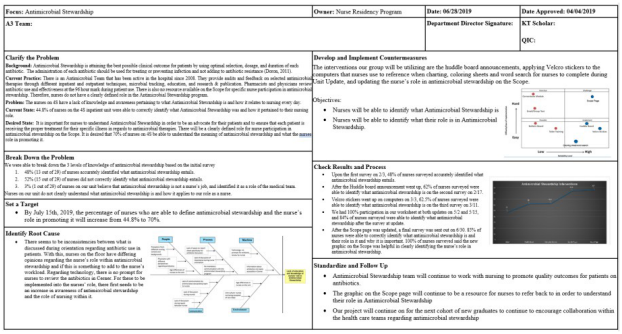
Figure 2: Example of Nursing-Driven A3



Conclusion: Conclusions: Commitment by unit-leaders is crucial to mitigate challenges during the development of nurse-driven projects. NRPs serve as a central location to reach a large subset of nurses and shows potential for facilitating nursing-based AS interventions. Elements were integrated, through challenges remain with maintaining a standard data collection process and analysis within and across NLN cohorts.

Disclosures: **All Authors**: No reported disclosures

180. Leveraging the Electronic Medical Record as a Method of Antibiotic Stewardship

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Overutilization of antibiotics remains an issue in the inpatient setting. What is more, many protocols geared toward curbing improper antibiotic use rely heavily on resource- and personnel-intensive interventions. Thus, the potential for using the EMR to facilitate antibiotic stewardship remains largely unexplored.

Methods: We implemented a novel change for ordering certain antibiotics in our EMR: ceftriaxone, daptomycin, ertapenem, imipenem, meropenem, and piperacillin-tazobactam. When ordering one of these antibiotics, providers had to note a usage indication, which assigned a usage duration as per our Antibiotic Stewardship Committee guidelines. Pre-intervention, manual discontinuation was required if a provider did not enter a duration. The intervention was enacted August 2019 in 13 hospitals. Data was collected from January 2018 to February 2020. Antibiotic usage was reported monthly as rate per 1000-patient days. Monthly pre- and post-intervention rates were averaged, respectively. Paired samples t-tests were used to compare pre- and post-intervention rates per unit type per hospital. A p-value of less than 0.05 was considered significant. Units with minimal usage, as defined by a pre- or post-intervention mean of 0, were excluded from analysis.

Example of Ordering an Antibiotic Prior to Intervention

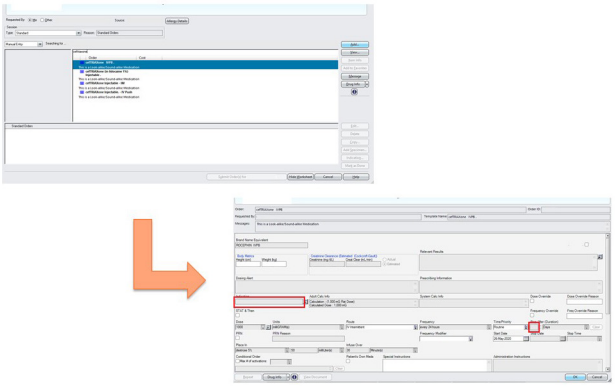


Figure 1: Steps of Ordering Ceftriaxone Prior to Intervention

Example of Ordering an Antibiotic After Intervention

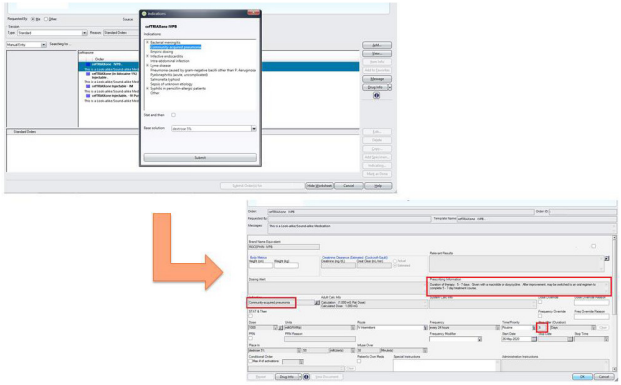
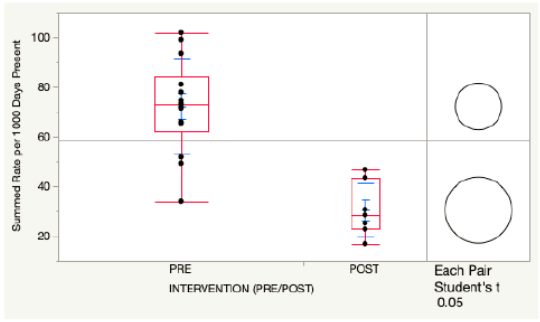


Figure 2: Steps of Ordering Ceftriaxone After Intervention

Results: Ertapenem was noted to have a statistically significant decrease in utilization in seven units at three hospitals. Piperacillin-tazobactam was found to have a decrease in utilization in 19 units at eight hospitals. Daptomycin was found to have a decrease in utilization in one unit. Significant decreases in the utilization of ceftriaxone, imipenem, and meropenem were not noted.

Example of Statistically Significant Decreased Utilization in Piperacillin-Tazobactam on a Medical-Surglcal Unit

Figure 3: Example of Decreased Utilization of Piperacillin-Tazobactam on a Medical/Surgical Ward



Quantiles

Level	Minimum	10%	25%	Median	75%	90%	Maximum
PRE	33.89831	41.57036	61.96034	73.04595	84.17308	100.4752	101.845
POST	16.82848	16.82848	22.74247	28.41303	43.47826	46.6761	46.6761

Means and Std Deviations

Level	Number	Mean	Std Dev	Std Err Mean	Lower 95%	Upper 95%
PRE	14	72.273736	18.967625	5.0693111	61.322155	83.225317
POST	7	30.555971	10.883831	4.1137016	20.490106	40.621836

Level	- Level	Difference	Std Err Dif	Lower CL	Upper CL	p-Value
PRE	POST	41.71777	7.795145	25.40234	58.03319	<.0001*

Conclusion: Our study showed a statistically significant decrease in use of ertapenem, piperacillin-tazobactam and daptomycin using a simple built-in EMR prompt that curtails provider error. This should allow for an increased ease of integration, as the protocol does not require a host of resources for maintenance. Of note is decreased utilization of piperacillin-tazobactam and ertapenem across multiple hospitals, most notably on the medical and surgical wards. Thus, usage of the EMR without personnel-intensive protocols is a viable method for augmenting antibiotic stewardship in health systems.

Disclosures: **All Authors**: No reported disclosures

181. Limited Effectiveness of an EMR Alert-Based Antibiotic Timeout Procedure in Solid Tumor Cancer Patients

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Computer-based antibiotic time-outs, in which providers receive automated electronic medical record (EMR) alerts regarding continuation of inpatient antibiotics (Anb), are common stewardship initiatives. We assessed the efficacy of such an intervention in oncology patients (pts), who frequently receive Anb when hospitalized.

Methods: An EMR alert triggered 48 hours after starting vancomycin (vanc), cefepime (cef), piperacillin-tazobactam (pip-tazo), meropenem (mero), and fluoroquinolones (flq) was initiated in a tertiary care hospital in November 2018. To assess the efficacy of the intervention in adults with solid tumor malignancies, demographic, vital sign, laboratory, and treatment data were extracted retrospectively from the EMR. Pts with neutropenic fever, organ transplant, trauma, and cardiopulmonary arrest were excluded. We compared length of therapy [LOT; days of therapy per 1000 patient-days (DOT/1000 pd)] via t-test and incidence rate ratio (IRR) for 3- and 12-month periods preceding and following the intervention. November 2018 was excluded as a washout period.

Results: The groups did not differ by age, sex, length of stay, or rate of bacteremia (Table 1). Comparing the 3 months before and after the intervention, neither mean LOT (2.9 ± 0.20 vs 2.6 ± 0.14 DOT/1000 pd, p=0.31) nor rate of Anb use changed (IRR 0.97, p=0.32). However, when considering only the Anb targeted by the intervention, cef usage was 1.4 times higher post- intervention (p=0.002), while use of other Anb was similar (Table 2). Comparing 12 months before to 12 months after the intervention, mean LOT was longer after (0.74 ± 0.018) than before (0.68 ± 0.020 DOT/1000 pd; p=0.03), and Anb use increased (IRR 1.3, p< 0.0001). Specifically, mero (IRR 1.8, p< 0.0001) and cef (1.6, p< 0.0001) were used more frequently after the intervention while none were used less (table 2).

Table 1: Study Group Characteristics

	Three Months from Intervention			One Year from Intervention		
	Pre	Post	P-value	Pre	Post	P-value
Female	43%	42%	0.85	47%	48%	0.50
Age (years)	67 ± 0.7	67 ± 0.7	0.64	65 ± 0.4	66 ± 0.4	0.23
Length of Stay (days)	9 ± 0.5	8 ± 0.4	0.18	8 ± 0.2	8 ± 0.2	0.12
Bacteremia	16%	18%	0.50	14%	15%	0.6

Table 2: Antibiotic Use Three Months Before and After, and Twelve Months Before and After, the Intervention

	Three Months from Intervention		One Year from Intervention	
	IRR	P-value	IRR	P-value
Vancomycin	1.1	0.27	1.0	0.20
Cefepime	**1.4**	**0.002**	**1.6**	**<0.0001**
Meropenem	1.3	0.16	**1.8**	**<0.0001**
Piperacillin-Tazobactam	0.9	0.16	0.9	0.16
Fluoroquinolones	0.9	0.28	1.0	0.22
Combined	1.1	0.36	**1.4**	**<0.0001**

Conclusion: Despite wide adoption and efficacy in other populations, an EMR-based Anb time-out did not mitigate the continuation of Anb among inpatients with solid tumors. The intervention may require additional measures, such as an active role for pharmacy, to be effective. However, qualitative studies may also be required to understand why providers are hesitant to limit Anb use in this population.

Disclosures: **All Authors**: No reported disclosures

182. Missed Opportunities to Discontinue Unnecessary Vancomycin During Pharmacist Therapeutic Monitoring

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Unnecessary and prolonged IV vancomycin exposure increases risk of adverse drug events, notably nephrotoxicity, which may result in prolonged hospital length of stay. The purpose of this study is to identify areas of improvement in antimicrobial stewardship for vancomycin appropriateness by clinical pharmacists at the time of therapeutic drug monitoring (TDM).

Methods: Retrospective, observational cohort study at an academic medical center and a community hospital. Inclusion: patient over 18 years, received at least three days of IV vancomycin where the clinical pharmacy TDM service assessed for appropriate continuation for hospital admission between June 19, 2019 and June 30, 2019. Exclusion: vancomycin prophylaxis or administered by routes other than IV. Primary outcome was to determine the frequency and clinical components of inappropriate vancomycin continuation at the time of TDM. Inappropriate vancomycin continuation was defined as cultures positive for methicillin-susceptible Staphylococcus aureus (MRSA), vancomycin-resistant bacteria, and non-purulent skin and soft tissue infection (SSTI) in the absence of vasopressors. Data was reported using descriptive statistics and measures of central tendency.

Results: 167 patients met inclusion criteria with 38.3% from the ICU. SSTIs were most common indication 39 (23.4%) cases, followed by pneumonia and blood with 34 (20.4%) cases each. At time of vancomycin TDM assessment, vancomycin continuation was appropriate 59.3% of the time. Mean of 4.22 ± 2.69 days of appropriate vancomycin use, 2.18 ± 2.47 days of inappropriate use, and total duration 5.42 ± 2.94. 16.4% patients developed an AKI. Majority of missed opportunities were attributed to non-purulent SSTI (28.2%) and missed MRSA nares swabs in 21% pneumonia cases (table 1).

Conclusion: Vancomycin is used extensively for empiric treatment of presumed infections. Appropriate de-escalation of vancomycin therapy is important to decrease the incidence of adverse effects, decreasing hospital length of stay, and reduce development of resistance. According to the mean duration of inappropriate therapy, there are opportunities for pharmacy and antibiotic stewardship involvement at the time of TDM to optimize patient care (table 1).

Missed opportunities for vancomycin de-escalation

Table 1: Missed opportunities for vancomycin de-escalation

Missed Opportunities to De-escalate vancomycin			
	Academic Medical Center n= 117 (%)	Community Hospital n= 50 (%)	Combined n= 167 (%)
History of MRSA growth in previous 12 Months	14 (12%)	2 (4%)	16 (9.6%)
MRSA Nares	9 (10.8%)	8 (18%)	18 (13.5%)
Missed MRSA Nares	22 (29.7%)	4 (8%)	26 (21%)
SSTI (non-purulent), n=39 (%)	6 (15.4%)	5 (12.8%)	11 (28.2%)

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183. Optimization of an Outpatient Antimicrobial Stewardship Process for Patients Discharged from the Emergency Department at an Academic Medical Center.

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Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Suboptimal antimicrobial therapy has resulted in the emergence of multi-drug resistant organisms. The objective of this study was to optimize the time to antimicrobial therapy modification for patients discharged from the emergency department (ED) of an academic medical center through implementation of a pharmacist-driven outpatient antimicrobial stewardship initiative (ASI).

Methods: This was a pre-post, quasi-experimental study that evaluated the impact of a pharmacist-driven outpatient antimicrobial stewardship initiative at a single academic medical center. The pre-cohort was evaluated through manual electronic medical record (EMR) review, while the post-cohort involved a real-time notification alert system through an electronic clinical surveillance application. The difference in time from positive culture result to antimicrobial therapy optimization before and after implementation of the pharmacist-driven ASI was collected and analyzed.

Results: A total of 166 cultures were included in the analysis. Of these, 12/72 (16%) in the pre-cohort and 11/94 (12%) in the post-cohort required antimicrobial therapy modification, with a 21.9-hour reduction in median time from positive culture result to antimicrobial optimization in the post-cohort (43 h vs. 21.1 h; p < 0.01). Similarly, the median time from positive culture result to review was reduced by 20 hours with pharmacist-driven intervention (21.1 h vs. 1.4 h; p < 0.01).

Conclusion: The implementation of a pharmacist-driven outpatient antimicrobial stewardship initiative resulted in a significant reduction in time to positive culture review and therapy optimization for patients discharged from the ED of an academic medical center set in Philadelphia, PA.

Disclosures: **All Authors**: No reported disclosures

184. Pharmacist role in antimicrobial stewardship research: a 30-year experience

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The Society of Infectious Diseases Pharmacists

Session: P-6. Antimicrobial Stewardship: Program Development and Implementation

Background: Antimicrobial stewardship program (ASP) guidance from the Centers for Disease Control and Prevention recommends co-leadership of both an infectious-diseases (ID) physician and ID-trained pharmacist. Pharmacists play a key