2090. Are Changes in Antimicrobial Use Associated with a Decline in Hospital Pathogen Rates in Veterans Affairs Medical Centers?

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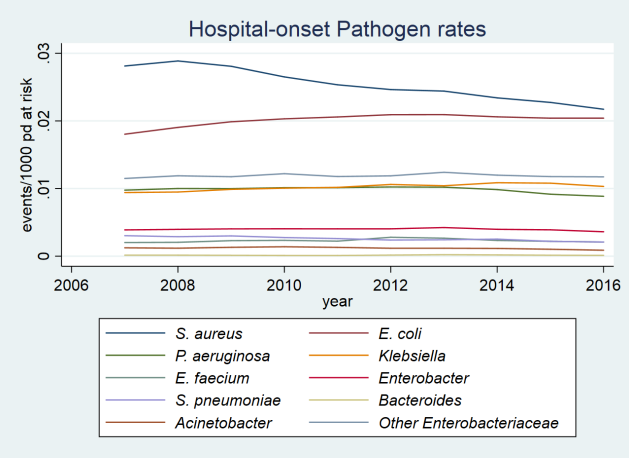
Background. The relationship between antimicrobial use and resistance is complex, making it difficult to understand and predict the impact of antimicrobial policies. Here, we examine trends of antimicrobial pressure and pathogen rates using novel metrics.

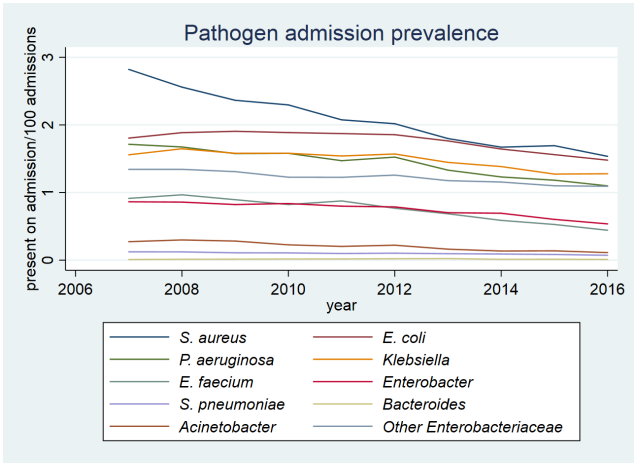
Methods. Data were extracted from 2007 through 2016. GEE-negative binomial regression modeled incident (within a year) hospital-onset (HO) pathogen rates, defined as the number of unique positive isolates between hospital day 3 and discharge, offset by patient-days at risk (eliminating the first 2 hospital days from the denominator, etc.). As predictors, we used pathogen-specific AM pressure metrics, summing the selection pressure of each AM regimen, given to a patient in a day, for and against the pathogen by each facility and year (e.g., if a regimen was 70% active by antibiogram then 0.7 was counted as selection against and 0.3 for the pathogen; different regimens would contribute differentially). We also adjusted by facility complexity index and pathogen admission prevalence.

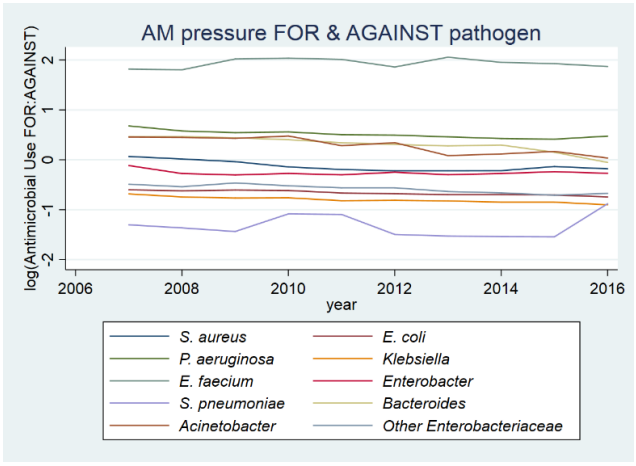
Results. All HO-pathogen rates declined significantly after adjustment (raw rates in Figure 1), except *Bacteroides*. Admission prevalence trends were variable (Table 1 and Figure 2). Figure 3 demonstrates the trend of the log ratio of AM pressure for and against pathogens. Significant negative associations with AM pressure against 5 pathogens and for 1 were observed (Table 1).

Conclusion. There was a broad decrease in adjusted hospital pathogen rates. The negative association with selection pressure against pathogens suggests that (a) AM resistance among pathogens is decreasing, (b) it causes a decrease in infection rates, or (c) both. While residual confounding and endogeneity still exist, our findings highlight the possibility that new metrics might better predict AM effects, including potential protective effects of some patterns of AM use. It is also notable that the measured associations were not large enough nor AM pressure trends consistent enough to explain the decreases in HO-pathogen rates. This suggests that other factors not measured in this analysis, including infection prevention, likely played a large role in observed trends. Interpretation of these results should be nuanced; we are not advocating broad-spectrum AM use.



Model	Adjusted for complexity	Adjusted for complexity and admission prevalence	Adjusted for complexity and admission prevalence and antimicrobials		
				Change in pathogen rate per 100 AD/1000DP increase in antimicrobials	
Pathogen	Annual change in admission prevalence	Annual change in HO-pathogen rate	Annual change in HO-pathogen rate	AGAINST	FOR
E. coli	1.1%; p<0.001	-3.3%; p<0.001	-3.5%; p<0.001	**-7.6%; p=0.002**	1.4%; p=0.758
Other Enterobacteriaceae	0.1%; p=0.724	-2.4%; p<0.001	-2.5%; p<0.001	**-6.7%; p=0.02**	1.4%; p=0.731
Enterobacter	-0.7%; p=0.232	-5.0%; p<0.001	-5.1%; p<0.001	**-7.2%; p=0.02**	1.7%; p=0.662
Klebsiella	1.0%; p=0.006	-3.9%; p<0.001	-4.1%; p<0.001	**-5.6%; p=0.024**	1.0%; p=0.831
S. pneumoniae	-3.7%; p<0.001	-2.8%; p=0.019	-3.4%; p=0.004	**-8.9%; p=0.035**	0.9%; p=0.932
S. aureus	-2.9%; p<0.001	-5.0%; p<0.001	-5.4%; p<0.001	4.5%; p=0.087	**-6.2%; p=0.022**
E. faecalis	2.0%; p=0.006	-3.4%; p<0.001	-4.0%; p<0.001	-6.5%; p=0.14	-6.4%; p=0.081
Acinetobacter	-3.5%; p<0.001	-8.1%; p<0.001	-9.3%; p<0.001	6.7%; p=0.483	-9.0%; p=0.224
P. aeruginosa	-1.0%; p=0.004	-4.6%; p<0.001	-4.9%; p<0.001	2.1%; p=0.653	-3.2%; p=0.268
E. faecium	0.1%; p=0.972	-9.0%; p<0.001	-9.1%; p<0.001	4.6%; p=0.807	-2.4%; p=0.507





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

2091. Use of Telehealth to Expand Antimicrobial Stewardship Capacity Among Critical Access Hospitals in Washington State

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Background. Critical access hospitals (CAH), defined as those with 25 or fewer beds and/or located in rural settings, may have difficulty implementing core elements of antimicrobial stewardship (CES) due to limited human resources, expertise, and funding. A 2015 National Healthcare Safety Network (NHSN) hospital survey found only 26% of CAH reported implementing all 7 CES compared with 50% of larger hospitals across the United States. The University of Washington Tele-Antimicrobial Stewardship Program (UW TASP) was developed through partnership with the University of Washington for hospitals lacking stewardship resources. The state department of health (DOH) provided funding to allow CAH to participate.

Methods. In January 2017, CAH were recruited to join UW TASP and participate in weekly 60 minute audiovisual conference calls led by an interdisciplinary team of infectious diseases physicians, pharmacists and microbiologists. Each session included a 15-minute didactic on stewardship topics followed by a discussion of case studies presented by participating hospitals. UW TASP faculty visited CAH to foster a collegial relationship between teams. Using hospital-reported metrics from the NHSN hospital survey reported in year 2016–2018 for years 2015–2017, we compared CES implementation by CAH participating in UW TASP (TASP CAH) in 2017 (n = 17) to those not participating (non-TASP CAH) (n = 22).

Results. TASP CAH reported increased implementation of all 7 CES from 29% (2015) to 59% (2016) before joining TASP to 76% (2017) after joining TASP (Figure 1). Non-TASP CAH reported implementation increased from 32% (2015) to 45% (2016)