



'I always feel like, somebody's watching me'--Multimodal Antimicrobial Stewardship Supports Antibiotic Prescribing for Common Infections within the UNC Health Virtual Practice

■ Ashley Marx, PharmD^{1,2} ■ Nikolaos Mavrogiorgos, MD^{1,3} ■ Amir Barzin, DO, MS^{1,3}
¹UNC Health Care; ² UNC Eshelman School of Pharmacy; ³UNC School of Medicine.

BACKGROUND

Telehealth presents a new setting for antimicrobial stewardship interventions. Retrospective, disease-state-specific antibiotic review may be an effective mode of analyzing data and providing feedback to prescribers.

The UNC Health Virtual Practice (VP) is a centralized, exclusively virtual team of UNC Health providers seeing patients for primary care and urgent care needs. The VP sees the most virtual visits at a department level for the healthcare system.

PURPOSE

Determine if prescriber-specific and composite team feedback were effective in maintaining adherence to preferred antibiotic selection and duration.

METHODS

In July 2022, multimodal educational materials were distributed to UNC Health Virtual Practice providers to promote the use of preferred antibiotics and the shortest effective durations for common infections.

- Encounter notes during the study period (6/1/2022 - 4/30/2023) were searched to determine eligible encounters corresponding urinary tract infections (UTI), skin and soft tissue infections (SSTI), pneumonia, and sinusitis.
- Eligible encounters with linked prescriptions were analyzed to determine whether antibiotic selection(s) and duration of therapy matched clinic-established best practices.
- **Primary Outcome:** The proportion of prescriptions corresponding to best practice for each infection type was calculated for each visit type, and for each provider with an evaluated visit that quarter.
- **Feedback** consisted of provider-specific memos from the medical director on antibiotic selection and duration; composite team performance was shared with team members at provider meetings and senior leadership in administrative reports.

RESULTS

Frequency of included visits: **sinusitis** (393, 88%), **SSTI** (25, 6%), **UTI** (16, 4%), and **pneumonia** (11, 3%).

Table 1. UNC Health Virtual Practice Team Composite Performance for all eligible visits during Quarters 1 and 2.

Visit Type	Quarter 1			Quarter 2		
	Cases Reviewed	Correct 1st Line Antibiotic	Correct Duration	Cases Reviewed	Correct 1st Line Antibiotic	Correct Duration
Sinusitis	168	122 (72.6%)	110 (65.5%)	225	165 (73.3%)	179 (79.6%)
SSTI	16	16 (100%)	2 (12.5%)	9	9 (100%)	6 (66.7%)
UTI	5	5 (100%)	5 (100%)	11	11 (100%)	8 (72.7%)
Pneumonia	8	8 (100%)	8 (100%)	3	3 (100%)	3 (100%)

Table 2. Prescriber-specific performance on sinusitis prescriptions for prescribers with eligible visits in both Quarters 1 and 2.

Prescriber	Quarter 1			Quarter 2			Overall Change
	Cases Reviewed	Correct 1st Line Antibiotic	Correct Duration	Cases Reviewed	Correct 1st Line Antibiotic	Correct Duration	
2	2	2 (100%)	2 (100%)	17	16 (94.1%)	17 (100%)	↔
3	5	3 (60%)	4 (80%)	23	20 (87%)	19 (82.6%)	↑
6	7	5 (71.4%)	4 (57.1%)	14	8 (57.1%)	13 (92.9%)	↓↑
7	48	43 (89.6%)	31 (64.6%)	46	42 (91.3%)	32 (69.6%)	↑
8	48	36 (75%)	93.8%	38	30 (78.9%)	37 (97.4%)	↑
9	4	4 (100%)	3 (75%)	11	11 (100%)	11 (100%)	↔

LIMITATIONS

Visits for non-sinusitis diagnoses were limited, making it difficult to draw firm conclusions on team-based performance. Provider turn-over and under-sampling of visit types limited assessment of prescriber-specific longitudinal performance.

CONCLUSIONS

- Education followed by quarterly prescriber-specific and team feedback was associated with high rates of adherence to prescription of preferred agents.
- Use of the shortest effective duration of therapy presents additional opportunity for improvement.
- Targeted interventions for **sinusitis** provide the greatest stewardship opportunity for the UNC Health Virtual Practice.

EDUCATIONAL MATERIALS

- Live presentation
- Handout and electronically published chart listing preferred antibiotics and durations based on diagnosis

FEEDBACK EXAMPLE

- Personalized memos sent to each prescriber with an eligible visit per quarter.
- Memo detailed Purpose, Audit Dates, and Audit Results (by disease state), and Overall Assessment.
- Sinusitis memo excerpt:

“Recommendations for improvement:

- Overall, great documentation on needing to use antibiotics
- You do a really great job in stating your reason for antibiotics and the duration of the antibiotics. Well done!
- One point of improvement could be selection of antibiotic. In general, 1st line for use is Augmentin 875/125mg BID for 5-7 days. You could also use amoxicillin 500mg TID or amoxicillin 875mg BID. If a penicillin allergy exists, consider using doxycycline 100mg BID, Cefixime 400mg daily, or Cefpodoxime 200mg BID for 5-7 days.
- In general, you selected using doxycycline or azithromycin when there was not a PCN allergy listed.”