reduction in the use of inappropriate broad-spectrum antibiotics, both intravenous and oral. The average LOS for patients admitted with CAP has also decreased, impacting patient flow within the hospital. This is a significant AMS gain and shows that penicillin plus doxycycline or a macrolide can still be the most appropriate therapy in an Australian setting.

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1845. Implementing Outpatient Antimicrobial Stewardship in a Primary Care Office Through Pharmacist-led Audit and Feedback
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Background. More than 30% of antibiotics prescribed in the outpatient setting are unnecessary. This study aimed to determine the impact of pharmacist-led audit and feedback on outpatient antibiotic prescribing for upper respiratory tract infections (URIs) and urinary tract infections (UTIs).

Methods. An observational, retrospective study was conducted at an outpatient primary care office to evaluate implementation of a pharmacist-led audit and feedback process. The office includes 0.6 FTE ambulatory care pharmacist (ACP) who completed antimicrobial stewardship training, and is part of a health system supported by a pharmacist and physician co-led antimicrobial stewardship program (ASP). Education, including pocket cards with URI and UTI guidelines were provided by the ASP in July 2017 prior to the study period (August 2017–March 2018). The ACP was responsible for weekly audit of all prescribed antibiotics for URI and UTI and providing feedback to prescribers. Appropriate duration of therapy was determined via the guidelines presented by the ASP team. Feedback included recommendations regarding watch-and-wait, antimicrobial selection, dose, and duration of therapy. The primary outcome was to compare antibiotic use over time following the implementation of the audit and feedback process.

Results. Over the study period 1,107 prescriptions were audited by the ACP. 825 URI and 282 UTI. Feedback was provided for all cases, positive feedback for 580 (52.4%), negative feedback for 380 (34.3%) and mixed feedback for 147 (13.3%). The most common reasons for feedback were inappropriate agent (26.3%) and too long duration of therapy (24.3%). Fluoroquinolone prescribing rates for UTIs decreased from 85% at baseline to 40% in Month 1 and to 11.7% of UTI prescriptions over the study period. Patients with a URI visit diagnosis code during the period of July 1, 2016–June 30, 2017 (baseline period) and July 1, 2017–June 30, 2018 (intervention period) were compared. Fewer antibiotics were prescribed for URI cases in the post-intervention period (P = 0.0045), older age (P < 0.001), and patients who were seen by a provider other than their primary care provider (P = 0.001), were associated with a higher proportion of antibiotics prescribed per URI diagnosis. There was no statistically significant difference in antibiotics prescribed for patients with and without certain comorbidities such as diabetes or chronic obstructive pulmonary disease. Fewer antibiotics were prescribed for URI cases in the post-intervention period compared with pre-intervention (54.6% vs 51.6%, P = 0.013). The most commonly prescribed antibiotics in both cohorts were amoxicillin, amoxicillin–clavulinate, and amoxicillin–clavulanate. Male gender (P = 0.0005), older age (P < 0.001), and patients who were seen by a provider other than their primary care provider (P = 0.001), were associated with a higher proportion of antibiotics prescribed per URI diagnosis. There was no statistically significant difference in antibiotics prescribed for patients with and without certain comorbidities such as diabetes or chronic obstructive pulmonary disease.

Conclusion. Antibiotic stewardship intervention was associated with a decrease in the number of antibiotics prescribed for URIs in rural clinics and represent a low-hanging fruit intervention for outpatient antibiotic stewardship programs, particularly in rural settings.

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1846. Outpatient Antibiotic Use in Viral Acute Upper Respiratory Tract Infections at a Military Treatment Facility: A Target for Stewardship Intervention
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Background. Antimicrobial stewardship programs (ASP) can be effective at reducing inappropriate antimicrobial use that contributes to antimicrobial resistance and adverse medication events. However, developing effective ASP remains an important challenge, especially in the ambulatory setting. Outpatient antibiotic prescriptions for acute respiratory tract infections (ARI) are one area in which inappropriate prescribing has been previously described, and are a potential ASP target.

Methods. In effort to develop targeted interventions, antibiotic prescribing for viral ARI was examined in primary care outpatient clinics and the emergency department (ED) of a large military medical center using the military health system management and analysis reporting tool. Adult and pediatric patient encounters from calendar year 2017 were included using 23 relevant ICD-10 diagnostic codes for viral ARI; those with concurrent diagnoses of asthma/COPD, pneumonia, chronic sinusitis, streptococcal pharyngitis, or otitis media were excluded. Frequencies of ARI diagnosis and antibiotic dispersal were calculated.

Results. In 2017, 7,288 (11.5%) patients diagnosed with ARI in 2017, 728 (11.5%) were prescribed an unnecessary antibiotic with the highest frequency of such prescriptions in those over the age of 45, females, and family members of service members. Diagnoses most associated with unnecessary antibiotic prescribing were uncomplicated bronchitis (59%) and pharyngitis (22%) for adult medicine; acute rhinosinusitis (40%) and pharyngitis (39%) for pediatric medicine; and uncomplicated bronchitis (33%) for the ED. This increased in the winter months when viral ARI are common. Approximately $22,000 was spent on unnecessary antimicrobial prescriptions with the largest contribution from macrolides.

Conclusion. Based on our analysis, we developed multipronged interventions at facility, clinic, and provider levels. Planned interventions will include interval facility-wide ASP updates with increased frequency during winter months and biannual educational sessions with staff emphasizing clinical-specific diagnoses associated with inappropriate antibiotic prescribing. Program success will be assessed with interval analysis of antibiotic prescribing after intervention implementation.

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1847. Impact of Antimicrobial Stewardship Commitment Posters on Antibiotic Prescribing for Upper Respiratory Tract Infections in a Rural Outpatient Setting
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Background. The Centers for Disease Control and Prevention advocates for the display of commitment posters in outpatient clinics for healthcare providers to pledge to only prescribe antibiotics when a bacterial infection is suspected. However, their impact on antibiotic prescribing in the outpatient setting has largely been part of multi-faceted interventions in academic medical centers or urban cities rather than in rural settings.

Methods. The objective of this study was to determine the impact of commitment posters as a single-intervention in rural outpatient clinics on antibiotic prescribing for upper respiratory tract infections (URIs). This was a quasi-experimental study performed at The Guthrie Clinic, a network of outpatient clinics located in rural New York and Pennsylvania. Commitment posters were displayed in examination and waiting rooms of outpatient clinics (n = 19) between April and June 2017 (intervention period). Patients with a URI visit diagnosis code during the period of July 1, 2016–December 31, 2016 (pre-intervention) and July 1, 2017–December 31, 2017 (post-intervention) were included. Demographic, provider, clinic, and antibiotic prescription data were collected.

Results. A total of 4,422 and 3,830 URI cases were diagnosed, and antibiotics were prescribed for 2,406 and 1,969 cases in the pre- and post-intervention periods, respectively. Fewer antibiotics were prescribed for URI cases in the post-intervention period compared with pre-intervention (54.6% vs 51.6%, P = 0.013). The most commonly prescribed antibiotics in both cohorts were amoxicillin, amoxicillin–clavulanate, and amoxicillin–clavulanic acid. Male gender (P = 0.0004), older age (P < 0.001), and patients who were seen by a provider other than their primary care provider (P = 0.001), were associated with a higher proportion of antibiotics prescribed per URI diagnosis. There was no statistically significant difference in antibiotics prescribed for patients with and without certain comorbidities such as diabetes or chronic obstructive pulmonary disease.

Conclusion. Antibiotic stewardship commitment posters were associated with a decrease in the number of antibiotics prescribed for URIs in rural clinics and represent a low-hanging fruit intervention for outpatient antibiotic stewardship programs, particularly in rural settings.

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1848. Evaluation of Antibiotic Prescribing Practices in Outpatient Clinics for the Treatment of Skin and Soft-Tissue Infections
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Background. Ambulatory visits for the treatment of skin and soft-tissue infections (SSIs) have doubled over the past decade and are one of the most common reasons for infection-related visits to outpatient clinics. However, there is limited data evaluating antibiotic prescribing in this population. We aimed to assess the management of SSIs in adult patients in order to target interventions to improve antibiotic utilization and optimize outcomes.

Methods. This retrospective study included patients within a large academic healthcare system presenting to 38 clinics. Patients were included if they had a diagnosis of a SSI (ICD-10 for cutaneous abscess, cellulitis, and local SSIs) in 2016. The primary outcome was to evaluate prescriber compliance to institutional guidelines based on infection-related visits to outpatient clinics. Patiaent demographic data were used when determining compliance to first-line (trimethoprim–sulfamethoxazole for cutaneous abscess, or cephalaxin/trimethoprim–sulfamethoxazole for cellulitis and local SSIs), and second-line recommendations (doxycycline for cutaneous abscess, or clindamycin for cellulitis and local SSIs). Duration of therapy of 5–7 days was considered compliant.

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Results. A total of 2,170 adult encounters for the treatment of SSTIs were included; 1,588 with cellulitis, 413 with local infection and 169 with cutaneous abscess. The overall compliance rate for appropriate therapy, including drug selection and duration, was 64.9% (see Figure 1). Unnecessarily long duration of therapy resulted in an extra 1,657 days of antibiotic therapy. Compliance with drug selection occurred more frequently with physicians (40.3%) compared with residents (33.9%) and Advanced Practice Providers (APP) (25.1%).

Conclusion. Compliance with an institutional SSTI guideline for antibiotic selection and duration of therapy is suboptimal in outpatient clinics. Stewardship interventions for SSTI stewardship should target both drug selection and duration, and APPs as an important provider group in outpatient settings.

Figure 1. Compliance Stratified by Infection Type

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1849. Identification of Antimicrobial Stewardship Targets in the Outpatient Setting
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Background. Outpatient prescriptions consist of 60% of all antibiotic use. Prior studies have shown antibiotic overuse in the outpatient setting which contributes to rising rates of resistance and unnecessary adverse drug events. This study aimed to prospectively identify antibiotic stewardship targets in outpatient settings including drug selection, dose, duration, and if guideline criteria was met to necessitate an antibiotic.

Methods. The patient population consisted of outpatients seen at the Veterans Affairs Western New York Healthcare System and its affiliated community-based outreach clinics. Patients were prospectively identified via a real-time alert received by the infectious disease pharmacist at the time when an oral antibiotic was prescribed from June to September 2017. Data were then collected via chart review and all infections were evaluated based on guidelines. Descriptive statistics and a multivariable logistic regression was used to identify stewardship targets.

Results. Of the 1,063 patients included, the most common infections treated included skin and skin structure infection (26.3%), urinary tract infection (18.1%), and sinusitis (11.9%). Azithromycin was the most commonly used antibiotic (27%), followed by cephalaxin (13%) and ciprofloxacin (12%). Overall, 40% of antibiotics prescribed were not indicated for use. The incorrect drug was chosen for indication in 40%, the improper dose was ordered in 22%, and the incorrect duration was used in 30%. ICD-10 codes were unreliable in capturing oral antibiotic use, as only 41% antibiotic use was associated with an ICD-10 code relating to an infection. Per the multivariable logistic regression, when the antibiotic was indicated, patients were 2.9 times more likely to receive the correct drug (95% CI, 2.3–3.8) and two times more likely to receive the correct duration for the antibiotic (95% CI, 1.5–2.7). Emergency room patients were twice as likely to receive an antibiotic when indicated based on guidelines (95% CI, 1.5–2.7) compared with those seen in clinics.

Conclusion. Poor antibiotic prescribing practices was found throughout the outpatient setting. This study provides a guide to focus efforts during implementation an outpatient stewardship program.

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1850. Impact of Targeted Feedback on Ciprofloxacin Prescribing in Outpatient Clinic Areas
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Background. Fluoroquinolones (FQ) have the potential for serious side effects such as tendonitis and tendon rupture, QTc prolongation, severe neuropathies, Clostridium difficile infection, dysglycemia, and AKI in patients on ACE inhibitors or ARBs. Beginning in 2016, the University of Chicago Medicine (UCM) Antimicrobial Stewardship Program began to give targeted feedback and education to outpatient clinic areas regarding their FQ use to reduce the number of prescriptions.

Methods. Outpatient FQ prescribing data from July 2015 to June 2016 (pre-intervention) and December 2016 to December 2017 (post-intervention) was reviewed retrospectively to evaluate indications, durations and alternatives for FQ prescriptions. Education and targeted feedback specific to the clinical area on current FQ usage was given by peer-comparison or aggregate data with recommendations for improved prescribing practices. The number of ciprofloxacin prescriptions in the pre-intervention period was evaluated in two outpatient clinics and number of ciprofloxacin prescriptions/1,000 patient discharges was evaluated in the emergency department pre and post intervention. FQ use in the two time periods was compared using the unaired T-test.

Results. Ciprofloxacin prescriptions in the primary care group (PCG) (12.9%), student care (SC) (7.1%), and emergency department (ED) (8.6%) accounted for 28.6% of overall Ciprofloxacin use in the pre-intervention time period. A significant decrease in ciprofloxacin prescribing was seen in the PCG, 8.78Rx/1,000 patient visits (PRE) vs. 5.24Rx/1,000 patient visits (POST), P = 0.001; in SC, 16.25Rx/1,000 patient visits (PRE) vs. 6.76Rx/1,000 patient visits (POST), P < 0.001; and the ED, 13.37Rx/1,000 patient discharges (PRE) vs. 9.84Rx/1,000 patient discharges (POST) (P = 0.035). Pre comparison data were well received by PCG faculty. Decreases have been sustained in each clinical area 4 (ED) to 12 months (PCG and student care) following the intervention.

Conclusion. Feedback on both aggregate clinic and individual use of ciprofloxacin resulted in decrease use in three outpatient clinical areas at UCM and was well received.

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1851. Impact of an Antimicrobial Stewardship Initiative on Fluoroquinolone Utilization in the Outpatient Setting at an Academic Medical Center
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Background. Fluoroquinolone (FQ) use is associated with the development of C. difficile colitis, emergence of multidrug-resistant pathogens and occurrence of multiple adverse effects. In light of these risks, the Food and Drug Administration (FDA) warns against the overuse of systemic FQs for certain infections. Utilization of clinical decision support systems or alert tools integrated within the computerized physician order entry (CPOE) have been implemented in the inpatient setting to reduce antibiotic use. However, there is limited data on the effectiveness of such strategies in the outpatient setting. The purpose of this study was to evaluate the impact of an antimicrobial stewardship initiative on FQ utilization in the outpatient setting.

Methods. This was a retrospective chart review of patients 21 years old or older who received a FQ upon discharge from the inpatient setting, emergency department or outpatient clinics at a large academic medical center. The intervention consisted of an automatic electronic alert that would appear upon prescribing of a FQ, suggesting use of an alternative antibiotic and requiring a diagnosis to be entered. The pre and post intervention periods spanned from November 16, 2016 to April 16, 2017 and from November 16, 2017 to April 16, 2018, respectively. The primary endpoint was the number of FQ prescriptions over the total number of visits in the pre- and post-intervention time periods. A secondary endpoint was the number of days of therapy (DOIT) in the pre- and post-intervention periods.

Results. 1,668 patients received FQs upon discharge in the pre-intervention arm and 1,494 in the post-intervention arm. Compared with the pre-intervention group, fewer FQs were prescribed in the post intervention group (P = 0.002). Fewer patients were discharged on an FQ from the ED compared with the pre-intervention arm (31 vs. 39%). However, this did not hold true when evaluating the number of FQ prescriptions written from the inpatient setting (52% in the post and 42% in the pre-intervention). DOT was lower in the post-intervention arm (10,751.5) compared with the pre-intervention period (11,981).

Conclusion. Implementation of a mandatory electronic alert tool in CPOE showed a statistically significant reduction in the overall number of FQ prescriptions between the pre and post intervention groups in the outpatient setting.

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1852. Rethinking Empirical Treatment for Urinary Tract Infections in the Outpatient Setting
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Background. Antibiotics can be useful for guiding empirical treatment. The Tufts Medical Center microbiology laboratory generates an antibiogram for the adult primary care (PC) clinic consisting of urinary isolates of E. coli to guide empirical treatment for UTI. Standard antibiograms arranged by organism are of limited utility for patients with multiple E. coli which are caused by a wide array of bacteria. Furthermore, some