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 trough 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 = 0.007), 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.

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230. Characterization of Antibiotic Timeout Program Strategies Across the United States
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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 prescriber) were implemented at 14 programs, whereas 4 programs performed 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

231. Facilitating the Everyday Steward: Impact of Mandatory Antimicrobial Indication/Duration and a 48 Hour Time Out
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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 36.8, 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).

Figure 2. Personnel responsible for conducting ATOs

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Conclusion. Implementation of additional stewardship practices, including mandatory antimicrobial indication/duration and a 48-hour time out, decreased the use of antimicrobials, including those not monitored by our ASP. These efforts augmented, but did not replace existing stewardship efforts. These results support initiatives highlighted by national organizations to minimize unnecessary antimicrobial use through ASP.

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232. Do Antibiotic Timeouts Improve Antibiotic Utilization? Patrick Kinn, PharmD, MPH1; Michael Postelnick, RPh, BCPS AQ ID1; Kristi Kuper, PharmD, BCPS2; Amanda Gibson, PharmD, MS, PhD3 and Lucas T Schulz, PharmD, BCPS (AQ-ID)1;1 University of Wisconsin Health, Madison, Wisconsin; 2Department of Pharmacy, Northwestern Medicine, Chicago, Illinois; 3Vizient, Inc., Houston, Texas, 4University of Utah Health, Salt Lake City, Utah, 5Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University, Richmond, Virginia

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Background. The antibiotic timeout (ATO) is a stewardship tool that protocols review of objective clinical data after a predefined period of time and encourages antimicrobial regimen re-assessment.

Methods. Vizient member hospitals were utilized to recruit a variety of acute health-care institutions, including institutions with and without an ATO process. Participating institutions submitted de-identified patient-level antibiotic therapy courses from a single day within a 5-week window to create a snapshot of overall antibiotic utilization. Therapy courses were evaluated on metrics including the prevalence of anti-pseudomonal agents, agents active against methicillin-resistant Staphylococcus aureus (MRSA), and oral vs. intravenous antibiotics. The outcome measures included: percent changes in prevalence of courses with antipseudomonal and anti-MRSA agents after day 3, and percent change in antibiotics ordered for oral administration after day 3. These outcome measures were compared between ATO institutions and non-ATO institutions.

Results. A total of 6,184 antibiotic therapy courses were collected from 61 participating institutions (17 ATO institutions; 44 non-ATO institutions). Of 71 institutions that completed enrollment survey, 10 did not complete submission of therapy course data. Antibiotic courses prescribed for prophylaxis (n = 975) and courses that extended beyond 7 days (n = 1,192) were excluded from analysis, resulting in an analysis group that included 4,017 therapy courses (1,396 from ATO institutions vs. 2,621 from non-ATO institutions). The prevalence of patients receiving anti-pseudomonal agents increased after day 3 by 3.03% (P = 0.08) at ATO institutions and decreased 0.45% (P = 0.84) at non-ATO institutions. The prevalence of patients receiving anti-MRSA agents decreased after day 3 by 2.16% (P = 0.005) at ATO institutions vs. 72 hours, etc.) and potential impact on utilization and appropriate antimicrobial usage.

Conclusion. Antibiotic therapy course data collected across multiple sites provided no evidence for improved antimicrobial utilization among institutions that have implemented an antibiotic timeout compared with institutions without a timeout.

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233. Evaluation of an Antimicrobial Time-Out on Antimicrobial Utilization at a Large Health System Steven Richardson, PharmD1; Elizabeth Neuner, PharmD, BCPS (AQ-ID)2; Vasilios Athans, PharmD, BCPS3; Pavithra Srinivas, PharmD, BCPS2; Jill Wesolski, PharmD1; Steven Gordon, MD1; and Thomas Fraser, MD1; Department of Pharmacy, Cleveland Clinic, Cleveland, Ohio, 2Department of Infectious Diseases, Cleveland Clinic, Cleveland, Ohio, 3Department of Infectious Diseases, Cleveland Clinic, Cleveland, Ohio

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Background. Infectious Diseases Society of America and Society for Healthcare Epidemiology Guidelines for Implementing an Antibiotic Stewardship Program (ASP) and the CDC Core Elements of Hospital ASP include antimicrobial time-outs (ATO) as an example of a recommended action. There are limited data evaluating the impact of ATOs on antimicrobial use. Cleveland Clinic Health System (CCHS) implemented a 72-hour ATO for antimicrobials with an empiric indication and no stop date within the electronic health record. This study aimed to assess the effect of an ATO on antimicrobial utilization.

Methods. Retrospective, quasi-experimental study of patients between October 1–December 31, 2016 and 2017 who received at least one systemic antimicrobial agent while admitted to a US-based CCHS hospital. Primary objective was to compare the days of therapy (DOT) per 1,000 patient-days of broad-spectrum agents before and after ATO implementation. Secondary objectives included comparing indications for use, actions taken as a result of the ATO, and rate of Clostridium difficile. Antimicrobial groupings per National Healthcare Safety Network AUR Module.

Results. In 4Q2016, there were 75,982 antimicrobial orders in 31,945 encounters, of which 5,029 encounters had an empiric antimicrobial active at 72 hours. In 4Q2017, there were 78,418 antimicrobial orders in 33,378 encounters, which led to 38,129 ATOs in 6,138 encounters. Mean duration of therapy was 71 hours in 4Q2016 vs. 62 hours in 4Q2017, P < 0.05 (Figure 1). DOT/1,000 patient-days did not differ (Figure 2). Orders with the indication of pathogen directed did not change (14.1% vs. 14.4%; P = 0.11). Of 16,609 ATOs acknowledged by clinicians, 2,195 (14%) prompted antimicrobial discontinuation, while 684 alerts (4%) prompted de-escalation. There was no difference in encounters with positive C. difficile PCR, 123 (2.4%) vs. 152 (2.5%).

Conclusion. Implementation of an ATO for all antimicrobials within an electronic health record decreased duration of therapy but not DOT/1,000 patient-days. Further study is needed to define optimal ATO characteristics (targeted vs. all antimicrobials, 48 hours vs. 72 hours, etc.) and potential impact on utilization and appropriate antimicrobial usage.

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234. Improving Antimicrobial Prescribing and Rate of Infectious Diseases Consult Utilizing a Best-Practice Alert and Targeted Education for Staphylococcus aureus Bacteremia Katherine Yang, PharmD1; Tejal Gandhi, MD2; Chris Zimmerman, PharmD2; Robert Chang, MD, FACP, SHEF4; Jerod Nagel, PharmD, BCPS2; 1University of Michigan College of Pharmacy, Ann Arbor, Michigan, 2Internal Medicine, Division of Infectious Diseases, Michigan Medicine, Ann Arbor, Michigan, 3Michigan Medicine, Ann Arbor, Michigan, 4Internal Medicine, University of Michigan Medical Center, Ann Arbor, Michigan, 5Department of Pharmacy, Michigan Medicine, Ann Arbor, Michigan

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Background. Delays in time to appropriate management and antimicrobial therapy in patients with Staphylococcus aureus bacteremia (SAB) lead to dramatic increases in mortality, cost, and length of hospital stay. This study assesses the impact of antimicrobial stewardship pharmacist (ASP)-led Verigene education sessions paired with a physician-targeted EPIC best practice alert (BPA) on time to appropriate therapy and rate of infectious diseases (ID) consult for patients SAB.

Methods. This single-center pre–post study included adult patients with SAB from October 2016 through January 2018. A BPA was implemented in August 2017, and fired for any patient with SAB and no ID consult. The BPA provided four recommendations: (1) repeat blood cultures till clearance, (2) obtain ID consult, (3) start vancomycin for SAB with mecaA gene (i.e., MRSA) and nafcillin or cefazolin for SAB without mecaA gene

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