Conclusion. The main reason for inappropriate prescribing in the ED was excess duration of therapy, making this an area of opportunity for future antibiotic stewardship improvement.

Disclosures. Rachel Kenney, PharmD, Medtronic, Inc. (Other Financial or Material Support, spouse is an employee and shareholder) Susan L. Davis, PharmD, Nothing to disclose

148. Implementation of Restriction Criteria within an Electronic Medical Record and Its Impact on Carbapenem Prescribing

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

Background. Carbapenem restriction criteria (CRC) were developed by our health system to conserve the prescribing of these broad-spectrum agents. The purpose of this study was to compare pre and post EMR implementation of adherence to the system-approved CRC and if there was an association with decreased utilization of carbapenems.

Methods. A retrospective cohort review from January 2018 to June 2020 was performed via the Cerner EMR at 3 community hospitals in Arizona (AZ) and California (CA) to determine if CRC was appropriate at time of carbapenem initiation. Admitted patients > 18 years prescribed meropenem or ertapenem and received at least one dose were included. Health System approved CRC are shown in Table 2.

Results. A total of 160 patients were analyzed, including 60 pre-EMR CRC intervention and 100 post intervention. Forty-five patients (28%) had a documented history of ESBL infection as shown in Table 1. Figure 1 shows carbapenem utilization over the study period. An interrupted time series analysis was performed for both AZ and CA. After correcting for pre-intervention trends, AZ days of therapy (DOT) decreased by 6.2 DOT per 1000 patient days within 1 month post intervention (23%, p< 0.0001); the model predicted a further drop of 0.6 DOT per 1000 patient days per month over the 6 months post intervention. The CA DOT decreased by 1.2 DOT per 1000 patient days 1 month post intervention (17%, p= 0.28), with a predicted further drop of 0.28 DOT per 1000 patient days per month over the 6-month period post intervention. Post implementation retrospective review as described in Table 2 aligned with EMR restriction criteria selection for 68% of patients; interfacility differences occurred with 96% of CA reviews supported by criteria and 59% of AZ reviews supported by criteria (p= 0.0025).

Conclusion. This analysis supports that implementation of an EMR tool is an effective intervention to decrease unnecessary carbapenem use at the time of prescribing. The ESBL rate was similar pre and post intervention which may indicate that decreases in DOT were not due to a difference in MDRO rate. This study also highlights the different baseline antibiotic prescribing practices that may exist between facilities.

Disclosures. All Authors: No reported disclosures

149. Impact of Stewardship on Antibiotic Utilization Rates During the COVID-19 Pandemic: Successes and Challenges in a Regional Hospital

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

Background. Antibiotic stewardship (AS) is at the core of patient safety and prevention of antimicrobial resistance. Healthcare providers prescribe antibiotics for COVID-19 despite low rates of bacterial co-infection. Our regional hospital had antibiotic utilization (AU) rates higher than other health systems even prior to the emergence of SARS-CoV2. We analyzed the effect AS on AU during the pandemic.

Total Antibiotic Utilization Rates Before and During COVID-19 Pandemic

Methods. Total and specific AU rates were benchmarked using BD MedMined’s medication analytics system from 2nd quarter 2019 to 1st quarter 2021. The AS team released yearly antibiogram and individual prescriber’s AU rates and performed weekly, and as needed, review of antibiotic ordering and feedback. To assist in appropriate prescribing decisions, remote educational sessions or mini-lectures and local

Table 1: Patient Characteristics

| Number of Patients | (N= 160) |
|--------------------|----------|
| **Male gender**    | 79 (49%)  |
| **Age (Mean)**     | 67.6 years|
| **Documented history of ESBL infection** | 45 (28%)  |
| **Positive blood culture during admission** | 33 (21%)  |

Table 2: Results from Pre and Post Carbapenem Restriction Criteria EMR Implementation

|                  | Pre Intervention | Post Intervention | P value |
|------------------|------------------|-------------------|---------|
| Carbapenem prescribed |                  |                   |         |
| Meropenem        | 26 (42%)         | 25 (75%)          | 0.0052  |
| Ertapenem        | 44 (74%)         | 11 (25%)          |         |
| Confirmed ESBL infection during admission |                  |                   |         |
| 17 (41%)         | 20 (31%)         |                   |         |

Health system CRC for carbapenem use

Shed spectrum gram-negative bacteria at 48 hours

Drug spectrum gram-negative failure at 24 hours

HSRIC infections

Not per criteria

Not able to determine

EMR CRC matched clinical review (applicable for post intervention only)

Overall total

AZ

CA

Infections diseases consulted at time of carbapenem initiative

45 (75%) 78 (79%) 0.630
antibiotic guidelines were developed during the pandemic period. AU rates were monitored quarterly to determine the effects of the AS interventions to prescribing practices.

**Results.** Total and specific AU rates were higher (up to 34% and 80%, respectively) in our index hospital compared to other non-teaching hospitals nationally prior to the pandemic. Total antibiotic utilization increased by only 5.5% in the 2nd quarter 2020, peak of AU during the pandemic. Total, vancomycin, piperacillin-tazobactam and quinolone utilization rates decreased by 19%, 41%, 38%, and 52%, respectively, at 1st quarter 2021 compared to 4th quarter 2019. Steeper decreases were noted with implementation of educational activities. Ceftriaxone use remained high and was 50% greater than comparator hospitals at 1st quarter 2021.

**Conclusion.** Although problematic during the COVID-19 pandemic, AS can have significant impact on provider prescribing practices and decrease total and specific antibiotic utilization rates. The use of ceftriaxone, an antibiotic commonly used for empiric bacterial coverage for community acquired pneumonia, presents as a continuing challenge.

**Disclosures.** All Authors: No reported disclosures

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**150. Improved Susceptibility of Pseudomonas aeruginosa to Ceftazidime (CEF) at a Veteran's Healthcare Hospital, over a 7-Year Period (2011-2017): The Impact of Antibiotic Rotation/Cycling and Reversal of Drug Resistance in P. aeruginosa**

**Background.** Pseudomonas aeruginosa continues to be an important cause of nosocomial infections associated with a high morbidity and mortality. Despite the availability of ceftazidime-avibactam (CAZ-VI) and ceftolozane-tazobactam (CFT-TAZO), CEF continues to be an empiric agent of choice in several institutions. **Aim:** To evaluate the prevalence and trend in susceptibilities of P. aeruginosa to CEF over a 7-year period, identify possible correlation with the use of CAZ, AZT, PTZ, CIP, and CAR, (DOT/1000 patient days), as a quality improvement (QI) measure for optimizing CEF use, introduce antibiotic cycling as a tool to avoid emergence of drug resistance in P. aeruginosa.

**Methods.** A retrospective review of antimicrobial susceptibility data of all isolates of P. aeruginosa, (inpatient and outpatient) at the Detroit VAMC pre and post implementation of antibiotic cycling, over a 7-year period (2011-2017) was performed. Susceptibility testing was performed by reference broth micro-dilution methods in a central laboratory. Data analysis was performed using Pearson correlation coefficient score. Being a QI project, clinical data were not reviewed.

**Results.** A total of 977 isolates were identified during the study period. (drug use are in DOT/1000 PD); CAZ and AZT use surged during 2013-14 from 5 to 8 dropping in 2015-17 to 3. PTZ use increased from 4 in 2012 to 100 during 2011-14 but dropped to 38 in 2015-17 (drug shortage); CAR use averaged at 10 until 2016 and dropped to 8 in 2017; CIP use dropped by 50% from 30 in 2012 to 15 in 2017; P. aeruginosa susceptible to CEF decreased from 88% in 2012 to 81% in 2014 mirroring the increased use of CEF, AZT, CAZ, and CIP; AG use was very low < 5. With restrictions on the use of AZT, CAZ, and CIP; from 2014-15, CEF susceptibility increased significantly to 95.5% in 2015. Drug shortage of PTZ in 2015 and increased use of CEF from 2015-17 led to a drop in susceptibility to (82%); P. aeruginosa susceptible to CAR and AG averaged 84% and 97% respectively (2011-17). However, reintroduction of PTZ, resulted in improved susceptibility of P. aeruginosa to CEF by 40% within a year.

**Conclusion.** Judicious antibiotic use and antibiotic rotation play a significant role in reversing drug resistance in P. aeruginosa.

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**151. Association Between Outpatient Antibiotic Prescribing, Antimicrobial Resistance, and Initial Presentation to Inpatient Setting for Urinary Tract Infections Among Older Adults in New York State**

**Background.** Antibiotic prescribing (AP) and resistance (AR) may influence severity of illness in urinary tract infection (UTI). Limited data exist assessing the relationship between county-level AP and AR on initial presentation to hospital for UTI. This study evaluated the association between county-level AP and AR on UTI severity of illness among hospitalized patients in New York State.

**Methods.** Retrospective, cross-sectional analysis, combining data from New York State Statewide Planning and Research Cooperative System (SPARCS) and previously published data on countywide antimicrobial resistance and antimicrobial prescribing. Inclusion criteria: female patients admitted to a New York inpatient setting in 2017, UTI diagnosis (ICD-10: M30.9); Exclusion criteria: Exclusively inpatient prescrib ing or resistance. All patient refined (APR) clinical severity ≥ 3 was the primary outcome. Counties were classified as prescribing above or below the median prescribing proportion, and above or below the median prevalence of E. coli resistance for TMP- SMX and CFT. Countywide prescribing practices, antimicrobial resistance, patient factors, and location factors were evaluated for association with APR clinical severity ≥ 3 using chi-squared and logistic regression.

**Results.** 8,024 patients met study criteria. Baseline characteristics are presented in Table 1. 3,597 (44.8%) had an APR severity of ≥ 3. Factors associated with APR severity ≥ 3 include age group (P = 0.001), ethnicity (P = 0.013), hospital county (P < 0.001), first line prescribing ≤ 45% (P = 0.049), E. coli TMP-SMX resistance ≥ 29% (P < 0.001) via chi-squared test. In the logistic regression analysis counties with higher first line prescribing was associated with decreased odds for severe infection (aOR: 0.83 [0.72 – 0.97]). Additional factors associated with severe infection are presented in Table 2.

**Disclosures.** All Authors: No reported disclosures

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**152. Use of Antimicrobials among Suspected COVID-19 Patients at Selected 12 Hospitals in Bangladesh: Findings from the First Wave of COVID-19 Pandemic**

**Background.** Antimicrobials are empirically used in COVID-19 patients resulting in inappropriate stewardship and increased antimicrobial resistance. Our objective was to assess antimicrobial use among suspected COVID-19 in-patients while waiting for the COVID-19 test report.

**Methods.** From March to August 2020, we collected data from in-patients of 12 tertiary-level hospitals across Bangladesh. We identified suspected COVID-19 patients; collected information on antimicrobial received within 24 h before and on hospitalization; and tested nasopharyngeal swab for SARS-CoV-2 using rRT-PCR. We used descriptive statistics and a regression model for data analysis.

**Results.** Among 1188 suspected COVID-19 patients, the median age was 34 years (IQR: 25-56), 69% were male, 40% had comorbidities, 53% required oxygen, and 1% required ICU or ventilation support after admission. Antibiotics were used in 92% of patients, 47% within 24 h before, and 89% on admission. Patients also received anti-viral, mostly favipiravir (1%) and antiparasitic drugs particularly ivermectin (3%). Third-generation cephalosporin use was the highest (70860%), followed by macrolide (48140%), and the majority (85378%) who took antibiotics were SARS-CoV-2 negative. On admission, 77% mild and 94% moderately ill patients received antibiotics. Before admission, 3% patients had two antibiotics, and on admission, 27% received two to four classes of antibiotics at the same time. According to WHO AWaRe classification, the Watch group antibiotics were mostly used before (43%) as well as on admission (80%). Reserve group antibiotic particularly Linezolid was used in 1% patients includes mild cases on admission. Antibiotic use on admission was higher among