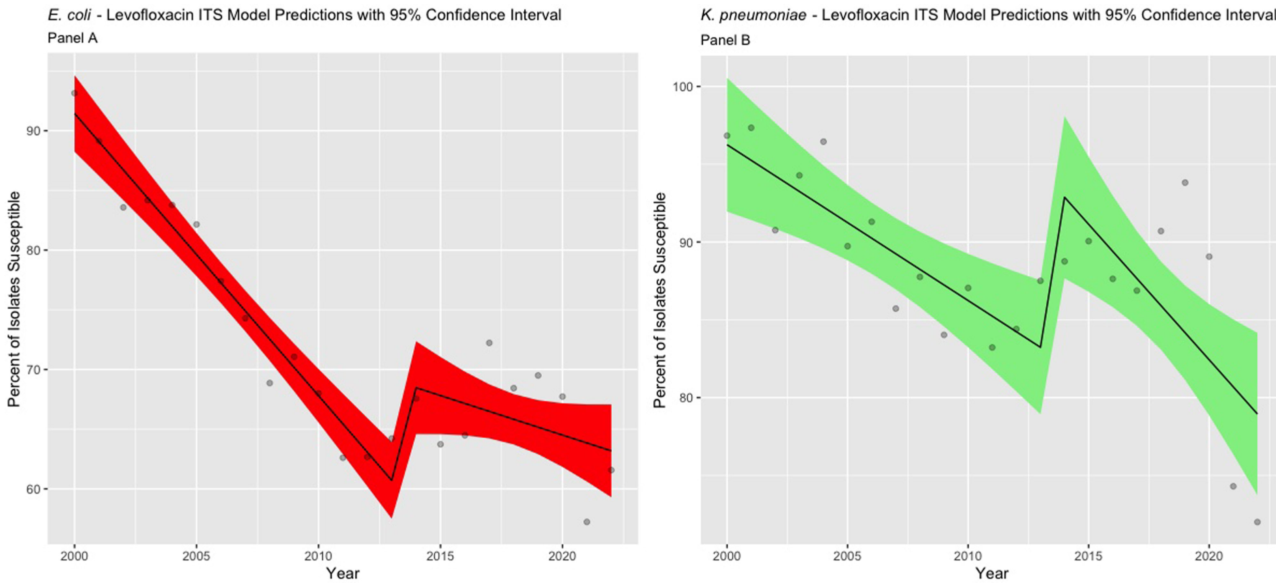

	Klebsiella pneumoniae		E. coli	
	% Susceptibility	p-value	% Susceptibility	p-value
Cefepime				
Trend 1988-2013	-1.2	< 0.01	-0.5	< 0.01
Level Change in 2014	-0.8	0.84	-8.1	< 0.01
Trend 2014-2017	2.8	0.01	2.5	< 0.01
Level in 2018	7.6	0.110	2.1	0.47
Trend 2018-2022	-5.5	0.04	3.1	0.05
Ceftazidime				
Trend 1988-2009	-0.7	< 0.01	-0.2	< 0.01
Level Change in 2010	-5.2	0.02	-5.7	< 0.01
Trend 2010-2017	0.6	< 0.01	-0.2	0.85
Level Change in 2018	5.1	0.14	4.5	< 0.01
Trend 2018-2022	-3.75	0.01	-0.4	0.80
Levofloxacin				
Trend 1988-2012	-1.0	< 0.01	-2.4	< 0.01
Level Change in 2013	11.4	< 0.01	8.4	< 0.01
Trend 2013-2022	-1.7	0.25	-0.7	< 0.01

organisms to all 3 antibiotics significantly declined at a rate between 0.2% to 2.4% per year (Table 1). For cefepime (Figure 1), susceptibility decreased annually during 1988 – 2013 for both E. coli (-0.5%) and K. pneumoniae (-1.2%). There were no significant level changes but there were trend changes after 2018, for E. coli (+2.1%) and K. pneumoniae (– 5.5%). For ceftazidime (Figure 2), significant level changes occurred after 2010 for both organisms (E. coli: -5.7%; K. pneumoniae: -5.2%). For levofloxacin (Figure 3), the breakpoint update in 2013 lead to significant level change in susceptibility (E. coli: +8.4%; K. pneumoniae: +11.4%). **Conclusion:** Overall, we observed a consistent decrease in antibiotic susceptibility in E. coli and K. pneumoniae over three decades, with immediate increases in the level change of susceptibility when MIC breakpoints were changed, followed by a decreasing trend. These findings highlight the importance of longitudinal surveillance and MIC breakpoint changes to inform antimicrobial stewardship strategies.

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Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Antibiotic Stewardship

Understanding the Impact of Narrow Spectrum Beta-Lactam Use on Overall and Broad-Spectrum Antimicrobial Utilization in South Carolina

Kayla Antosz, ASC-SC, University of South Carolina College of Pharmacy; Sarah Battle, University of South Carolina, Prisma Health-Midlands; Pamela Bailey, University of South Carolina, Prisma Health-Midlands; Hana Winders, Prisma Health-Midlands, Brandon Bookstaver and Majdi Al-Hasan, University of South Carolina School of Medicine

Background: The standardized antimicrobial administration ratio (SAAR) is a metric utilized to measure antimicrobial use within and between hospitals by comparing observed to predicted antimicrobial days of therapy. However, it remains unknown whether narrow-spectrum beta-lactam (NSBL) use adds to overall antimicrobial utilization or substitutes broad-spectrum agents. This muti-hospital cohort study examined the impact of NSBL use on overall antimicrobial utilization and the correlation between the use of NSBL and various broad-spectrum antimicrobial categories in South Carolina (SC) hospitals. **Methods:** SAARs were collected from all hospitals in SC that reported antimicrobial use (AU) data to the National Healthcare Safety

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Network (NHSN) between 2017 and 2021. SAARs collected included: overall SAAR, broad-spectrum agents predominantly used for hospital-onset infections (BSHO), broad-spectrum agents predominantly used for community-acquired infections (BSCA), NSBL, and antibacterial agents posing the highest risk for Clostridioides difficile infection (CDI). Category SAARs were combined to include data in both the adult intensive care unit (ICU) and adult wards using the formula: [(total observed antimicrobial days ICU + total observed antimicrobial days ward) / (total predicted antimicrobial days ICU + total predicted antimicrobial days wards)]. Pearson correlation coefficient (r) was used to examine the correlation between various SAARs categories. **Results:** A total of 38 hospitals in South Carolina reported AU to NHSN at least during one calendar year during the study period. The use of NSBL agents was negatively correlated with the use of BSHO ($r = -0.596$, $p < 0.001$), BSCA ($r = -0.543$, $p < 0.001$), and high-risk CDI antibiotics ($r = -0.601$, $p < 0.001$). Moreover, the use of NSBL agents did not correlate with the overall SAAR ($r = 0.008$, $p = 0.93$), whereas the use of BSHO ($r = 0.587$, $p < 0.001$), BSCA ($r = 0.494$, $p < 0.001$), and high-risk CDI agents ($r = 0.464$; $p < 0.001$) positively correlated with the overall SAAR. **Conclusion:** In South Carolina hospitals, the use of NSBLs does not contribute to additional antibiotic use overall as it seems to replace broad-spectrum antimicrobials in various categories. By de-escalating from broad-spectrum agents to NSBL agents, one can improve antimicrobial use without negatively impacting the overall SAAR. This observation encourages implementation of antimicrobial stewardship interventions that increase utilization of NSBLs, when appropriate, such as de-escalation of antimicrobial therapy among others without concerns for increasing the SAAR for overall antibiotic use.

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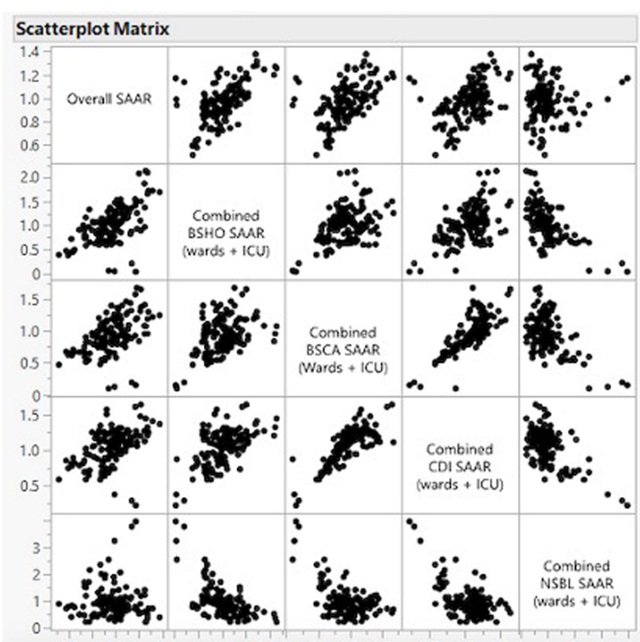


Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Antibiotic Stewardship

The Impact of Tele-Stewardship on Rural Antibiotic Prescribing Practices

Matthew Peworchik, Vanderbilt University; Ritu Banerjee, Vanderbilt University Medical Center and Sophie Katz, Vanderbilt University Medical Center

Background: Antibiotic prescribing for children is highest in rural areas. Tele-stewardship allows for implementation of antimicrobial stewardship (AS) via telecommunication with providers. This study addresses need for better AS in rural areas by implementing and evaluating bundled outpatient AS interventions using tele-stewardship in rural pediatric primary care (PC) clinics and emergency departments (EDs) affiliated with Vanderbilt University Medical Center. **Methods:** The bundle includes (1) patient/guardian educational materials, (2) antibiotic use commitment posters (3) provider education through quarterly teaching pearls and app-based microlearning modules (QuizTime), and (4) quarterly audit/feedback with peer comparison on guideline-concordant antibiotic use via tele-meeting and email. Participants are pediatric prescribers (physician, physician assistant, nurse practitioner). We compared antibiotic prescription data for children < 1 8 years collected during the baseline period (Jan–Dec 2022) to the intervention period (Jan-Sept 2023). Two academic PC clinics and one ED where interventions were not implemented were

Figure 1: Change in Antibiotic Prescription Rate from 2022-2023

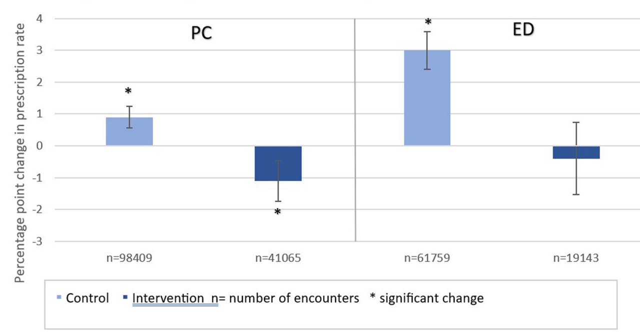
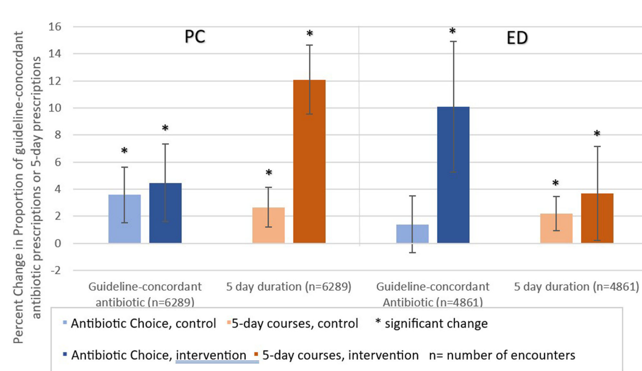


Figure 2: Acute Otitis Media



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