cases of non-agreement and obtaining GIM consensus for tool utility are important for our next step, assessing INFORMER implementation on real-time IV to PO conversion rates.

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2073. Apples and Oranges: Comparing Toolkits to Track Antimicrobial Prescribing in Ambulatory Care Settings
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Background. Between 15–50% of patients seen in ambulatory settings are prescribed an antibiotic. At least one-third of this usage is considered unnecessary. Multiple tools have emerged to evaluate antibiotic prescribing in ambulatory settings. The toolkits, MITIGATE and Choosing Wisely, have been funded by the Centers for Disease Control and Prevention and promoted by the American Board of Internal Medicine, respectively, but use different reporting criteria. Notably, the target rate of antibiotic prescribing in the MITIGATE framework is zero, whereas the target rate for Choosing Wisely is not zero because it includes diagnoses for which an antibiotic may be appropriate. Both compared to evaluate prescribing in primary care and specialty clinics, urgent care, and the emergency department.

Methods. This was a single-center observational study. Electronic medical record data were accessed to determine antibiotic prescribing and diagnosis codes. The primary outcome was rate of inappropriate antibiotic prescribing overall and in each of the individual settings.

Results. Between March 2018 and April 2019, 42,650 patient visits met MITIGATE inclusion criteria and 11% received an antibiotic unnecessarily. In the same time period, 23,366 patient visits met Choosing Wisely inclusion criteria and 17% received an antibiotic unnecessarily. Within the MITIGATE framework, inappropriate prescribing was highest in the ED (17%), followed by primary care (12%), urgent care (10%), and specialty care (5%). Choosing Wisely, inappropriate prescribing was highest in primary care (23%), followed by urgent care (15%), and specialty care (8%). The ED was not included in the Choosing Wisely technical specifications. The top coded diagnosis in both frameworks was acute respiratory infection, unspecified.

Conclusion. Rates of inappropriate antibiotic prescribing varied widely depending upon the toolkit used. Inappropriate antibiotic prescribing in primary care by Choosing Wisely framework was double that of MITIGATE. Careful consideration of the differences and goals of using these toolkits is needed both on the local level for individual provider feedback and more broadly, when comparing prescribing rates between institutions.

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2074. A Successful Acute Respiratory Tract Infection Campaign to Improve Antibiotic Prescribing in Outpatient Clinics and an Emergency Department
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Background. Acute respiratory tract infections (ARI) are infections involving the upper or lower respiratory tract. Most ARIs are viral in nature and self-limited in which most of the times antibiotic treatment is unnecessary. A recent VA medication utilization evaluation conducted in 28 medical centers identified high rates of unnecessary antibiotic prescribing for ARI. Based on these analyses the VA National Academic Detailing Service (VANADS) created the ARI campaign, providing materials for VA systems to employ as the seek to improve ARI management. Our project consists of implementation of the ARI Campaign in a South Florida Veteran Affairs HealthCare System (Miami VAMHS).

Methods. We utilized VANADS resources for our campaign. Activities included assessing ARI prescribing patterns, garnering stakeholder support, identifying pharmacist and physician champions, providing targeted academic detailing, handing out provider ARI guidance documents (in paper and electronically), disseminating provider-specific feedback with peer comparison, order-set development with advertisement, promoting appropriate coding, and reporting to the Miami VAHS antimicrobial stewardship program (ASP) Subcommittee. Campaign activities were initiated in October 2017. The ARI Campaign was selected as a priority item for FY-2019, from our annual ASP risk assessment with a goal of reducing antibiotic prescribing for ARI diagnosis to below 40%. We present the data up to March 2019.

Results. Baseline data from October 2015 through September 2017 revealed an antibiotic was prescribed to 1,651 of 2,843 (58%) encounters in which an ARI diagnosis was made in our system. In the months following ARI Campaign initiation, a decline in antibiotic prescribing for ARI diagnosis was found. In the most recent quarter (January–March 2019), the prescribing rate was 39%. Figure 1 shows system-wide vs. Florida region prescribing rates. Table 1 provides data by major site and for the top 10 priority providers we identified.

Conclusion. Implementation of a multifaceted ARI Campaign at a single-center resulted in a substantial reduction in antibiotic prescriptions. Future work is warranted investigating which activities are most impactful for reducing unnecessary antibiotic prescribing for ARI.

Table 1. Antibiotic prescribed for acute respiratory tract infection diagnosis

| Provider | Practice Location | Pre-Campaign | Post-Campaign 1 | Post-Campaign 2 |
|----------|-------------------|--------------|-----------------|-----------------|
| AI Providers | Emergency Department | 238 of 509 (47%) | 44 of 107 (41%) | 52 of 93 (56%) |
| AI Providers | Medical Center Clinic | 150 of 355 (42%) | 30 of 64 (47%) | 35 of 53 (66%) |
| AI Providers | Major Satellite Clinic | 90 of 160 (56%) | 14 of 33 (42%) | 24 of 41 (59%) |
| Provider #1 | Major Satellite Clinic | 160 of 291 | 17 of 30 (57%) |
| Provider #2 | Emergency Department | 160 of 254 | 12 of 20 (60%) |
| Provider #3 | Emergency Department | 136 of 210 (64%) | 9 of 19 (47%) |
| Provider #4 | Major Satellite Clinic | 138 of 213 | 12 of 23 (52%) |
| Provider #5 | Emergency Department | 14 of 64 | 9 of 19 (47%) |
| Provider #6 | Major Satellite Clinic | 107 of 138 | 9 of 19 (47%) |
| Provider #7 | Emergency Department | 80 of 122 | 8 of 12 (67%) |
| Provider #8 | Emergency Department | 69 of 135 | 5 of 9 (56%) |
| Provider #9 | Emergency Department | 68 of 91 | 4 of 5 (80%) |
| Provider #10 | Major Satellite Clinic | 55 of 110 | 3 of 5 (60%) |

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2075. Transforming Outpatient Antimicrobial Stewardship Through a Clinical Surveillance System
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Background. Multiple studies have highlighted the predominance of inappropriate antibiotic prescribing in the outpatient setting, thus making an area ripe for antimicrobial stewardship interventions. One of the key identifier intervention opportunities and monitor performance metrics is through utilization of a clinical surveillance system (CSS).

Methods. In October 2017, TheraDoc (DDS Inc.) was obtained which serves as a CSS. Upon installation, the antimicrobial stewardship committee designed the alerts found in Figure 1 that would be utilized to identify potential interventions. Alerts that were deemed to be of high value or time sensitive were

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to be emailed to pharmacists involved with antimicrobial stewardship. It was theorized that this method would help transform outpatient antimicrobial stewardship from a predominately retrospective approach, to a prospective approach. Outpatient stewardship metrics were compared for pre- and post-CSS implementation to evaluate the impact of a CSS. The pre-implementation group (PreCSS) represented outpatient stewardship interventions that were conducted from June 2017 to January 2018, while the post-implementation group (PostCSS) represented outpatient stewardship interventions that were conducted from February 2018 to January 2019.

**Results.** The pre-CSS group had substantially fewer charts reviewed compared with the post-CSS group (267 vs. 1,415). In addition, the pre-CSS group completed 77.6% more interventions compared with the post-CSS group (87 vs. 49). Thirty-one less charts were reviewed per one intervention, which led to 469 less minutes of chart review per one intervention. See Figure 2 for list of interventions. The PostCSS group received a significant increase in consults due to the direct approach to interventions compared with the PreCSS group (45 vs. 11).

**Conclusion.** Use of a clinical surveillance system has demonstrated an efficient way to transition outpatient antimicrobial stewardship to a prospective, interventional approach.

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2076. Comparison of Diagnosis and Prescribing Practices between Virtual Visits and Office Visits for Sinusitis within a Primary Care Network

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**Background.** Use of telemedicine to provide virtual visits and online consultations for sinusitis has demonstrated decreased time and cost savings to both patients and providers. However, limited published evidence exists regarding diagnosis and prescribing practices for sinusitis from upper respiratory tract infections; however, these infections are often viral. Virtual visits may help diagnose patients more quickly, while reducing unnecessary antibiotic use.

**Methods.** A retrospective cohort study was conducted utilizing the outpatient electronic medical record for Mercy Health Physician Partners (MHPP) and Zipnosis database for VV to compare diagnosis and prescribing between OV and VV for sinusitis. OV consisted of an online questionnaire for patients to complete, which was then sent to a provider to evaluate electronically without face-to-face interaction. Adult patients were included with a diagnosis code for sinusitis during the 6-month study period from January to June 2018. The primary objective was to compare rates of appropriate diagnosis of viral vs. bacterial sinusitis between OV and VV, based on national guideline recommendations. Secondary objectives were to compare the appropriate diagnosis and treatment between OV and VV, as well as 24-hour, 7-day, and 30-day re-visits.

**Results.** A total of 500 patients were included in the study (OV n = 175, VV n = 325). Appropriate diagnosis per national guidelines was 45.7% in OV compared with 69.1% in the VV group (P < 0.001). Additionally, patients that completed VV were less likely to receive antibiotic prescriptions (OV 94.3%, VV 68.6%, P < 0.001). Guideline-concordant antibiotic prescribing was similar between groups (OV 60.6%, VV 58.3%, P = 0.70) and both visit types had a median duration of treatment of 10 days (P = 0.88). Patients that completed VV were more likely to re-visit for sinusitis within 24 hours (OV 1.7%, VV 8%, P = 0.006) and within 30-days (OV 7.4%, VV 14.9%, P = 0.027). In multivariate logistic regression the only factor independently associated with 24-hour re-visit was patient self-report for antibiotics (OR 0.20, 95% CI 0.06–0.68).

**Conclusion.** Appropriate diagnosis of sinusitis was more likely in the VV group, which shows that VV provides a good platform to target outpatient antimicrobial prescription. These findings support opportunities for antimicrobial stewardship intervention in both OV and VV.

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2077. Fluoroquinolone Usage Reduction in the Outpatient Setting

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**Background.** Fluoroquinolones (FQs) are the third most commonly prescribed outpatient antibiotic due to ease of dosing, broad spectrum of activity, and favorable pharmacokinetics. However, since 2016, the Food and Drug Administration (FDA) has released warnings about adverse effects, concluding that risks outweigh benefits especially for uncomplicated sinusitis, bronchitis, and cystitis. In Fall 2016, our antimicrobial stewardship team began an initiative to decrease outpatient FQ usage involving provider education, addition of FDA warnings to oral FQ orders in Epic, and suppression of FQ susceptibilities. This evaluated the effectiveness of these initiatives in decreasing inappropriate FQ usage.

**Methods.** A retrospective chart review of FQ prescription was performed on all outpatient clinic, emergency department (ED), and urgent care emergency center (UCEC) visits during October 2016, 2017, and 2018. Inappropriate use was defined as an indication for cystitis, bronchitis, or sinusitis without a history of Pseudomonas aeruginosa or other multi-drug-resistant organism, or drug allergies precluding the use of non-FQs.

**Results.** One thousand outpatient FQ prescriptions were reviewed. Total FQ prescribing decreased 34% from 405 in October 2016 to 267 in October 2018, with the proportion of inappropriate FQ use decreasing from 53% to 34%. Over 90% of the inappropriate FQ use was for cystitis. Inappropriate prescribing for cystitis and sinusitis decreased by 58% and 33%, respectively, but increased for bronchitis by 25%. The outpatient clinics, ED, and UCEC saw declines in the percentage of inappropriate FQ use of 10%, 15%, and 22%, respectively, from October 2016 to October 2018. Despite these decreases, rates of inappropriate FQ utilization for the outpatient clinics, ED, and UCEC were 64%, 25%, and 31%, respectively, at the end of the last study period.

**Conclusion.** A multi-modal FQ stewardship initiative effectively reduced the volume of outpatient FQ utilization and inappropriate FQ usage. Continued efforts to educate providers about the risks of FQ use and implement system-level initiatives are likely necessary to improve the rates of appropriate use and sustain the effects demonstrated in this study, especially for primary care providers in the outpatient setting.

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2078. Patterns, Indications, and Appropriateness of Antibiotics Prescribed at a Private Dental Practice

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**Background.** Although dentists prescribe 10% of all outpatient antibiotics in the United States (US), patterns of prescribing antibiotics among dentists in the US are largely unknown especially in private practice. We aimed to describe the patterns and indications of antibiotics prescribed at a United States private dental practice and evaluate prescription appropriateness.

**Methods.** This was a retrospective cohort study of all patients who received an antibiotic at a private dental practice in Baytown, TX, between 2017 and 2019. A thorough guideline and literature search was conducted to define the indication-specific appropriate logistic regression. The prescribing dentist and an antimicrobial stewardship pharmacist reviewed each patient chart to verify diagnosis and antibiotic indication. Each prescription was categorized as appropriate (evidence supports use), inappropriate (evidence does not support use), indeterminate (insufficient evidence to determine appropriateness).

**Results.** Of 3,700 patient encounters, an antibiotic was prescribed for 230 (6.2%) encounters. Antibiotics prescribed were amoxicillin (52.2%), amoxicillin/clavulanate (27.8%), penicillin VK (7.4%), azithromycin (4.8%), clindamycin (3.5%), cephalexin (3.5%), and metronidazole (1.7%). Excluding antibiotics given as a single pre-operative dose (6% of antibiotics), the mean duration of antibiotics was 5 ± 0.6 days (mean ± SD).