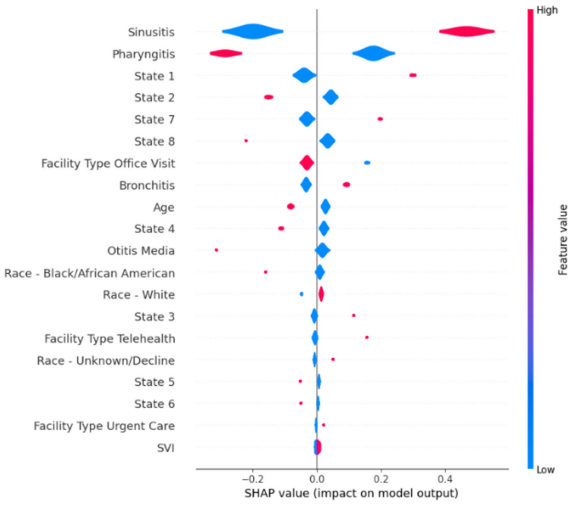
Table 1: Stratified Antimicrobial Prescribing Rates

	Encounters (n=84,724)	*p* value
Antimicrobial Prescribing Rate by Diagnosis, n (%)		<0.001
Overall URI (n=84,724)	39,930 (47)	
Sinusitis (n=35,655)	21,349 (60)	
Bronchitis (n=21,732)	10,326 (48)	
Pharyngitis (n=27,277)	9,105 (33)	
Otitis media (n=4,085)	1,442 (35)	
Antimicrobial Prescribing Rate by State, n (%)		<0.001
State 1 (n=12,341)	7,121 (58)	
State 2 (n=17,224)	7,661 (44)	
State 3 (n=6,187)	2,873 (46)	
State 4 (n=15,669)	7,199 (46)	
State 5 (n=6,024)	2,543 (42)	
State 6 (n=5,858)	2,771 (47)	
State 7 (n=12,199)	6,378 (52)	
State 8 (n=9,222)	3,384 (37)	
Antimicrobial Prescribing by Age, n (%)		—
18-64 years	29,254 (47)	
65+ years	10,676 (47)	

Figure 1: Violin Dot Plot from SHAP Model



*Nominal data points are indicated as red for "yes" and blue for "no". Continuous data points are darker red with higher values. Plots approaching +1 indicate contribution to antimicrobial prescribing and -1 indicate contribution to not prescribing antimicrobials.

Presentation Type:
Poster Presentation
Subject Category: Antibiotic Stewardship

Implementation of Urinalysis with Reflex Culture Order Sets Associated with Fewer Outpatient Antibiotics for Urinary Tract Infections

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Background: Urinalysis with reflex culture order sets (reflex order set) require urinalyses to meet specific criteria before triggering a culture to reduce unnecessary urine cultures and inappropriate treatment of asymptomatic bacteriuria (ASB). A reflex order set was designed and implemented at a large academic medical center in 2016 and updated in June 2022 to require clinicians to select which pre-specified exemption the patient met to bypass the reflex order set and order a urine culture. We aimed to assess the association between reflex order set bypass and antibiotic prescribing for urinary tract infections (UTIs) in outpatient encounters. **Methods:** Patient demographics, co-morbidities, encounter diagnoses, and treatment data, including required antibiotic indications, were extracted from all outpatient healthcare system adult and pediatric patient encounters utilizing the reflex order set. Using multivariable logistic aggression, we assessed associated odds with 95% confidence intervals (95% CI) of bypassing the reflex order set and antibiotic prescribing for UTI. **Results:** From June 2022 to June 2024, 192,310 encounters met inclusion criteria. After adjusting for patient factors, bypassing the reflex order set was associated with higher odds (2.87 95% CI: 2.81 to 2.94) of antibiotic prescribing for UTI. Increasing age, female gender, indwelling catheter, history of urological surgery, UTI, and neurogenic bladder were associated with increased prescribing. Being on immunosuppression, pregnancy, pending urological surgery, renal transplant status and chronic kidney disease were associated with reduced odds of antibiotic prescribing (Table 1). **Discussion:** Urinalysis reflex order set implementation in a large ambulatory clinic system was associated with lower likelihood of antibiotic prescribing for UTI. Further analysis will evaluate accuracy of selected bypass indications and appropriateness of antibiotic prescriptions to identify opportunities for optimizing this intervention.

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	N(%)	Adjusted Odds Ratio	95% CI
Bypass	85,783(44.61%)	2.87	2.81 to 2.94
Female	143,139(74.43%)	2.97	2.88 to 3.06
Age	44.1 (+/- 22.5)	1.01	1.01 to 1.01
Race			
White	140,279(72.94%)	Reference	Reference
Black	28,520(14.83%)	0.94	0.90 to 0.97
Hispanic	10,745(5.59%)	0.81	0.77 to 0.86
Asian	3,053(1.59%)	0.88	0.81 to 0.97
Alaskan Native	691(0.36%)	1.08	0.90 to 1.30
Other	3,256(1.69%)	0.94	0.86 to 1.02
Unknown	5,766(3.00%)	1.10	1.04 to 1.17
Diabetes	33,570(17.46%)	0.98	0.95 to 1.01
Pregnant	44,254(23.01%)	0.36	0.34 to 0.37
Chemotherapy	191(0.10%)	0.70	0.47 to 1.05
Immunosuppressants	8,691(4.52%)	0.76	0.68 to 0.85
Chronic Kidney Disease	33,770(17.56%)	0.86	0.82 to 0.89
Prior Urologic Surgery	11,330(5.89%)	1.28	1.22 to 1.35
Pending Urologic Surgery	3,012(1.57%)	0.75	0.68 to 0.82
UTI History	3,153(1.64%)	1.70	1.57 to 1.84
Intermittent Foley Catheterization	5(0%)	8.61	0.96 to 77.3
Renal Transplant	17,671(9.19%)	0.26	0.24 to 0.28
Neurogenic Bladder	1,365(0.71%)	2.12	1.88 to 2.39
Chronic Foley Catheter	8,235(17.56%)	1.24	1.16 to 1.33
Dementia	87(0.05%)	1.07	0.68 to 1.67

Presentation Type:
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Subject Category: Antibiotic Stewardship

Evaluating the Appropriateness of MRSA Nasal PCR Screening for De-escalation of MRSA-directed Therapy

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Background: Methicillin-resistant Staphylococcus aureus (MRSA) nasal polymerase chain reaction(PCR) is a rapid screening test (turnaround time ~1-2 hours) used to evaluate nasal colonization with MRSA. For respiratory and bloodstream infections, MRSA nasal swab has a high negative predictive value >95% which could help de-escalation of MRSA directed therapy in the appropriate clinical setting. Tufts Medical Center recently implemented this test and requires an indication for ordering: pneumonia, sepsis or septic shock, bacteremia, or other (with free-text reason). **Intervention/Aim:** Evaluate clinician adherence to the recommended

indications through reviewing of ordering indication and assess utilization of MRSA PCR as a tool for de-escalating MRSA directed antibiotics. **Methods:** Retrospective review of MRSA PCR orders between September 28, 2023, and March 28, 2024. Ordering data including indication selected and test result was extracted from the electronic medical records. Other variables were collected by chart review by two study members. Free-text reasons documented when selecting "other" were categorized by system (e.g genitouniary or skin and soft tissue). Free text reasons were evaluated based upon published negative predictive value (NPV). Indications with NPV lower than 95% were considered inappropriate. MRSA antibiotics were considered vancomycin, daptomycin, linezolid, or ceftaroline. Changes in MRSA antibiotics were determined by chart review of the antibiotics administered at least 24 hours prior to MRSA PCR administration and 24 hours after administration. **Results:** 113 of 1339 tests were ordered with "other" indication. Only 17 (15%) of these orders were considered appropriate. Among the appropriate tests were infections involving the head, eyes, ears, nose, and throat (HEENT). Of 441 tests reviewed, 411 were negative (93.2%). Of those with negative tests 324 (78.8%) were given MRSA antibiotics prior to the test. and only 92 (28.4%) remained on MRSA therapy after a negative test **Conclusion:** Reviewing "others" helped identify gaps in knowledge to target educational interventions and identify additional appropriate indications to include in the computerized order entryMRSA Nares is an effective tool to de-escalate MRSA antibiotics, but other interventions are needed to increase appropriate antibiotic de-escalation with a negative test.

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Comparing Antimicrobial Use Across Three Healthcare Facilities in Ekiti State, Nigeria: A Global Point Prevalence Survey
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Background: Antimicrobial resistance (AMR) is one of the most pressing health challenges of our time, fueled by the widespread misuse and overuse of antibiotics. Tackling this issue requires accurate, real-world data on how antimicrobials are prescribed and used. Point Prevalence Surveys (PPS) have become invaluable in this effort, offering a clear picture of prescribing practices and guiding the development of effective stewardship programs. This study focuses on antimicrobial use in three healthcare facilities in Ekiti State, Nigeria, leveraging the Global-PPS methodology to uncover patterns, pinpoint gaps, and identify opportunities to improve prescribing practices and support the fight against AMR. **Method:** This study took a hands-on approach to understanding antimicrobial prescribing practices in Ekiti State by using the well-established Global-PPS protocol. Three healthcare facilities - one each from the tertiary, secondary, and primary levels-were carefully selected to provide a broad view of prescribing behaviors. Data were gathered using standardized tools to capture key details such as patient demographics, reasons for antimicrobial use, prescribing patterns, and adherence to clinical guidelines. Descriptive statistics were used to summarize the trends, while comparisons across the facilities highlighted important differences. To ensure the findings were practical and relevant, we worked closely with the relevant MDAs, fostering a collaborative effort that added depth and context to the study. **Results:** Preliminary findings revealed significant variations in antimicrobial prescribing patterns, with the tertiary facility showing 75% adherence to stewardship protocols, compared to 45% and 30% in secondary and primary centers, respectively. Factors contributing to inappropriate prescriptions included limited diagnostic access (tertiary - 85%, secondary - 50%, primary - 25%), inadequate guideline dissemination (tertiary - 90%, secondary - 40%, primary - 20%), and insufficient prescriber training. Empirical therapy without justification was common, accounting for 60% of cases in secondary and 75% in primary centers. These gaps underscore the need for targeted interventions to improve prescribing practices. **Conclusion:** This study highlights the pressing need for customized antimicrobial stewardship programs in Ekiti State, Nigeria. By shedding light on prescribing habits and identifying critical gaps, these findings pave the way for meaningful, locally relevant interventions that encourage responsible use of antibiotics. Strengthening healthcare capacity, expanding access to diagnostic tools, and fostering adherence to treatment guidelines are essential next steps. These efforts not only hold the promise of improving patient care in Ekiti State but also contribute to the broader fight against antimicrobial resistance.

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A Structured Thematic Audit Analysis with Consensus Building Leads to Optimized Antibiotic Use and Clinical Decision Pathways.
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Introduction: Pre-authorization and prospective audit and feedback, though effective interventions for reducing antibiotic use, require manpower, time and can impinge on prescriber autonomy. We describe a unique approach to optimizing antibiotic use. **Methodology:** The antimicrobial stewardship program at our hospital is physician-led and supported by clinical pharmacists. To reduce time and manpower, we adopted a collaborative approach of structured audits. A baseline phase measured antibiotic consumption, mapped antibiotics to clinical syndromes, and documented inappropriate antibiotic use about choice, dose and duration. We then went to an intervention phase where for a month, prospective audit and feedback was performed for all the patients in the department in real time, communicated and discussed with a liaison from the treating team. At the end of this period, we presented data regarding antibiotic consumption and the proportion of justified antibiotic use in terms of choice, dose, and duration compared to the baseline phase. Literature evidence of appropriate antibiotic use was presented along with actionable data where gaps had been identified. **Results:** Structured thematic audits were conducted across seven key departments, including Medicine, Surgery, Orthopedics, Obstetrics and Gynecology, Urology, Hematology, and Emergency Medicine. As an example, the data on Orthopedics is presented here. The audit was done over one month across three general wards, and 94 patients were recruited. The antibiotic consumption was DOT/100PD=78.2, and the average length of therapy was 6.2 days. The antibiotic utilization for the broad infectious specific syndrome is shown in Table 1. Non-infective elective surgery and closed fracture received 4.4 and 5.6 mean days of antibiotics, which was deemed unnecessary. However, no institutional antibiotic protocol for open fractures (considered contaminated) existed. On discussion with the entire orthopedics department, a consensus was reached on antibiotics for open fractures with or without contamination for a maximum of 72 hours or until wound closure. Other areas where antibiotics could be optimized according to standard guidelines were also agreed upon and reinforced. This meeting resulted in consensus building and collaborative clinical decision pathways adopted into our institutional antibiotic guidelines. **Conclusion:** This unique thematic structured audit approach enhanced judicious antimicrobial prescribing practices, leading to consensus building across the hospital. It also led to changes in policy, fostering ownership and breaking the hierarchical model of stewardship, shifting accountability to the primary departments. It also reduced the time and resources required for the AMS team.

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