Background. Antimicrobial stewardship programs (ASPs) can reduce the incidence of hospital-onset *Clostridioides difficile* infection (HO-CDI) by limiting unnecessary exposure to high-risk antibiotics, including fluoroquinolones (FQ). However, restriction policies are challenging to implement and sustain. In a mixed methods study, we explored the barriers, facilitators and efficacy of an FQ restriction policy to reduce HO-CDIs among high-risk patients.

Methods. Our ASP instituted a pilot FQ restriction policy in our ICU and solid-organ transplant wards. We evaluated 24 months of pre- and post-intervention data, including: FQ and alternative agent use, length of stay (LOS), readmission rate, mortality and HO-CDI. We conducted 12 semi-structured interviews with front-line providers, applying the Systems Engineering Initiative for Patient Safety framework to examine perceptions of FQ use, prescribing indications, perceived relationships between FQ use and HO-CDI, and barriers imposed by FQ restrictions. Time-series analysis was performed to evaluate FQ and HO-CDI data.

Results. FQ use decreased from an average of 111.6 days of therapy (DOT) per 1,000 patient-days pre-intervention to 19.8 DOT/1,000 patient-days ($P < 0.0001$). Average readmission rate, LOS on pilot units, total antibiotic use, and use of cefepime decreased after FQ restriction. Conversely, use of ceftriaxone, aminoglycosides and piperacillin–tazobactam all increased. The average HO-CDI rate was significantly lower post-intervention, although time series analysis showed a post-intervention increase in the trend in infection rate compared with the pre-intervention trend. Qualitative analysis of interviews revealed β-lactam allergy and pending discharge were barriers to FQ restriction; a patient's history of CDI and pharmacist involvement in antimicrobial decision-making facilitated FQ restriction.

Conclusion. An FQ restriction policy significantly decreased FQ use without adversely affecting readmission rate, LOS or mortality. Knowledge of barriers and facilitators to FQ use optimization among front-line staff can inform future successful ASP interventions. Further investigation into the effect of FQ restriction on HO-CDI is needed.

2065. Reducing Inappropriate Antibiotic Prescriptions in the Primary Care Setting

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Background. In 2015, the CDC established the National Action Plan for Combating Antibiotic-Resistant Bacteria, with the goal of reducing inappropriate outpatient antibiotic use by 50% by 2020. Upper respiratory infections, (URIs) account for one of the top three diagnoses prompting outpatient visits, and despite viral pathogens being the etiology of most URIs, many patients are treated with antibiotics. This study aimed to reduce inappropriate antibiotics prescribing for URIs at Cooper Primary Care offices.

Methods. Using the electronic medical record, we analyzed office visits (OVs) of 63 primary care providers during the influenza season (November 1, 2017–February 28, 2018) that were associated with a URI diagnosis code and resulted in an antibiotic prescription. The intervention was a personalized digital URI score card (Figure 1) emailed to each primary care physician. It included (1) Cooper Hospitals' Primary Care Department Average Rate of Antibiotic Prescribing for URI OVs and (2) each physician's average rate of antibiotic prescribing for URI office visits. Data were collected post-intervention (November 1, 2018–February 28, 2019) to evaluate for changes in antibiotic prescribing patterns.

Results. Using Fischer's Exact test we analyzed the pre vs. post-intervention rate of antibiotic prescribing for URI OVs. There were 7,295 total pre-intervention office visits. Of these, 41.03% resulted in an antibiotic prescription. There were 6,642 total post-intervention office visits. Of these, 35.85% resulted in an antibiotic prescription. There was a 5.18% overall decrease in antibiotics prescribed for all URI office visits ($P < 0.001$) (see Figure 2).

Conclusion. Increasing providers' awareness of their own prescribing patterns compared with their department's prescribing patterns utilizing a single report card decreased the rate of antibiotics prescribed for URIs by 5.18% for all URI-related office visits. Specifically, there was 10.19% decrease in antibiotics prescribed for bronchitis, which is by definition, of viral etiology. This is significant given the potential side-effects of unnecessary antibiotics, and the emergence of antibiotic resistance. Limitations include a lack of certainty in "true" inappropriate prescriptions and diagnosis coding.

Physician Rate of URI Antibiotic Prescribing Score Card: 2017-2018

Physician: Internal Medicine – Smith, John				
	Cooper Physician's Average Rate of Antibiotic Prescribing for URI Ovs '17-'18	Your Average Rate of Antibiotic Prescribing for URI Ovs	Total # of OV associated with URIs	Total # of OV associated with URI with ABX RX
Smith, John	41.03%	25.00%	100	25%

Pre vs. Post-Intervention: Percent of Office Visits Resulting in an Antibiotic

	Pre-Intervention 2017-2018	Post-Intervention 2018-2019	% Change	P-value
All URI-Associated Diagnosis Codes	41.03%	35.85%	-5.18%	< 0.001
Bronchitis	40.84%	30.65%	-10.19%	< 0.001
Influenza	14.45%	8.98%	-5.47%	0.0414
Pharyngitis	40.30%	33.62%	-6.68%	0.006
Sinusitis	53.49%	48.32%	-5.17%	0.002

excluded bronchiolitis,sore throat and tonsils/aden given P values

2066. Development and Implementation of Prescribing Algorithms for Antibiotics on Discharge from the Emergency Department

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Background. In the emergency department (ED), rapid decision-making and frequent distractions are often challenging to implementing effective antimicrobial stewardship. The purpose of this project is to improve guideline adherence and promote optimal use of outpatient antibiotic therapy for community-acquired infections.

Methods. Prescribing algorithms were developed to integrate clinical practice guideline recommendations with emergency department-specific antibiogram data. Algorithms for treating community-acquired pneumonia (CAP), skin and soft-tissue infections (SSTI), and urinary tract infections (UTI) were made available throughout the ED. Outcomes were evaluated through a chart review of patients prescribed empiric outpatient antibiotics for CAP, SSTI, or UTI by ED providers. Patients were excluded if they were <18 years old, pregnant, or taking antibiotics prior to arrival. The primary outcome was rate of adherence to clinical practice guidelines, defined as the selection of an appropriate antibiotic agent, dose, and duration of therapy for each patient discharged. Secondary outcomes included the rate of fluoroquinolone use, as well as all-cause 30-day returns to the ED or urgent care.

Results. When compared with patients discharged from the ED prior to algorithm implementation ($N = 325$), the post-implementation group ($N = 172$) received more antibiotic prescriptions that were completely guideline adherent (57.0% vs. 11.7%, $P < 0.01$). Post-implementation discharge orders demonstrated improvement in the selection of an appropriate agent (86.6% vs. 45.5%, $P < 0.01$), dose (89.0% vs. 77.2%, $P < 0.01$), and duration of therapy (63.4% vs. 39.1%, $P < 0.01$). Additionally, fluoroquinolone prescribing rates in this population were reduced (2.9% vs. 12.3%, $P < 0.01$). In the post-implementation patients who presented at least 30 days prior to analysis ($N = 124$), a reduction in all-cause 30-day returns to the ED or urgent care was observed (12.9% vs. 21.5%, $P < 0.05$).

Conclusion. Implementation of antibiotic prescribing algorithms improved guideline adherence in the outpatient treatment of CAP, SSTI, and UTI. By developing prescribing algorithms, pharmacists may reduce the unnecessary use of broad-spectrum antibiotics and prevent patient returns to the ED.

2067. Improving Outpatient Antimicrobial Prescribing for Respiratory Tract Infections

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Background. Antimicrobial stewardship often focuses on inpatients, yet inappropriate antimicrobial use is common in the outpatient setting. We performed a prospective, stepped wedge interventional study to assess the impact of an educational and feedback-based intervention on prescribing practices for respiratory tract infections (RTIs) in the adult primary care ambulatory setting.

Methods. Family and internal medicine practices were randomly placed into 6 cohorts, which received the intervention in a stepped wedge fashion at monthly intervals. The study period was July 1, 2016 to October 31, 2018, with the intervention occurring from October 1, 2017 to October 31, 2018. The intervention consisted of a 20-minute in-person educational session on appropriate antimicrobial prescribing for RTIs followed by monthly feedback to individual providers on their proportion of antibiotic prescriptions in comparison to their peers for (1) visits with a primary diagnosis of any RTI and (2) visits with a primary diagnosis of an RTI for which an antibiotic should rarely be prescribed (tier 3 diagnoses). The outcome of interest was whether an antibiotic was prescribed in RTI visits. Chi squared testing and logistic regression were used for analysis.

Results. Thirty-two practices participated, with 197,814 unique visits with a primary RTI diagnosis. Of these, 141,888 (71.7%) were physician visits and 55,926 (28.3%) were advanced practitioner visits (Figure 1). The proportion of visits with antibiotic prescriptions dropped from 37.2% to 24.0% following the intervention ($P <$ 0.0001). Antibiotic prescriptions were significantly reduced for all primary RTI visits, OR 0.53 (95% CI 0.52 to 0.54), as well as for visits with tier 3 RTI diagnoses, OR 0.64 (95% CI 0.60 to 0.68). The proportion of visits with antibiotic prescriptions also exhibited a marked seasonal variation, another finding of the study (Figure 2).

Conclusion. An educational intervention with provider feedback successfully reduced antibiotic prescribing for RTIs in the ambulatory setting. Additional study is necessary to assess the sustainability of response over time after discontinuation of the monthly feedback.
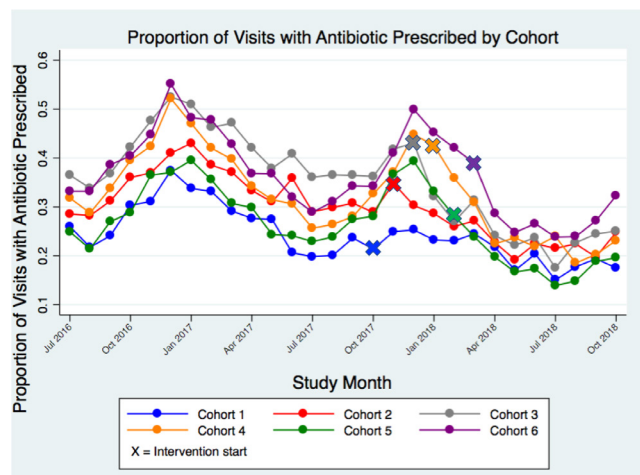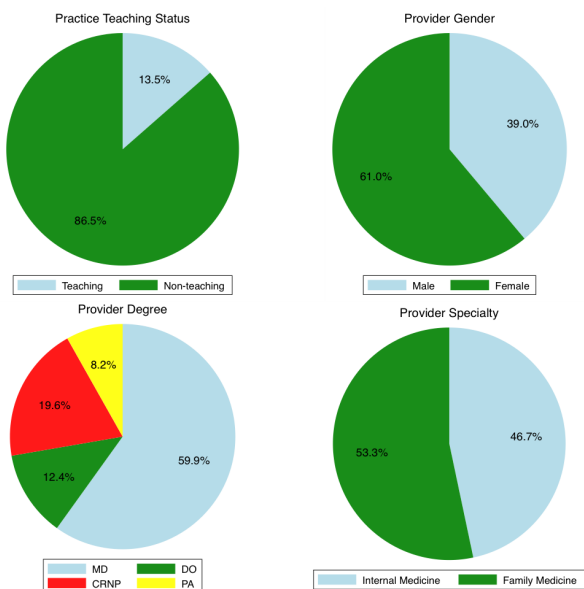
Disclosures. **All authors:** No reported disclosures.

2068. Outpatient Antimicrobial Stewardship: Optimizing Patient Care Via Pharmacist Led Culture Review

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Background. Antimicrobial stewardship programs are well established in the inpatient setting; however, progress has lagged in the outpatient setting. With a growing need for outpatient stewardship, data are needed to guide the development of new services to improve patient care. Many times, cultures are taken in the outpatient setting but results are not acted upon, leading to unnecessary re-presentations to the healthcare setting.

Methods. This study was a prospective chart review via the computerized patient record system with interventions made as needed between January 1, 2018 and January 1, 2019. Infectious Diseases received alerts when oral antibiotics for outpatient use were ordered. Cultures were reviewed daily to ensure drug-bug match and timely interventions. The primary objective of this study was to compare outcomes in patients with accepted interventions vs. rejected interventions: 30-day re-presentation rates, 30-day admission rates, and 30-day treatment failure. Descriptive statistics were used to summarize data.

Results. A total of 7,360 antibiotic orders were reviewed in real time by Infectious Diseases. Of which, 965 encounters with cultures were included in the culture review service. Pharmacists intervened on 20.1% ($n = 194$) of patient encounters. The majority of antibiotic prescriptions that required intervention were from the emergency department (42%) and primary care (39%), with the remaining 19% being from various outpatient specialty clinics. The most common antibiotics prescribed for patients requiring intervention were ciprofloxacin (26%), third-generation cephalosporins (22%), and sulfamethoxazole/trimethoprim (18%). The most common indication for use was urinary tract infection. The intervention acceptance rate was 76%. Intervention significantly decreased rates of 30-day treatment failure (5% vs. 28%, $P < 0.0001$) and 30-day admission (0.7% vs. 11%, $P = 0.0005$) when interventions were accepted rather than rejected.

Conclusion. Culture review service positively impacted outcomes for patients in the outpatient setting. For those antibiotic orders that required intervention, the intervention significantly decreased rates of 30-day treatment failure and 30-day admission when interventions were accepted.

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

2069. A Unique Approach to Outpatient Antibiotic Stewardship in Rural Southern Ohio

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Background. A five county rural community in southern Ohio was identified as having significantly higher than average rates of antibiotic use. The hospital system serving this area, Southern Ohio Medical Center (SOMC), began initial efforts in antimicrobial stewardship focusing on inpatient prescribing. However, most antimicrobial consumption occurs in the outpatient setting. Early attempts to improve antibiotic prescribing focused on only provider education and resulted in little change. Providers felt they were performing well, or their patients were more complex and prescribing the antibiotics was warranted. SOMC partnered with the state Quality Improvement Organization, HSAG, to design an intervention to address these challenges.

Methods. All outpatient and emergency room encounters with acute bronchitis and upper respiratory infection (URI) (ICD-10 codes [J00, J06.9, and J20.X]) were included in the analysis. Using criteria from a National Quality Forum measure, concomitant diagnoses were excluded to identify encounters where an associated condition may indicate the case is more complex. A 6-month baseline and two additional 6-month remeasurement periods were analyzed. Providers were given letters, peer-to-peer antimicrobial data comparison, and in-person feedback with guideline-driven recommendations for these conditions.

Results. Baseline analysis indicated 50% of all encounters without a coded concomitant diagnosis resulted in antibiotic prescriptions. There was a reduction in the overall rate at each remeasurement period, to 34% and then 12%. This resulted in a 76% relative improvement rate (RIR) overall at the final remeasurement period. At baseline, the highest volume setting, urgent care, had a prescribing rate of 71%. Urgent-care prescriptions reduced each remeasurement to 45% and 13%, resulting in an 81% RIR.

Conclusion. Implementing a robust outpatient stewardship program in a rural nonacademic setting is not without unique challenges. By using peer comparison of provider performance data on prescribing habits in uncomplicated patients with URI and acute bronchitis in addition to education, the rate of appropriate antibiotic use improved.