotics compared to those who do not. We assessed whether veteran satisfaction at URI visits was associated with antibiotic receipt or with reported expectation for antibiotics. **Methods:** We surveyed veterans with documented URI encounters in the Veterans' Affairs Tennessee Valley Healthcare System between January 1, 2018, and December 31, 2019. Patients not evaluated in person, with documented dementia, or who died prior to the study start date were excluded. Veterans were asked to recall their URI visit and to complete the Patient Safety Questionnaire (PSQ)-18 (Rand Corporation) and questions assessing antibiotic expectations. The PSQ-18, an 18-item survey that assesses patient satisfaction, uses a 5-point Likert scale (ie, strongly disagree, disagree, uncertain, agree,

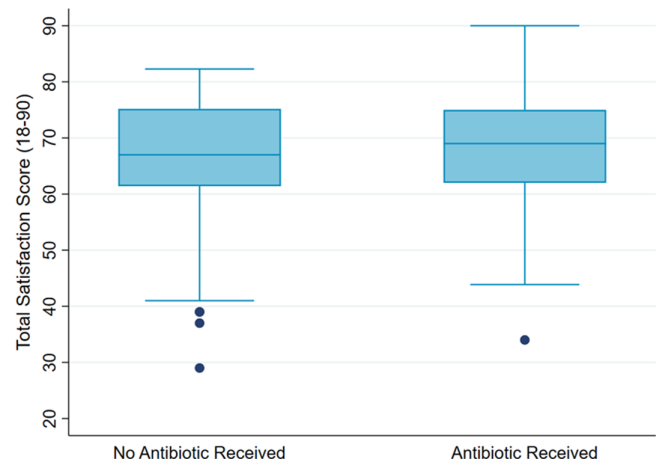


Figure 1.

strongly agree), yielding a composite score of 18–90. Higher scores represent more satisfaction with care. Demographic and visit-specific information were extracted via chart review. We used multivariable linear regression to assess differences in composite PSQ-18 satisfaction scores between those who did and did not receive an antibiotic, adjusted for patient and visit characteristics, and to assess differences in satisfaction scores for those who did and did not report expecting antibiotics, adjusted for antibiotic receipt. **Results:** We identified 1,435 patients seen for URI at 17 sites. After exclusions, 1,343 veterans were eligible for chart abstraction. After excluding 42 responders who responded after study close or returned blank surveys, the final analytic cohort included 432 (32.2%) of 1,343 responders; 225 (52.1%) received an antibiotic and 207 (47.9%) did not. Mean total satisfaction for veterans who received an antibiotic was 67.8 (SD,  $\pm 9.4$ ) compared to 66.7 (SD,  $\pm 9.7$ ) for those who did not (Figure 1). Increased total satisfaction was not significantly associated with antibiotic receipt (0.65; 95% CI,  $-2.0$  to 3.3). Most veterans (72.0%) disagreed that visit satisfaction depended on antibiotic receipt. However, only 30.8% reported that they would not expect an antibiotic for URI visits. A significant reduction in total satisfaction ( $-4.1$ ; 95% CI,  $-6.3$  to  $-1.9$ ) was associated with expecting compared to not expecting an antibiotic. **Conclusions:** Our findings suggest that prescribing an antibiotic is not associated with increased veteran satisfaction for URI visits but is associated with expecting an antibiotic. Future work will evaluate methods to change veteran antibiotic expectations.

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#### Evaluation of Procalcitonin Use in Patients Discharged from the Emergency Department with Acute Respiratory Infection

Garrett Fontaine; David Banach and Jeffrey Aeschlimann

**Background:** Acute respiratory infections (ARIs) contribute significantly to inappropriate antimicrobial prescription. The rate of such prescriptions in US emergency departments (EDs) has remained stable over time. The use of procalcitonin (PCT) testing has been shown to lower risk of mortality and to reduce antibiotic consumption. It also has the potential to aid ED physicians in stratifying ARI patients

who may require antibiotics but do not require hospital admission. In this study, we described the characteristics and proportion of antibiotic prescription in patients evaluated in and discharged from the ED with ARI. **Methods:** We performed a retrospective chart review of patients diagnosed with ARI and discharged from a single academic ED between January 2018 and January 2020. We compared those for whom a PCT test was ordered to those without a PCT test ordered at ARI diagnosis. Charts were reviewed until there were 110 subjects in each of the 2 study groups. The main outcome variable was receipt of an antibiotic prescription. The  $\chi^2$  test was used to compare the proportion of patients who received an antibiotic prescription, demographics, and clinical characteristics between the 2 groups. The Mann-Whitney *U* test was used to compare the distribution of ages between the 2 groups. **Results:** Among patients in the PCT group, 87 (79.0%) received antibiotics versus 69 (62.7%) in the non-PCT group ( $P \pm 18.8$  vs  $52.7$  years  $\pm 17.6$ ;  $P = .0002$ ); more likely to have preexisting heart and lung disease (28.2% vs 15.5%;  $P = .02$ ); more often male (58.2% vs 40%;  $p < 0.01$ ); had more subjective fevers (47.3% vs 33.6%,  $p=0.04$ ), sputum production (49.1% vs 28.2%,  $p < 0.01$ ), and nausea (17.3% vs 8.2%,  $p=0.04$ ). PCT results were low ( $\leq 0.25$ ) in 82.7% (91) of patients, of whom 70.3% (64) received antibiotics. **Conclusions:** Patients for whom PCT testing was ordered were older, had more underlying conditions and increased severity of illness. This finding may reflect that PCT testing was more likely to be ordered in patients at risk of severe infection but not requiring admission. The proportion of antibiotics prescriptions was higher for patients who had a PCT test. For patients with a low PCT result, the proportion of patients prescribed antibiotics was high. This finding may suggest that clinical characteristics were more influential than PCT result in the decision to prescribe antibiotics. More research is needed on the role of PCT testing in antibiotic prescription decisions for patients presenting to the ED with ARI.

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#### Analysis of Recurrent Urinary Tract Infection Management in Outpatient Settings Reveals Opportunities for Antibiotic Stewards

Marissa Valentine-King; Barbara Trautner; Roger Zoorob; George Germanos; Jason Salemi; Kalpana Gupta and Larissa Grigoryan

**Background:** Studies of antibiotic prescribing choice and duration have typically excluded women with recurrent UTI (rUTI), yet the Infectious Disease Society of America (IDSA) UTI treatment guidelines are applicable to recurrent and sporadic cystitis. We sought to better understand prescribing practices among uncomplicated rUTI patients in terms of choice of drug, duration of therapy, and the risk factors for receiving guideline-discordant therapy. **Methods:** We performed a retrospective database study by extracting electronic health record data from adults seen at academic primary care, internal medicine, or urology practices between November 2016 and December 2018. Inclusion criteria included having  $\geq 2$  or  $\geq 3$  *International Classification of Diseases Tenth Edition* (ICD-10) cystitis codes recorded within a 6- or 12-month period, respectively. We excluded patients with ICD-10 codes indicating any structural or functional genitourinary comorbidities, interstitial cystitis, vaginosis, compromised immune systems, or pregnancy in the prior year. Patients were also excluded if they had signs or symptoms of pyelonephritis at presentation. **Results:** Overall, 232 patients presented for 597 outpatient visits. Most were married (52.2%), non-Hispanic white (62.9%), and female (92.2%), with a median age of 58 years (IQR, 41–68). Only 21% of visits with an antibiotic prescribed for treatment consisted of a first-line therapy agent prescribed for the recommended duration. In terms of antibiotic choice, these agents were prescribed in 58.4% of scenarios, which primarily included nitrofurantoin (37.8%) and trimethoprim-sulfamethoxazole (TMP-SMX) (20.3%). Guideline-discordant choices of fluoroquinolones (28.8%), and  $\beta$ -lactams (11.2%) were the

second and third most commonly prescribed drug categories, respectively. Multinomial logistic regression identified age (OR, 1.02; 95% CI, 1.002–1.04) or having a telephone visit (OR, 3.17; 95% CI, 1.54–6.52) as independent risk factors for receiving a  $\beta$ -lactam. The duration exceeded the 3-day guideline recommendation in 87.6% of fluoroquinolones and 73% of TMP-SMX (73%) prescriptions, and 61% of nitrofurantoin prescriptions exceeded the recommended 5-day duration. Multiple logistic regression analysis revealed that seeking care at a urology clinic (OR, 2.81; 95% CI, 1.59–5.17) served as an independent factor for therapy duration exceeding guideline recommendations. **Conclusions:** This retrospective study revealed shortcomings in prescribing practices in the type and duration of therapy for rUTI. rUTI as well as sporadic UTI are important targets for outpatient antibiotic stewardship interventions.

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#### Blood Culture Utilization at Six Southeastern US Hospitals

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**Group Name:** Duke Center for Antimicrobial Stewardship and Infection Prevention

**Background:** Blood cultures are an essential diagnostic test, but over- and underutilization may cause harm. **Methods:** We analyzed blood culture utilization at 6 hospitals in the southeastern United States including 1 academic hospital (A) and 5 community hospitals (B–F) from May 2019 to April 2020. We measured blood culture utilization rate (BCUR) per 1,000 patient days and blood cultures per encounter. We counted blood cultures by laboratory accession number and measured utilization per 1,000 patient days and encounter. A likely contaminant was defined as 1 of 2 blood cultures collected in the same calendar day positive for a common skin commensal (CSC), as defined by the NHSN, and not identified from subsequent cultures. A likely pathogen was defined as a culture with a pathogen not on the CSC list or a CSC not meeting the contaminant definition. Hospital-level BCUR included samples for culture collected in the emergency department (ED) and inpatient areas divided by inpatient days. **Results:** The analysis included 117,897 blood cultures and 662,723 patient days with a median BCUR of 209.7 per hospital and median blood culture per encounter of 2 (Table 1). One community hospital (C) demonstrated a substantially higher BCUR than others. Cultures were frequently collected in the ED (54%; range, 36%–78%); most encounters with cultures in the ED

**Table 1.**

Hospital	A	B	C	D	E	F
BCUR per 1000 patient days	150.1	199.2	534.8	237	117.1	220.1
BCUR by Inpatient Unit Type						
Intensive Care	221	128.8	NA	108.7	137.4	156.5
ONC/Transplant	134.2	66.2	NA	NA	114.1	NA
Medical/Surgical	69.9	47.2	203.7	66	62.5	56.6
Pediatric Intensive Care	82.6	NA	NA	NA	1.6	1.3
Mixed Acuity	NA	45.9	105.9	51.5	40.8	23.6
Pediatric Medical/Surgical	35.5	46.2	NA	56.7	NA	NA
Labor and Delivery	8.1	19.6	155.7	5.4	2.6	6
Other	184.5	NA	NA	NA	NA	NA
N Blood Cultures	46453	7631	14624	13600	17164	18425
Percent in ED	35.7%	70.6%	63.3%	73.9%	46.3%	78.0%
Median Blood Cultures Per Encounter (IQR)	2 (2-2)	2 (2-3)	4 (3-4)	2 (2-2)	2 (2-2)	2 (2-2)
Percent with likely pathogen	8.2%	4.5%	7.0%	9.0%	9.1%	5.9%
Percent with likely contaminant	1.6%	1.9%	3.1%	3.2%	1.3%	2.5%
Percent of first blood cultures drawn after antibiotics	6.1%	5.3%	3.4%	5.9%	9.0%	5.8%