

the preintervention and intervention periods, adjusting for patient demographics and infection characteristics, were compared with the same time periods at a control site (CS) that did not implement the intervention.

Results. There were 583 SSTIs included in the study [intervention site (IS) =283, CS =300] split over three time periods: preintervention (October 2015–March 2016; IS = 130, CS = 150), intervention (October 2016–March 2017; IS = 99, CS = 150), and postintervention (April 2017–July 2017; IS = 54, CS = 0). At the IS, adherence was 41% prior to the intervention and 51% during the intervention. At the CS adherence was 19% and 25% during the two time periods. In the adjusted model, adherence at the IS was higher during the intervention compared with the preintervention period [adjusted odds ratio (aOR) 2.26 (95% CI 1.24–4.10)]. Adherence in the postintervention period was similar to the preintervention period [aOR 0.94 (0.45–1.97)]. No changes were seen during the two time periods at the CS [aOR 1.00 (0.53–1.89)].

Conclusion. Implementation of an antimicrobial stewardship intervention for SSTI significantly improved adherence to IDSA guidelines; however, adherence regressed after the intervention ended. Additionally, adherence was generally poor in all time periods and at both sites. Further research is needed to understand barriers and challenges to implementation of SSTI guidelines in ED settings.

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227. Provider Education Paired With Peer Comparison Demonstrates Sustained Reduction in Overall Antibiotic Prescribing Within a Veterans Affairs Primary Care System

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM

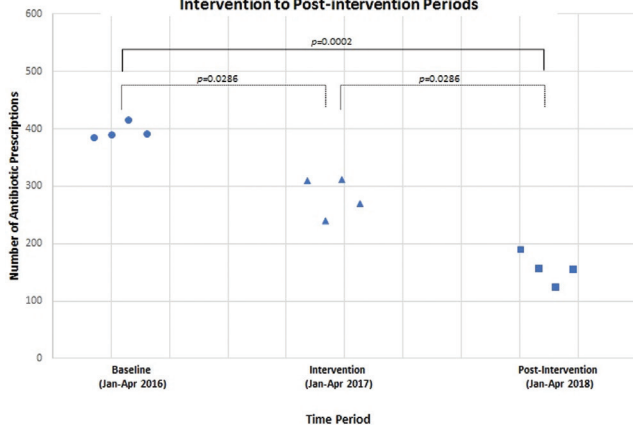
Background. Data on antimicrobial stewardship (AS) interventions in outpatient primary care settings and optimal strategies to sustain results are lacking. We report results of a comprehensive outpatient AS intervention that included provider education and peer comparison.

Methods. Baseline antibiotic prescribing data from primary care clinics at VA Pittsburgh Healthcare System from January to April 2016 were collected. Educational sessions were offered to all primary care providers (PCPs) in December 2016. During an intervention period from January to April 2017, PCPs were emailed monthly comparisons of their antibiotic prescribing rate, peer rates, and a system target. Postintervention overall antibiotic prescribing rates from January to April 2018 were assessed. The decision-support software was updated after the intervention to reflect AS team guidance.

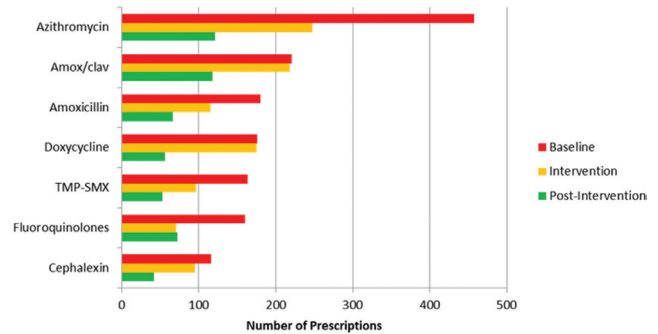
Results. During the postintervention period, 626 antibiotic prescriptions were written by 73 PCPs caring for 40,428 patients, compared with 1,585 antibiotic prescriptions written by 65 PCPs caring for 40,734 patients during the baseline period and 1,131 antibiotic prescriptions written by 73 PCPs caring for 41,191 patients during the intervention period ($P = 0.0002$). There were significantly fewer antibiotic prescriptions written during the intervention period than the baseline period ($P = 0.0286$), and during the postintervention period than the intervention period ($P = 0.0286$). Azithromycin use decreased by 45.9% (458 vs. 248 prescriptions, $P < 0.0001$) from the baseline to the intervention period and further decreased by 51.2% (248 vs. 121 prescriptions, $P < 0.0001$) from the intervention period to the postintervention period. Fluoroquinolone use decreased by 55.6% (160 vs. 71 prescriptions, $P < 0.0001$) from the baseline to the intervention period, and remained low during the postintervention period (71 vs. 72 prescriptions, $P = 0.88$).

Conclusion. A comprehensive AS intervention including provider education and peer comparison demonstrated a sustained reduction in overall antibiotic prescribing rates among PCPs. The decision-support software may assist in maintaining reduced prescribing rates. A full data analysis to include an assessment of appropriateness during each period is ongoing.

Reduction in Monthly Antibiotic Prescriptions from Baseline to Intervention to Post-intervention Periods



Reduction in the Most Common Prescriptions from Baseline to Intervention to Post-intervention Periods



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228. Impact of Early Alert to Antimicrobial Stewardship Interventions with the Prospective Audit and Feedback Strategy

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Prospective audit-feedback is the primary strategy adopted by our hospital antibiotic stewardship program (ASP). It is labor-intensive and successful uptake relies on the visibility of the written intervention note. A rapid notification system (RNS), whereby the physical note is replaced by an electronic document followed by immediate prescriber alert through text messaging, was recently implemented. We seek to quantify the impact of this initiative on patient outcomes and ASP resource utilization.

Methods. Interventions to discontinue, de-escalate, or switch from intravenous to oral antibiotics in the pre-implementation (P1: January 2016–February 2017) and post-implementation (P2: March 2017–February 2018) periods were identified from the ASP database. Same-day intervention acceptance rate (IAR), duration of antibiotic therapy (DOT), and hospital length of stay (LOS), measured from day of intervention to discharge, were compared. Manpower time saved from having to perform a next-day intervention follow-up (15 minutes/intervention) was calculated.

Results. A total of 1,904 (11.4%) and 1,311 (12.4%) interventions of 16,723 and 10,545 antibiotic audits were made during P1 and P2, respectively. There were no significant differences in antibiotic or intervention types between both periods—piperacillin–tazobactam (85.4%) was most common, followed by meropenem (11.4%); intervention to discontinue antibiotic (68.4%) was most frequent. Implementation of RNS led to a pronounced 2.5-fold increase in same-day IAR (19.3% vs. 47%, $P < 0.01$). Potential savings in ASP manpower was estimated at 75 hours/year. Overall improvement in IAR at 48-hours was also observed (79.2% vs. 82.5%, $P = 0.02$). Patients with ASP interventions accepted on the same day had significantly shorter DOT (4.4 vs. 5.4 days, $P < 0.01$) but not LOS (13.4 vs. 11.6 days, $P = 0.08$). Thirty-day-day infection-related mortality rates were similar across the two periods (3.3% vs. 3.3%).

Conclusion. An early alert to ASP interventions can strengthen the impact of ASP in reducing unnecessary antibiotic use without compromise in patient safety. ASPs, particularly those serving large and busy hospitals, should consider having an RNS in place to improve program efficiency and visibility.

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229. The Role of Antimicrobial Stewardship Program on Appropriate Use, Dose, and Duration of Vancomycin Treatment

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. In an era of increasing bacterial resistance, antimicrobial stewardship programs (ASP) are essential in guiding judicious antibiotic use and improving patient safety goals. A prior medication use evaluation of vancomycin conducted at Stony Brook University Hospital (SBUH) identified three areas for improvement: (1) vancomycin dosing to achieve target trough concentration, (2) treatment duration, (3) and the use of vancomycin drug assay. As a result, the ASP at SBUH implemented an interdisciplinary team which consists of pharmacists and physicians to optimize these areas.

Methods. A prospective quality improvement program was implemented from October 1, 2017 to December 31, 2017. Patients on two medicine units (60 patient beds) were enrolled in the program if they received vancomycin for more than one day and were

not on hemodialysis. The ASP monitored for appropriate use of vancomycin as well as providing real-time guidance on dosing and serum concentration monitoring. If vancomycin was not indicated or de-escalation was warranted, the physician was contacted for discontinuation or de-escalation. To evaluate the impact of the program, we selected comparable patients from two other medicine units during the same period as the control group. Duration of vancomycin therapy, the percentage of patients achieving target trough level and 24-hour AUC within 72 hours, and use of vancomycin drug assay were compared.

Results. There were 84 patients in the intervention group and 142 patients in the control group with similar age, weight, and creatinine clearance. The intervention group achieved a 20% reduction in the days of vancomycin use (median days of therapy 4.55 vs. 5.7 days, $P = 0.071$), a higher percentage of patient achieving trough level of 10–20 µg/mL (80.65% vs. 51.79%, $P = 0.0001$) and 24 hour AUC >400 mg hours/L (95.16% vs. 74.6%, $P = 0.001$), and a lower number of trough levels per course (1.51 vs. 2.54, $P = 0.007$). The 3-month medication cost savings from the program on these two units was over \$6,000.

Conclusion. An ASP supervised program led to a reduction in vancomycin days of therapy, early attainment of optimal exposure, and decreased use of laboratory resources. Moreover, the program lowered the overall healthcare cost.

Disclosures. All authors: No reported disclosures.

230. Characterization of Antibiotic Timeout Program Strategies Across the United States

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. An antibiotic timeout (ATO) provides a potential opportunity to improve antibiotic utilization and decrease inappropriate antibiotic prescribing. The CDC and Joint Commission suggest ATO as an antimicrobial stewardship program (ASP) action to support optimal antibiotic use. Unfortunately, little is known about the design and implementation of an ATO. Our primary objective was to describe different ATO models established by hospitals across the United States.

Methods. Data describing ATO strategies and ASP efforts were collected via a Qualtrics survey as a part of a multicenter study conducted by Vizient™ member hospitals to research the impact of an ATO on various ASP reporting metrics.

Results. Seventy-one hospitals responded to the survey. Twenty (28%) had a formalized ATO. Most institutions utilizing an ATO were community hospitals (60%) and had formalized ASPs (95%). Hospitals with an ATO program trended toward a higher average combined number of ASP physician and pharmacist FTEs than those without a formalized ATO (1.72 vs. 1.2, $P = 0.28$). Prescribers were responsible for the ATO in 40% of programs ($N = 8$), 30% were pharmacist-led, and the remainder were multidisciplinary. ATOs were most commonly performed daily (75%) as opposed to on select days of the week and targeted patients receiving antibiotics for 72 hours. Electronic medical record (EMR)-based ATOs (where the EMR prompted the responsible personnel to respond) existed at 14 programs, whereas 4 programs performed an ATO manually through chart review. Forty percent of hospitals conducted ATO on all antibiotics and antifungals; 20% included only antibiotics in their ATO. For the remaining 40% of institutions, only select drugs were included in the ATO.

Conclusion. Multiple ATO strategies are used in the United States. Most ATOs are electronic-based, performed at 72 hours of antibiotic therapy, inclusive of all antibiotics, and supported by established ASPs. To our knowledge, this is the largest descriptive study on ATO implementation in the United States.

Figure 1. Distribution of hospital type and duration of ASPs by the presence of ATO

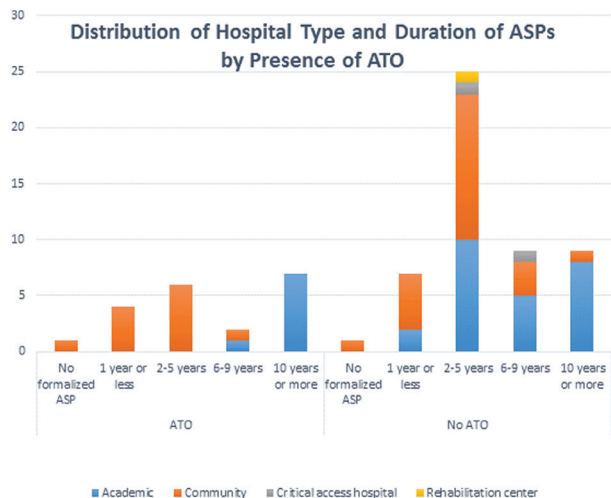
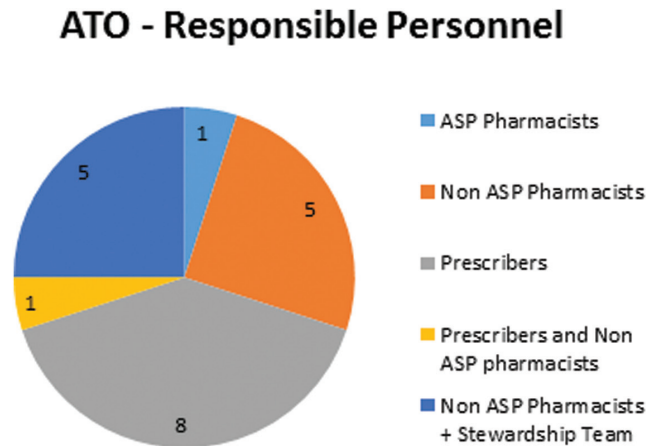


Figure 2. Personnel responsible for conducting ATOs



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231. Facilitating the Everyday Steward: Impact of Mandatory Antimicrobial Indication/Duration and a 48 Hour Time Out

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Session: 51. Antimicrobial Stewardship: Interventions to Improve Outcomes
Thursday, October 4, 2018: 12:30 PM

Background. Required indication/duration and a 48-hour antimicrobial time out are an integral part of antimicrobial stewardship standards; however, limited data are available to demonstrate an effect on antimicrobial use and stewardship practice. We evaluated the impact of mandatory declared indications/durations along with a 48-hour time out on antimicrobial utilization and antimicrobial stewardship program (ASP) interventions.

Methods. We performed a retrospective evaluation of ASP interventions and antimicrobial use following implementation of mandatory indication/duration at the point of order entry. A 48-hour antimicrobial time out was introduced on the same date. This study was conducted at Children's Mercy Kansas City, a freestanding pediatric hospital located in Kansas City, Missouri. Data were collected from February 1, 2016 to January 31, 2018. A pre- and postcomparison was performed; interventions were implemented hospital-wide on February 14, 2017. ASP intervention rates were measured. Days of therapy (DOT) per 1,000 patient-days of antibiotics were evaluated. Poisson models were utilized to compare DOT rates pre- and postimplementation, and seasonal decomposition analyses were performed to account for seasonal variability.

Results. A significant decrease in DOT rates was observed in non-ASP monitored antibiotics postimplementation, including cefazolin (39.7 to 36.9; $P < 0.001$), ampicillin (39.9 to 35.7; $P < 0.001$), and clindamycin (38.2 to 35.9; $P < 0.001$). Additionally, a decrease also occurred in ASP monitored antibiotics including ceftriaxone (46.5 to 43.4; $P < 0.001$) and meropenem (8.7 to 6.6; $P < 0.001$). Vancomycin usage was unchanged. Cefepime and piperacillin/tazobactam were excluded due to the impact of drug shortages. ASP intervention rates did not decrease (16.9% vs. 16.8%, $P = 0.94$).

