

antibiotic regimen based on individual patients' comorbidities, severity of illness, allergy profile, history of multidrug-resistant organisms (MDRO), and prior antibiotics. Within 24 hours of admission an ID physician-reviewed patient charts to determine whether one of the clinical syndromes was present. At intervention hospitals, patients' providers were notified when a change in empiric therapy was suggested or antibiotics were recommended to be stopped (if no bacterial infection was present). Outcomes included readmission, mortality, *C. difficile* infection (CDI), MDRO infection, length of stay (LOS), and cost of antibiotics.

Results. 10,202 patients enrolled in the study with 4,451 (57% female, mean age 72) in the intervention arm and 5,751 (55% female, mean age 71) in the control arm. There were no significant differences in clinical outcomes for any of the syndromes. Among 2,146 patients determined to have no bacterial infection, WISCA intervention resulted in lower antibiotic cost during the hospital stay (\$714.46 vs. \$927.56, $P < 0.01$). When providers accepted the recommendation to stop antibiotics, there were fewer antibiotic days (mean 296 antibiotic days/1000 patient-days vs. mean 378 antibiotic days/1000 patient-days, $P = 0.038$) and no significant difference in mortality or readmission rates. No bacterial infection patients also experienced a nearly 3-fold lower rate of CDI vs. patients with infection (0.8% vs. 2.3%, $P < 0.001$).

Conclusion. Although the use of the WISCA tool was not associated with a reduction in mortality, readmissions, or LOS, intervention to stop antibiotics for those with no bacterial infection was associated with reduced antibiotic use and cost savings.

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1049. Using Alternative Alerts in the Electronic Health Record to Guide Antimicrobial Selection Decisionmaking at the Point of Order Entry

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Background. In a White Paper published in 2019, SHEA describes "The role of electronic health record and 'add-on' clinical decision support systems to enhance antimicrobial stewardship programs." Modifications of the electronic health record and add-on clinical decision support systems are compared and contrasted. Some disadvantages of modification of the EHR include the need to include all end-user affiliates in modifications, lack of order set utilization, and heavy demands of IT staff to modify the EHR. We have utilized alternative alerts which may be customized to individual affiliates and are relatively easy to build which fire when specific medications are ordered (whether within order sets or not) and guide clinicians to more appropriate antibiotic choices.

Methods. From an antimicrobial stewardship perspective, alternative alerts are activated during the ordering of antibiotics for which routine use is discouraged (e.g., carbapenems, fluoroquinolones). When a provider enters an order, the alternative alert will pop up. The alert consists of two sections: an alert section describing the reason for the alert and a list of therapeutic options for the targeted drug; and links to orders for alternative antibiotics/combinations. The alerts may be configured to allow or not allow the orderer to continue with the original order. Different alternative alerts can be created and used at different facilities using the same EHR platform. We designed alternative alerts for fluoroquinolones, carbapenems, and fifth-generation cephalosporins that allowed providers to continue with the original order. We tested their impact on antimicrobial prescribing for 18 months after implementation, measured as quarterly days of therapy (DOT)/1000 pt-days.

Results. We noted marked reductions in quarterly DOT/1000 pt-days for fluoroquinolones (-70%) and fifth-generation cephalosporins (-90%). The impact on carbapenem prescribing was more variable.

Conclusion. Alternative alerts represent an easily created, customizable means to guide providers' antimicrobial selections. We plan to incorporate more alternative alerts into our antimicrobial ordering process and strengthen the alert for carbapenems.

Alternative	Details	Cost
PENICILLIN G (POTASSIUM) IV		
cefAzolin (MACEF) IV	2 g. Intravenous, EVERY 8 HOURS SCHEDULED (3 times per day)	
CEFTIOXONE (ROCEPHIN) IV	2 g. Intravenous, EVERY 24 HOURS SCHEDULED (Daily)	
CLINDAMYCIN (CLEOCIN) IV (only if severe penicillin allergy)		
OSIACELIN (BACTOCELL) IV		
vancomycin plus ceftioxone (plus clindamycin if shock) only for ...	***PANEL***	
vancomycin plus cefepime (plus clindamycin if shock)	***PANEL***	
vancomycin plus piperacillin/tazobactam (consider clindamycin)	***PANEL***	

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1050. Impact of Weekend Infectious Diseases and Antimicrobial Stewardship Pharmacy Services

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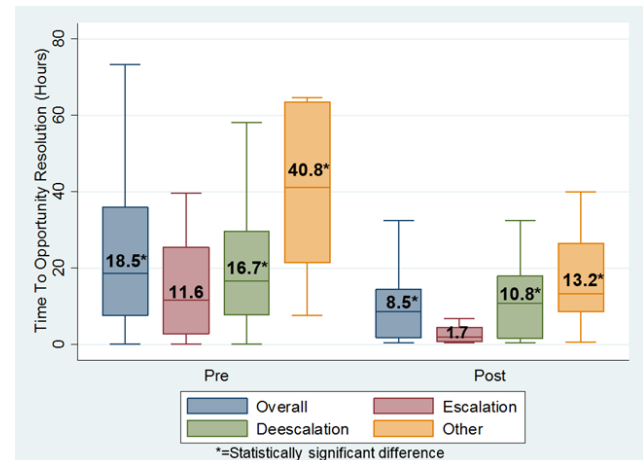
Background. In September 2018, pharmacy antimicrobial stewardship services were expanded to include weekends at Cleveland Clinic. Activities performed by antimicrobial stewardship (AMS) pharmacists on the weekend include blood culture rapid diagnostic (RDT) review, antiretroviral therapy (ART) review, prospective audit and feedback (PAF) utilizing clinical decision support, vancomycin dosing, and operational support. The purpose of this study was to assess the operational and clinical impact of these expanded AMS services.

Methods. This single-center, the quasi-experimental study included data from 13 weekends before (9/2017 – November 2017) and after (9/2018 – November 2018) implementation of weekend services. The primary outcome was the number of reviews relating to each stewardship activity. Secondary outcomes were time to AMS opportunity resolution, time to escalation or de-escalation following PAF or RDT alert, time to resolution of other AMS-related opportunities, length of stay (LOS), and antimicrobial use outcomes. Patients were included in time to resolution outcomes if they had an RDT, ART, or select PAF review requiring intervention. Time to opportunity resolution was defined as the time from AMS alert to implementation of the recommendation in the electronic health record.

Results. During the post-intervention period 1261 reviews were conducted, averaging 97/weekend. This included 187 RDT, 432 PAF, 124 ART, 331 vancomycin dosing notes and 187 other. Inclusion criteria for time to resolution outcomes were met by 72 patients pre-intervention compared with 59 patients post. No significant differences were seen in baseline characteristics between groups with 43% of patients requiring ID consultation and 58% requiring ICU admission. The median time to opportunity resolution improved significantly overall ($P < 0.01$), with de-escalation ($P = 0.03$), and with time to other AMS opportunity ($P = 0.01$) (Figure 1). A numerical reduction was seen with time to escalation ($P = 0.1$). LOS was a median of 13 and 14 days pre- and post-intervention, respectively ($P = 0.4$). No differences were seen in antimicrobial use outcomes.

Conclusion. Presence of pharmacist-driven weekend AMS services significantly reduced time to resolution of AMS interventions. These data support the value of weekend AMS services.

Figure 1: Time to Antimicrobial Stewardship Opportunity Resolution



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1051. The Use of Survey-Driven Feedback to Improve Antimicrobial Stewardship Efforts at a Single Center

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Background. Antimicrobial stewardship (AS) efforts have led to improved patient outcomes, reduction in unnecessary costs, and decrease in antimicrobial resistance (AR). Loyola University Medical Center (LUMC) is a quaternary care system that has primarily employed a formulary restriction and preauthorization process as the foundation of its Antimicrobial Stewardship Program (ASP).