Figure 3. A) The proportion of discharges charged for the most commonly prescribed antibiotics among community-acquired pneumonia (CAP) patients with guideline-recommended treatment. B) The proportion of discharges receiving the most commonly prescribed antibiotics among community-acquired (CAP) pneumonia patients with non-recommended treatment without an antibiotic allergy or MRSA colonization.
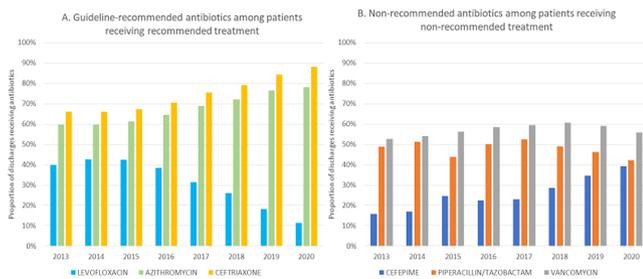
tomography (CT) scan was charged during the first 2 days of hospitalization, otherwise it was considered an inadequate CAP evaluation. Administrative billing data were used to identify antibiotics charged within the first 2 days of hospitalization. Empiric guideline-recommended treatment was determined based on 2019 CAP guidelines and more recent studies. Patients who received nonrecommended treatment were evaluated for antibiotic allergies in the current hospitalization or methicillin-resistant *Staphylococcus aureus* (MRSA) colonization or infection in the year prior or on admission using *International Classification of Disease, Tenth Revision* (ICD-10) diagnosis codes. **Results:** We identified 4.47 million adult hospitalizations with CAP from 2013 to 2020; 32% (1.43 million) were included in this analysis (Fig. 1). Among discharges with adequate CAP evaluation (1.37 million), 59.7% received recommended antibiotics in the first 2 days of hospitalization, ranging from 62.6% in 2013 to 57.5% in 2019. Overall, 34.8% of our study population received a nonrecommended antibiotic without documentation of an antibiotic allergy or MRSA colonization (2013: 32.5%; 2018: 36.7%) (Fig. 2). Most patients in our study population received >1 antibiotic (92.3%) in the first 2 days of hospitalization. The most common antibiotics among patients receiving recommended treatment were ceftriaxone (74.2% of patients receiving recommended treatment), azithromycin (67.2%), and levofloxacin (31.8%) (Fig. 3a). The most common nonrecommended antibiotics were vancomycin (57.2% of patients receiving nonrecommended treatment), piperacillin-tazobactam (48.1%), and cefepime (25.7%) (Fig. 3b). From 2013 to 2020, cefepime charges consistently increased among CAP patients treated with nonrecommended antibiotics, whereas levofloxacin charges consistently decreased among CAP patients treated with only recommended antibiotics. **Conclusions:** Approximately one-third of patients with uncomplicated CAP received nonrecommended empiric antibiotics, and from 2013 to 2020 that proportion increased by 9%. Additional strategies are needed to help identify opportunities to optimize antibiotic selection among patients with CAP.

Disclosures: None

Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Antibiotic Stewardship
Implementing a health-system–wide antibiotic stewardship program in ambulatory surgery centers
Kasey Hickman; Nicolas Forcade; Mandelin Cooper; Shivanne Bhagwandeen and Brandy Russell

Background: In 2016, the CDC released the Core Elements of Outpatient Antibiotic Stewardship, which extended the requirements previously released for hospital facilities and nursing homes to the outpatient setting. Several regulatory agencies focused on outpatient antimicrobial use. However, The Joint Commission and the Ambulatory Surgery Center (ASC) Leapfrog Group excluded ambulatory surgery centers from their medication management standards and questions. Due to the public health and patient safety benefits of implementing an antimicrobial stewardship program (ASP) and increasing regulatory interest in the matter, the Hospital Corporation of America (HCA) Ambulatory Surgery Division formally launched a nationwide ASP for its ambulatory surgery centers in March 2021. **Methods:** HCA is a large healthcare system with 146 ASCs in 16 states in 2021. The structure of the ASCs are local surgery centers with a medical director, a nurse responsible for infection prevention, and a pharmacist at a regional level. The types of surgeries vary based on location and ASC site. In 2019, a multidisciplinary team formed the corporate planning committee. The program was modeled after the CDC Core Elements and The Joint Commission's requirements for an ASP. Each ASC was asked to build a local ASP team, led by a local physician and a regionally based pharmacist. In addition, a stewardship goal was established to update all preoperative antibiotic surgical-site infection prophylaxis order sets. The corporate committee provided educational resources, including evidence-based guidelines for appropriate antibiotic selection for surgical-site infections. They collected antibiotic cost per case as a baseline metric to track and analyze. Pediatric, ophthalmic, and gastrointestinal endoscopic procedures were excluded from the program. **Results:** From January 1, 2020, through December 31, 2021, including only centers that were operational during this period and excluding single specialty endoscopy centers, antibiotic cost per case decreased annually from $2.38 to $1.84 ($t = 4.157$; $P < .005$), and the postoperative infection rate also declined from 0.370 to 0.304 ($t = 2.079$; $P = .040$). **Conclusions:** Our findings suggest that implementing a health-system–wide outpatient antibiotic stewardship program in the ambulatory surgery center setting is feasible and may contribute to decreased antibiotic cost per case and improved postoperative surgical site infection rates.

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Subject Category: Antibiotic Stewardship
Prevalence of and risk factors for bacteremic UTIs in hospitalized adults without definitive signs or symptoms of UTI
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Background: IDSA guidelines recommend withholding treatment in patients with asymptomatic bacteriuria in the absence of systemic signs of infection. However, some patients with bacteriuria may not be able to express symptoms either due to presence of indwelling catheter, underlying complicated urologic anatomy, dementia, or altered mental status (AMS). Clinicians frequently treat bacteriuria in this population with antimicrobial therapy due to concern for sepsis. To determine treatment need, we aimed to review prevalence and risk factors for bacteremic urinary tract infection (UTI) in a cohort of hospitalized inpatients without definitive signs and symptoms of a UTI. **Methods:** This retrospective cohort study of inpatients with a positive urine culture who presented without definitive signs or symptoms of a UTI was conducted between July 1, 2017, and June 30, 2022, in 68 academic and community hospitals (Michigan Hospital Medicine Safety Consortium). Signs and symptoms were obtained from medical record review 3 days before and after urine-culture collection. Bacteremic UTI was defined as any positive blood culture growing at least 1 organism matching the urine culture. Risk factors for bacteremic UTI were assessed using multivariable logistic regression models with results expressed as odds ratios (ORs) for dichotomous variables and relative risks (RRs) for continuous variables. **Results:** Of 11,793 patients meeting study criteria, 73.6% were female with a median age of 78.2 years. Overall, 41.8% had AMS, 33.8% had dementia, 15.6% had an indwelling urinary catheter, and 54.6% had complicated urologic history (eg, urologic surgery). Of these, 166 patients (1.4%) developed bacteremic UTI. On adjusted analysis, male sex, hypotension, heart rate >90, urinary retention, fatigue, log of serum leukocytosis [1 log increase in serum WBC = 2.718 × serum white blood cell count (WBC)], and pyuria with >25 WBC per high-powered

Table: Risk factors for bacteremic UTI in hospitalized older adults without definitive signs or symptoms of UTI, Multivariable Model*

Variable (n=11,793)	N (%) unless specified	OR/RR	95% Confidence Interval		P€
Age (Median IQR)	78.2 (67.7-86.6)	1.01	1.00	1.03	0.07
Male sex	3114 (26.4%)	**1.45**	1.02	2.07	0.04
Hypotension (SBP<90)	888 (7.5%)	**1.79**	1.14	2.82	0.01
Heart rate >90 beats per minute	5407 (45.8%)	**1.68**	1.19	2.37	0.003
No AMS or Dementia	5299 (44.9%)	REF			
AMS (with or without dementia)	4932 (41.8%)	1.31	0.92	1.87	0.14
Dementia without AMS	997 (8.5%)	0.56	0.25	1.27	0.16
Change in urine color/character	2233 (18.9%)	1.42	0.97	2.10	0.07
Fatigue	3176 (26.9%)	**1.47**	1.04	2.08	0.03
Functional decline	947 (8.0%)	1.28	0.76	2.16	0.34
Urinary retention	927 (7.9%)	**1.79**	1.11	2.90	0.02
Indwelling catheter	1835 (15.6%)	0.93	0.61	1.43	0.75
Complicated urologic history**	6440 (54.6%)	1.26	0.86	1.85	0.24
UA WBC/hpf 0-5	1441 (12.2%)	REF			
UA WBC/hpf 6-10	1263 (10.7%)	0.78	0.28	2.22	0.65
UA WBC/hpf 11-25	1765 (14.9%)	0.66	0.25	1.73	0.40
UA WBC/hpf >25	6577 (55.8%)	**2.47**	1.23	4.96	0.01
Log serum WBC***		**3.88**	2.90	5.19	<.0001

Abbreviations: UA: Urinalysis, WBC: white blood cells, hpf: high-powered field, SBP: systolic blood pressure, OR: Odds Ratio, RR: Relative Risk, AMS: Altered mental status
*Definitive signs or symptoms of a UTI: Dysuria, urgency, frequency, fever, rigors, suprapubic pain, flank pain, spasticity, hematuria
**Complicated urologic history: was defined as a history of nephrolithiasis (kidney stones), urologic surgery (ureteral stents, cystoscopy, suprapubic catheter, lithotripsy, ureteroscopy, percutaneous nephrostomy tube), urinary obstruction, urinary retention or neurogenic bladder, urinary incontinence in the 30 days prior to the hospital encounter.
***Log serum WBC: 1 unit increase in log Serum WBC = Serum WBC X 2.718
€P <0.05 was considered significant

Figure: Antibiotic use among SARI patients according to the AWaRe classification during the pre- and COVID-19 pandemic periods in Bangladesh

field (WBC/hpf) on urinalysis were associated with bacteremic UTI (Table). Older age, presence of an indwelling catheter, complicated urologic history, functional decline, AMS, dementia, and change in urine were not associated with higher odds for bacteremic UTI (Table). Of patients with AMS and no definitive signs or symptoms of a UTI, only 89 (1.8%) of 4,932 developed a bacteremic UTI. **Conclusions:** Bacteremic UTI is relatively rare in hospitalized inpatients presenting with bacteriuria without symptoms of UTI. Predictors of bacteremic UTI included male sex, hypotension, tachycardia, urinary retention, fatigue, serum leukocytosis, and higher levels of pyuria (>25 WBC/hpf) on urinalysis. Our findings provide stewards a framework to risk stratify inpatients of older age who present with positive urine cultures but without (or are unable to express) signs or symptoms of UTI.
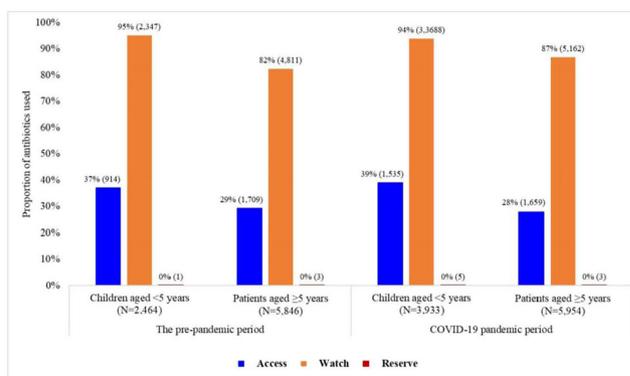
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Poster Presentation - Poster Presentation
Subject Category: Antibiotic Stewardship
Antibiotic use among SARI patients according to the AWaRe classification before and during the COVID-19 pandemic in Bangladesh

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Background: Irrational antibiotic use among hospitalized patients can lead to antibiotic resistance. For rational use, the WHO introduced the Access, Watch, and Reserve (AWaRe) classification of antibiotics. We explored antibiotic use according to the AWaRe classification among patients hospitalized with severe acute respiratory infection (SARI) between the prepandemic and COVID-19 pandemic periods in Bangladesh. **Methods:** From June 2017 to November 2022, we analyzed SARI inpatient data from the hospital-based influenza surveillance platform at 9 tertiary-level hospitals in Bangladesh. We defined June 2017–February 2020 as the prepandemic period and March 2020–November 2022 as the pandemic period. Physicians identified inpatients meeting the WHO SARI case definition and recorded patient demographics, clinical characteristics, and antibiotics received during hospitalization. We used descriptive statistics to summarize the data. **Results:** We enrolled 20,640 SARI patients (median age, 20 years; IQR, 1.6–50; 63% male); and among them, 18,197 (88%) received antibiotics (26% of those received >1 different course of antibiotics). Compared to the prepandemic period, the proportion of antibiotic use among SARI patients was higher during the pandemic: 93% (9,887 of 10,655) versus 83% (8,310 of 9,985) ($P < .001$). According to AWaRe classification, Access, Watch, and Reserve groups accounted for 32% (n = 2,623), 86% (n = 7,158), and 0.05% (n = 4), respectively, before the pandemic and 32% (n = 3,194), 90% (n = 8,850), and 0.08% (n = 8), respectively, during the pandemic (Fig.). The most common antibiotic prescribed for children aged <5 years during the prepandemic was ceftriaxone (n = 1,940, 74%), followed by amikacin (n = 325, 13%) and flucloxacillin (n = 300, 12%); similarly, during the pandemic, most common antibiotic prescribed was ceftriaxone (n = 3,097, 79%), followed by amikacin (n = 723, 18%) and flucloxacillin (n = 348, 9%). The most common antibiotic prescribed for patients aged ≥5 years during the prepandemic period was ceftriaxone (n = 3,174, 54%), followed by amoxicillin-clavulanic acid (n = 1,304, 22%) and azithromycin (n = 1,038, 18%). During the pandemic, the most common antibiotic prescribed for patients aged ≥5 years was ceftriaxone (n = 3,793, 64%), followed by amoxicillin-clavulanic acid (n = 1,327, 22%) and clarithromycin (n = 797, 13%). Among children aged <5 years, use of the Watch group of antibiotics during the prepandemic and pandemic periods was similar: 94% (n = 3,688) versus 95% (n = 2,347) ($P = .099$). However, among patients aged ≥5 years, the use of Watch antibiotics was higher during the pandemic compared to the prepandemic period: 87% (n = 5,163) versus 82% (n = 4,811) ($P < .001$). **Conclusions:** Use of antibiotics in the Watch group was predominant among SARI patients both before and during the COVID-19 pandemic, and it increased among SARI patients aged ≥5 years during the pandemic period in Bangladesh. Promoting antibiotic stewardship programs for physicians, including in-service training on antibiotic use, could reduce irrational antibiotic use, which might contribute to mitigating antibiotic resistance in the country.

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Subject Category: Antibiotic Stewardship
Electronic health record–based identification of inpatients receiving antibiotic treatment for community-acquired pneumonia

David Yang; Leigh Cressman; Keith Hamilton and Lauren Dutcher

Background: Inappropriate antibiotic use for community-acquired pneumonia (CAP) is common. Although antibiotic stewardship activities require real-time, accurate identification of patients being treated for