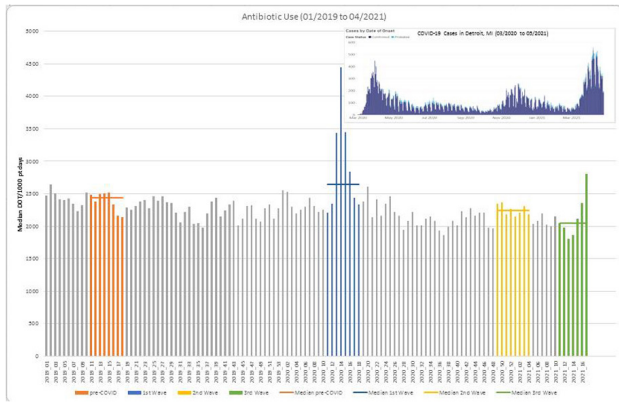


Figure 1. Antibiotic Use 01/2019 to 04/2019



Conclusion. Antibiotics used to treat bacterial pneumonia during the 1st wave of the pandemic increased and there was a shift to broader spectrum agents during that period. The increased use was not sustained during the 2nd and 3rd waves of the pandemic, possibly due to the increased awareness of the differences between patients who present with COVID-19 pneumonia and bacterial pneumonia.

Disclosures. All Authors: No reported disclosures

155. Antimicrobial Resistance Patterns as a Predictor of Standardized Antimicrobial Administration Ratio: A National Correlation Study

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Data on antimicrobial usage (AU) and antimicrobial resistance (AR) is submitted to the National Healthcare Safety Network (NHSN) from facilities monthly. Bacterial proportion resistant (%R) from the AR option reports proportion of isolates resistant to specific antimicrobial categories. Standardized Antimicrobial Administration Ratio (SAAR), generated under the AU option, compares observed to predicted days of antimicrobial therapy. The purpose of this study was to evaluate the association between %R and SAAR for broad-spectrum antibacterial agents predominantly used for hospital-onset infections (BSHO) and antibacterial agents predominantly used for resistant gram-positive infections (gram-pos) in adult intensive care units (ICUs) and medical-surgical wards (M/S).

Methods. This retrospective observational review utilized data reported to NHSN to examine the association of BSHO and gram-pos SAARs with %R for various phenotypic categories by quarter from 2017 through the second quarter of 2020. Phenotypic categories included methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus faecalis* and *faecium* (VRE), extended-spectrum cephalosporin-resistant *Escherichia coli* and *Klebsiella* spp. (ESBL), and multi-drug resistant *Pseudomonas aeruginosa* (MDR PSA). Pearson correlations were used to quantify the associations between SAARs and %R.

Results. A total of 182 institutions were included for analysis. Weak, positive correlations were observed between SAAR for BSHO in ICU and M/S for MDR PSA %R and also for ESBL %R ($r = 0.14$ to 0.22 , all $p < 0.0001$). For the gram-pos SAAR in ICU and M/S, there were weak positive correlations between MRSA %R and VRE %R ($r = 0.20$ to 0.31 , all $p < 0.0001$).

Conclusion. SAARs are multifactorial, yet these results highlight that more resistant organisms may possibly be contributing to higher use of antimicrobials for facilities. Future SAAR calculations could consider incorporating resistance trends from %R within the institution for increases in AU and adjusting SAARs accordingly. Comprehension of the relationship between %R and SAAR can aid facilities with stewardship programs and understanding how resistance contributes to antibiotic usage.

Disclosures. Julia Moody, MS, Medline (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product) Molnlycke (Other Financial or Material Support, Conducted studies in which participating hospitals received contributed antiseptic product)

156. Evaluation of Trends in Antimicrobial Use and Proportion of Culture Positive Gram-Negative/Gram-Positive Pathogens Comparing Prior to and During the SARS-CoV-2 Pandemic: A Multicenter Evaluation

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Increased risk for bacterial co-infections has been described in the pathogenesis of primary viral infections. We evaluated trends in incidence of antibiotic

use (abx) and culture positive Gram negative/Gram positive (GN/GP) pathogens in US hospitalized patients prior to and quarterly during the SARS-CoV-2 pandemic.

Table. Trends in antimicrobial use, duration, and positive GN/GP pathogen results.

	SARS-CoV-2 positive (n = 125, 303)		SARS-CoV-2 negative (n = 1,294, 444)		Not tested (n = 3,457,275)		Total Admissions (n = 4,877,022)	
	ABX ≥ 24 hrs	GN/GP positive culture	ABX ≥ 24 hrs	GN/GP positive culture	ABX ≥ 24 hrs	GN/GP positive culture	ABX ≥ 24 hrs	GN/GP positive culture
Total 7/1/19-5/15/21	66.2%	8.4%	36.7%	6.8%	27.5%	4.5%	31.0%	5.2%
Median ABX duration (days)	3.5	4.0	2.9	3.4	2.8	3.2	2.8	3.3
7/19-2/20 Pre-pandemic					30.0%	5.3%	30%	5.3%
Median ABX duration (days)					2.8	3.2	2.8	3.2
3/20-5/20	66.2%	8.8%	43.8%	7.9%	27.8%	4.9%	32.0%	5.4%
Median ABX duration (days)	3.6	3.9	2.9	3.3	2.8	3.5	2.9	3.5
6/20-8/20	65.1%	9.0%	36.9%	7.1%	21.4%	2.9%	30.6%	5.2%
Median ABX duration (days)	3.6	4.1	2.9	3.4	2.5	3.0	2.9	3.3
9/20-11/20	67.0%	7.6%	36.5%	6.7%	23.2%	3.1%	31.8%	5.1%
Median ABX duration (days)	3.4	3.9	3.0	3.4	2.8	3.1	3.0	3.5
12/20-2/21	66.7%	8.3%	35.3%	6.4%	23.7%	2.9%	33.6%	5.3%
Median ABX duration (days)	3.4	3.9	3.0	3.4	2.8	3.1	3.0	3.5
3/21-5/21	65.4%	8.4%	35.0%	6.3%	21.7%	2.9%	30.3%	4.9%
Median ABX duration (days)	3.6	4.0	2.9	3.4	2.6	3.1	2.9	3.4

Methods. We conducted a multi-center, retrospective cohort analysis of all hospitalized patients from 241 US acute care facilities with >1-day inpatient admission between 7/1/19-5/15/21 in the BD Insights Research Database (Franklin Lakes, NJ USA). SARS-CoV-2 infection was defined as a positive PCR during or ≤7 days prior to hospitalization. Admissions with abx prescribed ≥24 hrs and a GN/GP non-contaminant, positive culture were evaluated.

Results. During the pre-pandemic period (7/19 - 2/20) 30% (600,116/2,001,793) admissions were prescribed abx ≥ 24 hrs and 5.3% were positive for a GN/GP pathogen (Table 1). During the SARS-CoV-2 pandemic, abx use ≥ 24 hrs (66.2%) and positive GN/GP culture (8.4%) was highest in SARS-CoV-2 positive patients followed by patients negative for SARS-CoV-2 (abx ≥ 24 hrs 36.7%; GN/GP pathogens 6.8%), and SARS-CoV-2 not tested (abx ≥ 24 hrs 27.5%; GN/GP pathogens 4.5%). GN/GP positive culture was consistent by quarter during the pandemic for SARS-CoV-2 positive patients, whereas SARS-CoV-2 negative and not tested patients had the highest proportion of antibiotics received and positive pathogens in the first three months of pandemic. SARS-CoV-2 positive patients with positive GN/GP culture had the longest median abx duration. (Table 1) The prevalence of abx usage was highest in all groups for all abx during the early pandemic and then declined over time with the largest declines in SARS-CoV-2 positive patients. (Table 2)

Conclusion. This study highlights the impact of viral infections on both prescribing practices and prevalence of bacterial pathogens. Approximately two-thirds of SARS-CoV-2 positive patients received an antibiotic despite a low percentage of positive cultures, however aggregate antimicrobial use overall was similar prior to compared to during the SARS-CoV-2 pandemic. These data may inform opportunities for stewardship programs and antibiotic prescribing in the current and future viral pandemics.

Disclosures. Laura A. Puzniak, PhD, Merck & Co., Inc. (Employee) Karri A. Bauer, PharmD, Merck & Co., Inc. (Employee, Shareholder) Kalvin Yu, MD, BD (Employee) Vikas Gupta, PharmD, BCPS, Becton, Dickinson and Company (Employee, Shareholder)

157. A Multicenter, Mixed-Method Evaluation of Delayed Hospital Discharge in Patients with Invasive Candidiasis Receiving Echinocandins

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Patients with systemic candidiasis often receive prolonged echinocandin therapy in the inpatient or outpatient setting. Rezafungin is a novel echinocandin currently in clinical trials characterized by once-weekly dosing interval. In order to understand the potential benefit of rezafungin to facilitate earlier hospital discharge, the purpose of this project was to better understand barriers to discharge in patients with proven or suspected invasive candidiasis.

Methods. Electronic health records from two large health systems (20+ hospitals) were reviewed to identify patients given an echinocandin. Patients given an echinocandin until hospital discharge were evaluated for outpatient use as well as barriers that prevented earlier discharge. Identified barriers were developed into a quantitative framework and a qualitative interview guide. Using a constant comparative method, the framework for hospital discharge barriers was constructed using a series of open-ended questions and axial coding to identify discharge barrier themes. Results were integrated to produce a mixed-method model.

Results. A total of 1,665 echinocandin courses were evaluated. Five hundred and thirty-four patients (32%) received echinocandin therapy until at least the day of

hospital discharge of which 328 of 534 (61%) patients were either discharged to home or transferred to another facility. Significant predictors for outpatient echinocandin use were osteomyelitis (OR 4.07, 95% CI: 1.06-15.66; $p=0.041$) and other deep-seated infection (OR 4.44; 95% CI: 1.65-11.96; $p=0.003$). Stewardship analysis identified the majority of patients (54%) had the possibility for at least one day earlier discharge (potential earlier discharge: 1.65 ± 1.16 days). The quantitative model identified major barriers to be transition of care-, other medical care-, and infectious diseases-related. The qualitative model largely agreed with the quantitative model with additional psychosocial and health care access variables identified.

Conclusion. Using a mixed method approach, barriers to hospital discharge and potential use of new antifungal therapies were identified. These data could be used to assist transitions of care in patients with invasive candidiasis.

Disclosures. Truc T. Tran, PharmD, Merck (Grant/Research Support) Kevin W. Garey, Pharm.D., M.S., FASHP, Summit Therapeutics (Research Grant or Support)

158. National Cross-Sectional Study of Factors Influencing the Decision of Prescribing Penicillin as First Choice among Dentists in Japan

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Antimicrobial stewardship programs are needed to improve antimicrobial use among not only physicians but also dentists. This study aimed to investigate the factors influencing the decision of prescribing penicillin as first choice among dentists at clinics in Japan.

Methods. We conducted a nationwide cross-sectional study of dental clinics in Japan between July and September 2020. Data on the following were collected using questionnaires: basic information, types of antimicrobials stocked, first-choice antimicrobials, and knowledge and practice of antimicrobial resistance and infectious endocarditis. Using logistic regression, odds ratios (ORs) and 95% confidence intervals (CIs) were estimated to assess the factors influencing penicillin prescription.

Results. Among the 1700 participating dental clinics, 342 dental clinics responded. The median age of the study cohort was 57 (49-65) years, and there were 298 (87.1%) men. The first choice of antimicrobials was third-generation cephalosporin (169 [49.4%]), followed by penicillin (103 [30.1%]) and macrolide (19 [5.6%]). In multivariate analysis, clinics with stocked penicillin (OR = 27.30 [95% CI: 12.04-63.00]) and with more than two dentists (OR = 0.48 [95% CI: 0.24-0.92]) were associated with penicillin use as first choice.

Variables	Penicillin (n=103)	Other antibiotics (n = 239)	Adjusted odds ratio (95% confidence interval)	Adjusted P value
Post-graduated year (median [interquartile range])	30 [19.5-37]	33 [24-41]	0.97 (0.95-1.43)	0.047
Sex (Male)	90 (89)	208 (87)	0.72 (0.27-1.90)	0.513
Clinics with more than two dentists	39 (38)	38 (16)	0.48 (0.24-0.92)	0.003
Implemented countermeasures for antimicrobial resistance	85 (83)	45 (19)	1.10 (0.48-1.49)	0.817
Follow infectious endocarditis guidelines	43 (42)	78 (33)	0.76 (0.49-2.67)	0.424
Participated at least one seminar per 6 months	86 (83)	177 (74)	1.14 (0.49-2.67)	0.761
Clinics with stocked penicillin	89 (86)	59 (25)	27.30 (12.04-63.00)	<0.001

Conclusion. This is the first study investigating the factors influencing the decision of prescribing penicillin as first choice among dentists in Japan. Further studies evaluating the relationships between penicillin use as first choice and stocked penicillin in the clinic and the number of working dentists are needed.

Disclosures. All Authors: No reported disclosures

159. Characterization of Suboptimal Discharge Antimicrobial Prescriptions and Effect of Inpatient Audit and Feedback on Quality of Antimicrobial Prescribing

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Approximately 30% of children are discharged from the hospital with an antimicrobial prescription; nearly a third of these prescriptions are suboptimal. Although the best approach to antimicrobial stewardship of discharge prescriptions remains uncertain, prospective audit and feedback (PAF) has improved inpatient

antimicrobial use. We aimed to identify and characterize suboptimal discharge antimicrobial prescribing and assess the impact of inpatient PAF on the quality of discharge antimicrobial prescribing at a free-standing children's hospital.

Methods. A retrospective review of enteral discharge antimicrobial prescriptions between 12/1/20-5/31/21 and parenteral antimicrobial prescriptions sent to our hospital's infusion pharmacy between 3/1/21-5/31/21 was performed to determine if suboptimal or not. A prescription was determined to be suboptimal if the antimicrobial choice, dose, frequency, duration, formulation, or indication was not consistent with institutional and/or national guidelines. Data collection included the antimicrobial, indication, and prescribing medical service. Prescriptions were evaluated for a corresponding inpatient PAF for the same drug and indication and then stratified based on inpatient PAF completion.

Results. A total of 1192 discharge prescriptions for 698 unique patients over 834 hospital encounters were reviewed. Overall, 243 (20%) prescriptions were identified as suboptimal; reasons were duration (16%), dose (8%), frequency (5%), or antimicrobial choice, formulation, or route ($\leq 1\%$). Prescriptions for cephalexin had the highest rate of suboptimal prescribing (80/167, 48%), followed by amoxicillin-clavulanate (89/203, 44%). A corresponding inpatient PAF was identified for 675 (57%) of discharge antimicrobial prescriptions. Inpatient PAF prior to discharge resulted in fewer suboptimal discharge prescriptions for the same antimicrobial (8% vs. 36%, $p < 0.001$).

Table 1. Suboptimal prescription characterization by antimicrobial type, indication, and prescribing medical service

Variables	Total N=1192	Suboptimal N=243
Antimicrobial type (%)		
Narrow spectrum antibiotics	599	125 (51)
Broad spectrum antibiotics	356	113 (47)
Antifungals	113	4 (2)
Antivirals	124	1 (0.4)
Antibiotic type (%)		
Beta-lactam/Beta-lactamase inhibitor	203	89 (37)
First-generation cephalosporin	167	80 (33)
Fluoroquinolones	113	15 (6)
Sulfamethoxazole-trimethoprim	207	12 (5)
Amoxicillin, penicillin, ampicillin	58	11 (5)
Third-generation cephalosporin	18	7 (3)
Other	189	24 (10)
Indication (%)		
Prophylaxis	627	137 (56)
Gastrointestinal/Intra-abdominal infection	98	27 (11)
Urinary tract infection	74	12 (5)
Skin and soft tissue infection	111	11 (5)
Lower respiratory infection	82	8 (3)
Oral, middle, and upper respiratory infections	30	5 (2)
Non-infectious	48	16 (7)
Other	122	27 (11)
Medical service (%)		
Otolaryngology	111	67 (28)
Plastic Surgery	37	32 (13)
Cardiology	80	24 (10)
General Surgery	80	22 (9)
General Pediatrics	161	20 (8)
Gastroenterology	47	18 (7)
Hematology/Oncology	268	10 (4)
Intensive Care	50	5 (2)
Pulmonology	37	3 (1)
Urology	45	3 (1)
Cardiovascular Intensive Care Unit	31	2 (1)
Liver Transplant	54	2 (1)
Nephrology	42	2 (1)
Stem Cell Transplant	66	2 (1)
Other	83	31 (13)

Conclusion. Antimicrobial prescribing at inpatient discharge was suboptimal in 1 of every 5 prescriptions. Inpatient PAF was associated with improved antimicrobial prescribing at hospital discharge. Antimicrobial stewardship programs should continue to explore ways to capture and intervene on antimicrobials prescribed at discharge.

Disclosures. Hayden T. Schwenk, MD, MPH, Nothing to disclose

160. Urgent Care Prescriber Perspectives on Antibiotic Prescribing During the COVID-19 Pandemic

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Session: P-09. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background. Urgent care practices were significantly impacted by the COVID-19 pandemic. Studies conducted early in the pandemic demonstrated dramatic decreases in outpatient antibiotic prescribing, particularly amongst agents typically used for respiratory infections. We observed a 33% decline in urgent care antibiotics prescribing during the COVID-19 pandemic in our urgent care clinics. We investigated the prescriber experience to elucidate factors influencing antibiotic use for respiratory conditions during the COVID-19 pandemic at two academic urgent care clinics.