Presentation Type:
Poster Presentation
Subject Category: Antibiotic Stewardship
Leveraging a Simulated Patient Approach to Measure Pharyngitis Diagnostics and Prescribing in a Large Integrated Primary Care Network
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Background: Bacterial pharyngitis is a commonly over-diagnosed ambulatory condition that can contribute to antibiotic overuse. Rapid antigen detection tests (RADT) are valuable in determining whether pharyngitis is caused by Group A streptococcus (GAS) and requires antibiotic therapy, or is viral in etiology. In 2021, Henry Ford Health partnered with QURE Healthcare to implement incentivized, evidence-based patient simulation training platforms for ambulatory primary care providers (PCP). This study aimed to describe outcomes of a simulated educational approach for ambulatory PCPs related to optimal pharyngitis testing and management. **Methods:** This was an IRB-exempt cross-sectional study of PCPs at an urban health system in Michigan. In 2024, four online simulated pharyngitis patients (two with characteristic GAS symptoms, two with hallmark viral symptoms) were incorporated into the program to assess antimicrobial stewardship among PCPs. PCPs provided care for simulated patients in random order over two seasons (spring and fall 2024), including the accuracy of medical decision-making about diagnostic testing and antibiotic treatment. At each decision point, PCPs received direct feedback on how decisions aligned with internal evidence-based guidelines. The primary outcome was to measure ordering decisions for RADTs and antibiotics by PCPs over the two simulation seasons. **Results:** 368 PCPs performed all four pharyngitis simulations. In cases where symptoms were congruent with GAS etiology, PCPs ordered RADT in 84.0%. Of those who ordered RADT, 98.7% ordered any antibiotic and 85.6% ordered an evidence-based antibiotic (i.e., penicillin or amoxicillin). For those who did not order RADT but received feedback within the case, 95.8% ordered any antibiotic and 76.3% ordered an evidence-based antibiotic. In cases with viral symptoms, 57.7% ordered RADT unnecessarily despite the low likelihood of GAS etiology. Antibiotics were ordered in 6.4% of cases with a negative RADT and without ordering RADT altogether. There was little difference in correct/incorrect RADT ordering patterns for the spring and fall seasons (P>0.05); there was an increase in ordering the preferred penicillin from the start of the first season to the end of the second season (25.0% to 33.7%, P = 0.062) and a 45.7% relative reduction in ordering non-recommended antibiotics (23.0% to 12.5%, P = 0.066). **Conclusion:** This study shows two-fold RADT challenges: overutilization for viral symptoms and underutilization for bacterial symptoms. Significant opportunities remain to increase guideline-recommended penicillin and reduce antibiotic use in viral pharyngitis cases. These results suggest that simulation-based measurement offers valuable insights into group-wide practice patterns and case-based feedback can improve evidence-based decision-making.

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Analysis of Antimicrobial Use Quality Reports from the NHSN AU Option in Tennessee 2021–2023
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Background: The National Healthcare Safety Network (NHSN) Antibiotic Use (AU) Option aids hospital antimicrobial stewardship programs (ASPs) by facilitating tracking and reporting of AU data. In 2021, the Tennessee Department of Health (TDH) launched an AU data quality project to improve reporting accuracy. Quarterly reports are generated, assessing data across 15 quality flags, such as reporting antimicrobial days when days present (DP) are zero or drug-route mismatches. Flags also highlight significant outliers, including DP or AU rates outside the median ±2 interquartile ranges compared to the prior year. Reporting facilities receive actionable solutions for flagged concerns. **Method:** Data from AU quality flag reports generated by the NHSN AU Option for Tennessee facilities (2021–2023) were analyzed in this cross-sectional study. The analysis summarized the frequency and distribution of flagged issues across facilities and time. Archived data were utilized, excluding updates facilities made after quarterly reports. Quarterly flags per category were calculated for each facility, with total flags compiled annually to determine category frequency and percentage. Additionally, the number of distinct facilities contributing to the annual flag count was evaluated, providing insights into data quality trends across the study period. **Result:** From 2021 to 2023, 97 facilities submitted data to the NHSN AU Option, resulting in 7336 flags identified in the AU quality reports (Figure 1). The most frequent flag was "location-level AU rate greater than outlying upper boundary" (n=1677, 22.9%), reported by 67 facilities and the highest reported in 2023 (n=722, 23.8%). The second was "location-level DP greater than outlying upper boundary" (n=1588, 21.6%), reported by 68 facilities and highest in 2021 (n=547, 23.5%). The most frequent non-outlier-based quality issue was "antimicrobial days reported for any drug when DP were reported as zero" (n=439, 6.0%) followed by "antimicrobial days for a single drug greater than DP" (n=48) **Conclusion:** The study reveals data quality concerns in AU reporting among Tennessee facilities. Flags with changes in "Location-Level Days Present" and "AU Rate" outliers being prominent across the study period. These findings underscore the need for continuous monitoring and targeted feedback to enhance data accuracy, as well as a need for antimicrobial stewardship personnel to be able to identify and address changes in prescribing patterns and patient populations efficiently within their facilities. Addressing recurring challenges identified can improve AU data reliability, supporting more effective antimicrobial stewardship and better patient care outcomes.

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Table: Antimicrobial Use Quality Flag reports 2021–2023

Antimicrobial Use quality flags	Number of Facilities	2021		2022		2023		Total	
Antimicrobial Days Reported for any Drug when Days Present Reported as Zero	5	210	9.0%	23	1.2%	206	6.8%	439	6.0%
Reported Antimicrobial Days for a Single Drug Greater Than Days Present	5	1	0.0%	12	0.6%	35	1.2%	48	0.7%
Sum of Routes Less than Reported Total Days of Therapy	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Ceftriaxone IM not Used in ED	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Cefazolin not Used in OR	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Sum of Routes Greater than Reported Total Days of Therapy for Drugs given Once Daily	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Drug Route Mismatch	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Drug-Level AU Rate Above Outlier Boundaries	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Drug-Level AU Rate Below Outlier Boundaries	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Days Present for All Specific Locations LESS THAN Facility-wide Days Present	33	73	3.1%	73	3.7%	115	3.8%	261	3.6%
Days of Therapy for All Specific Locations LESS THAN Facility-wide Days of Therapy	33	67	2.9%	70	3.5%	105	3.5%	242	3.3%
Location-Level Days Present GREATER THAN Outlying Upper Boundary	68	547	23.5%	396	20.1%	645	21.2%	1588	21.6%
Location-Level Days Present LESS THAN Outlying Lower Boundary	67	444	19.1%	480	24.3%	655	21.6%	1579	21.5%
Location-level AU Rate GREATER THAN Outlying Upper Boundary	67	481	20.7%	474	24.0%	722	23.8%	1677	22.9%
Location-level AU Rate LESS THAN Outlying Lower Boundary	66	502	21.6%	446	22.6%	554	18.2%	1502	20.5%
		2325		1974		3037		7336	

Presentation Type:
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Leveraging Medicare Part D Data for Antibiotic Stewardship: Peer Comparison Feedback to High-Volume Prescribers in Minnesota
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Background: Older adults are prescribed more antibiotics than younger populations and face increased risks of antibiotic-related adverse events. Identifying high-volume prescribers (HVPs) through Medicare Part D

(MPD) datasets and engaging them through targeted intervention, such as peer-comparison audit and feedback, is a way to impact antibiotic prescribing. **Methods:** We analyzed the 2022 publicly available Centers for Medicare & Medicaid Services MPD Prescribers by Provider dataset to summarize the data overall and identify HVPs within each specialty. HVPs were classified as prescribers in the top 10% of antibiotic prescribing by volume within their specialty. Prescribers with 1,316 Minnesota prescribers in 2022 were considered HVPs (top 10% by volume by specialty). After removing certain specialties and those with low prescribing rates, 995 HVPs met criteria and were mailed feedback letters, with 4.32% (43 letters) lost to follow-up. These HVPs were responsible for 28.7% of antibiotic prescriptions for Minnesota's MPD beneficiaries in 2022. The median antibiotic prescribing rate of these HVPs was 1.8 times higher than that of lower-volume prescribers (Table 1) (p To date, 18 letter recipients responded to the feedback survey, with 22.2% intending to review their current prescribing habits, 22.2% reflecting that there is room for improvement in their prescribing, and 55.6% have accessed or intend to access AS resources. **Conclusion:** This audit and feedback initiative demonstrated that the MPD dataset can be used as a low-cost method to provide peer-comparison feedback to HVPs. By reaching providers responsible for nearly 30% of antibiotic prescriptions among MPD beneficiaries in Minnesota, this intervention has potential to influence prescribing behaviors. Further work will evaluate feedback and focus on specific provider specialties and drug classes.

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Table 1. Summary of antibiotic prescribing for Minnesota Medicare Part D beneficiaries in 2022, including all, high, and low-volume prescribers.

Antibiotic Prescribing for Minnesota Medicare Beneficiaries	All Prescribers	High-Volume Prescribers	Low-Volume Prescribers
Number of prescribers	13,164	995	12,169
Number of prescriptions (% of total volume)	825,067	218,406 (26.5%)	606,661 (73.5%)
Number of prescriptions per prescriber, median (IQR)	41 (22–79)	191 (160-243)	38 (21-67)
Prescribing rate (scripts/1,000 beneficiaries), median (IQR)*	383 (212-641)	651 (490-924)	360 (202-607)

High-volume prescribers are defined as the highest 10% of prescribers by volume within each specialty, as well as a prescribing rate in the upper 50th percentile in their specialty
**The prescribing rate of high-volume prescribers is significantly higher than the rate of low-volume prescribers (p<0.001).*

Table 2. Specialties of high-volume prescribers.

Specialty	All Prescribers, Count (%) (n=13,164)	High-Volume Prescribers, Count (%) (n=995)	% of Specialty in High-Volume Category	Prescribing Rate for HVPs, Median (IQR)
Family Medicine	2,327 (17.7%)	227 (22.8%)	9.8%	439 (344-584)
Nurse Practitioner	2,172 (16.5%)	183 (18.3%)	8.4%	654 (540-761)
Physician Assistant	1,882 (14.3%)	168 (16.9%)	8.9%	687 (602-793)
Dental	1,897 (14.4%)	144 (14.5%)	7.6%	1,307 (1,182-1,471)
Internal Medicine	1,386 (10.5%)	84 (8.4%)	6.1%	427 (357-687)
Emergency Medicine	918 (7.0%)	69 (6.9%)	7.5%	591 (531-657)
Orthopedic Surgery	267 (2.0%)	26 (2.6%)	9.7%	1,107 (912-1,237)
Dermatology	208 (1.6%)	20 (2.0%)	9.6%	403 (322-617)
Urology	190 (1.4%)	14 (1.4%)	7.4%	951 (700-1285)
Other*	1,917 (14.6%)	60 (6.0%)	3.1%	742 (585-1,169)

** The Other category includes all other specialties available in the Medicare Part D dataset. Infectious disease, oral and maxillofacial surgery, and pulmonary disease were excluded due to the nature of these specialties.*

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Use of Statewide All-Payers' Claims Data to Create Outpatient Antibiotic Use Dashboards: A Public Health Stewardship Initiative

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Background: The Centers for Disease Control and Prevention (CDC) Core Elements of Antibiotic Stewardship for Health Departments includes tracking and reporting of antibiotic use (AU). To support outpatient AU tracking and reporting, the Wisconsin Department of Health Services (DHS) leveraged all-payers' claims data to create health care organization-specific outpatient AU dashboards with benchmarked measures. **Methods:** DHS contracted with the Wisconsin Health Information Organization's to access their database to review all payers' claims data from 2018–2023, which included medical encounter and pharmaceutical claims. Visits were included if they occurred at a clinic (in-person or virtual), urgent care, or emergency department in Wisconsin. Antibiotic visits were defined as an outpatient visit associated with a filled oral, systemic antibiotic prescription ordered up to three days after the encounter. Antibiotic visits were normalized by all outpatient visits as a rate per 1,000 visits. A quality measure of antibiotic visits for respiratory tract infection (RTI) was developed using the CDC's tier 3 ICD-10 codes representing cough, upper RTI, or bronchitis without co-occurring ICD-10 code for other infection. Antibiotic visit rates were then summarized at the health care organization level, with additional stratification by place of service, diagnosis, patient age, and provider type. **Results:** From 2018–2023, there were over 59 million outpatient visits in Wisconsin by over 20,000 different

Table 1. Antibiotic visit rates for all diagnoses

Year	Antibiotic Visit Rate	Antibiotic Visits	Total Visits	Clinicians
2018	87	868,720	9,975,307	15,078
2019	76	816,151	10,676,229	15,779
2020	68	557,672	8,194,137	16,084
2021	58	722,971	12,373,880	16,691
2022	64	763,455	11,934,243	17,010
2023	73	471,688	6,434,920	15,527
Total	**70**	**4,200,657**	**59,588,716**	**20,666**
Clinician categories				
General practitioner	56	1,122,663	20,213,019	4,589
NP or PA	131	1,726,198	13,220,241	6,801
Pediatrics	82	360,088	4,365,534	839
Emergency medicine	128	414,080	3,247,095	978
Specialty medicine	15	144,233	9,516,613	3,661
Surgical specialty	43	297,574	6,990,149	2,738
Trainee	67	135,821	2,036,065	1,060
Total	**70**	**4,200,657**	**59,588,716**	**20,666**
Place of service				
Emergency department	146	807,809	5,522,662	15,615
Office/clinic	59	3,132,729	52,982,212	20,635
Urgent care	240	260,119	1,083,842	6,895
Total	**70**	**4,200,657**	**59,588,716**	**20,666**