than 20 patients admitted. Level 3 and Level 4 NICUs comprised 51% and 48% respectively. Delivery units comprised 74%, the rest were referral centers. AS programs were in place in 62% of the hospitals and 47% of the units had NICU specific initiatives. Patients were on average 32.5 weeks gestational age (+/-5.3 SD), with birth weight of 1976 grams (+/- 1022 SD), and were 32 days (+/-65 SD) postnatal age at the time of the study.

Antibiotics were the most frequently used medication in 92% of patients with 931 antibiotics prescribed on the assessment day. Hospitals with any NICU AS initiative had significantly lower rates of antibiotic utilization compared to NICUs without AS (21% and 32%; p-value: < 0.01). Of those on antibiotic therapy, ampicillin, gentamicin and amikacin were prescribed to 41%, 34%, and 21% of patients respectively. When only definitive treatment was evaluated, vancomycin, amikacin, and meropenem were the highest prescribed antibacterial agents at 25%, 19%, and 19% respectively. At the initial assessment, study participants indicated either 3 or 7 days (37% and 26%) for planned duration. Actual treatment duration for empiric and definitive treatment, was 7 and 14 days (29% and 19%) When comparing patients who had an established treatment course at the time of the initial assessment, the final length of treatment for culture negative sepsis was 7 (IQR:5–10) and culture positive sepsis was 11 days (IQR:10–14; p-value: 0.07).

***Conclusion.*** Benchmarking global antimicrobial use is crucial for improving NICU-AS practices.

***Disclosures.*** **Pavel Prusakov, PharmD**, **Merck** (Research Grant or Support) **Debra A. Goff, PharmD**, **Merck** (Research Grant or Support)

### 20. Fluoroquinolone and Overall Outpatient Antibiotic Prescribing Trends in Adults, 2011 to 2018

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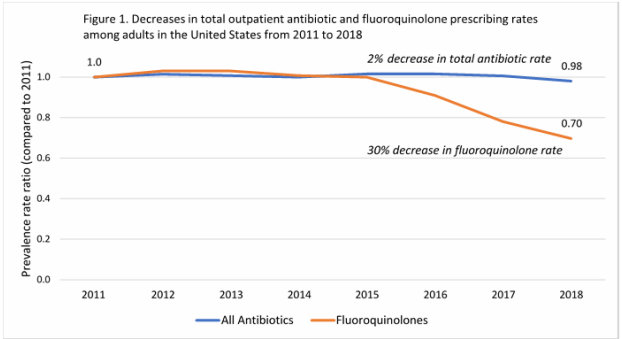
**Session:** O-5. Antimicrobial Stewardship: Population Trends in Antibiotic Use

***Background.*** Fluoroquinolones (FQs) are the third most commonly prescribed antibiotics among U.S. outpatients, and the second most commonly prescribed class among adults ≥ 65 years of age. However, FQ use has been associated with severe adverse events, especially among older adults. As a result, in 2016 the U.S. Food and Drug Administration (FDA) issued warnings against FQ use when other agents may be effective. We assessed changes in outpatient FQ prescribing relative to overall antibiotic prescribing from 2011 to 2018.

***Methods.*** We estimated annual antibiotic prescription rates in adults ≥ 20 years of age for all classes and FQs using national prescription dispensing count data from IQVIA Xponent (numerator) and census estimates (denominator) for 2011 to 2018. We used Poisson models to estimate prevalence rate ratios (PRR) and 95% confidence intervals (CIs) comparing antibiotic prescription rates overall and stratified by age group from 2011 to 2018. The Chi-square test was used to compare the percent decrease in rates between age groups.

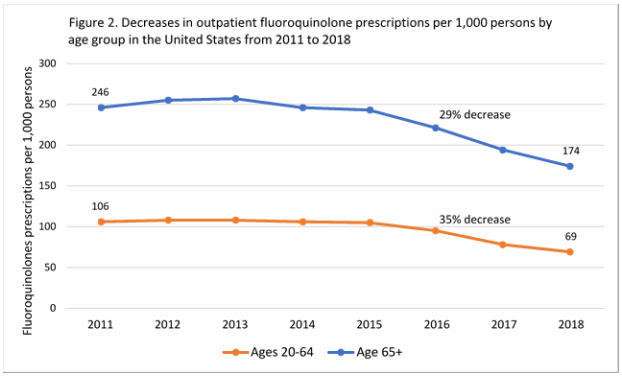
***Results.*** From 2011 to 2018, prescription rates in adults for all antibiotics decreased by 2% (PRR 0.98, 95% CI: 0.98-0.98); FQ prescription rates decreased by 30% (PRR 0.70, 95% CI: 0.69–0.70), with the largest decline from 2015–2018 (Figure 1). Adults ≥ 65 years had the highest FQ prescription rates for 2011 to 2018, at a rate 2.37 (95% CI: 2.32,2.42) times that of adults 20–64 years (Figure 2). The FQ prescribing rate in adults 20–64 experienced a greater decrease from 2011 to 2018 than the rate in adults ≥ 65 years (p< 0.0001), with a 35% decrease (PRR 0.65, 95% CI: 0.65, 0.65) in adults 20–64 years compared to a 29% (PRR 0.71, 95% CI: 0.71-0.71) decrease in adults ≥ 65 years (Figure 2).

Decreases in total outpatient antibiotic and fluoroquinolone prescribing rates among adults in the United States from 2011 to 2018




Decreases in outpatient fluoroquinolone prescriptions per 1,000 persons by age group in the United States from 2011 to 2018

***Conclusion.*** FQ prescribing decreased markedly compared to overall antibiotic prescribing from 2011 to 2018, which was likely due in part to FDA warnings on FQ-associated adverse events. However, FQ prescribing among older adults remained high during this period and did not decrease as much as in younger adults. Further evaluation of the diagnoses associated with prescribing may provide additional opportunities to optimize FQ prescribing practices, especially among older adults.




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

### 21. Association of MRSA Prevalence and Hospital-level Antibiotic Use: A Retrospective Study Across 122 Acute-care Hospitals

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**Session:** O-5. Antimicrobial Stewardship: Population Trends in Antibiotic Use

***Background.*** The prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA), varies across geographic regions, which could contribute to regional variation in antibiotic use. In this study, we evaluated whether local MRSA prevalence rates were associated with hospital-level antibiotic use across the Veterans Health Administration (VHA).

***Methods.*** This retrospective cohort included all acute-care patients admitted in VHA hospitals during 2016. Anti-MRSA antibiotics were identified per National Healthcare Safety Network definitions and use was quantified as days-of-therapy (DOT) per 1000 days-present. Hospital-level MRSA prevalence (colonization and/or infection) was determined by calculating the proportion of admissions with a positive MRSA nasal swab and/or a MRSA-positive clinical culture obtained ≤1 day before or ≤2 days after admission. Negative binomial regression models were used to determine the association between a hospital's MRSA prevalence and its antibiotic use, after accounting for intra-hospital clustering, patient case-mix, month of admission, and use of hospital-based stewardship strategies.

***Results.*** There were 548,476 admissions across 122 hospitals. The median rate of MRSA prevalence at admission was 8.0% (IQR 6.7–9.7%). Hospital level median use of anti-MRSA and total antibiotics was 96.5 (interquartile range [IQR] 81.1–116.9) and 562.1 (IQR 505.9–631.6) DOT per 1,000 days-present, respectively. In a hospital-level risk adjusted analysis, a hospital's MRSA prevalance was significantly associated with its monthly use of both anti-MRSA and total antibiotics (IRR=1.05, 95% 1.02–1.07; IRR=1.02, 95% CI, 1.01–1.03). A 5% increase in the hospital's MRSA prevalence was associated with an increase in the monthly use of anti-MRSA antibiotics and total antibiotics by 23.6 and 8.3 DOT per 1,000 days-present, respectively.

***Conclusion.*** Higher hospital-level MRSA prevalence was associated with significantly higher rates of antibiotic utilization, even after adjusting for case-mix and reported antibiotic stewardship strategies. Future benchmarking of anti-MRSA antibiotic use across hospitals may need to risk-adjust using baseline rates of MRSA prevalence.

***Disclosures.*** **Daniel J. Livorsi, MD, MSc**, **Merck and Company, Inc** (Research Grant or Support) **Rajeshwari Nair, PhD**, **Merck and Company, Inc.** (Research Grant or Support)

### 22. Patient Satisfaction Remains Unchanged Following Implementation of an Antibiotic Stewardship Intervention in Primary Care

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**CDC Prevention Epicenters Program**

**Session:** O-5. Antimicrobial Stewardship: Population Trends in Antibiotic Use

***Background.*** Inappropriate prescription of antibiotics for respiratory tract infections (RTIs) in ambulatory care settings is common, increasing the risk of adverse health outcomes. Behavioral and educational interventions targeting primary