and 23 months of PJP prophylaxis with any agent. The primary endpoint of this study was the proportion of patients who could have been safely switched to TMP-SMX 3 months after atovaquone initiation. Other endpoints included the incidence of breakthrough PJP, reasons for TMP-SMX avoidance, and estimated cost savings.

**Results.** Two-hundred and eighteen patients were evaluated and 164 were included. Most common indications for atovaquone prophylaxis were bone marrow transplant (44.5%), solid-organ transplant (30.5%) and use of immunosuppressive agents (21.9%). Atovaquone was started in 145 patients (88.4%) according to institutional guidance. Three months after initiation, 89 patients (45.7%) could have been safely switched to TMP-SMX. Failure to timely change to TMP-SMX was associated with 1,615 additional patient-days of atovaquone therapy and $103,683 in excess costs within 3 months of initiation. Major reasons for TMP-SMX avoidance were thrombocytopenia (51.3%), neutropenia (35.4%), renal impairment (31.7%), allergy history (26.8%), and hyperkalemia (19.5%). No breakthrough PJP infections were observed while patients were on atovaquone.

**Conclusion.** Institutional-guideline compliance was high during atovaquone initiation. However, after 3 months, many patients who could have been safely transitioned to TMP-SMX continued to receive atovaquone. This resulted in excess costs and potentially sub-optimal therapy.

**Disclosures.** All authors: No reported disclosures.

---

1025. Inappropriate Aztreonam Usage – Antimicrobial Stewardship Strikes Back

Brandon J. Smith, MD, PharmD1; Bridget Batykefer, PharmD2; Christina Andrzejecki, PharmD, BCPS3; Mohamed Yassin, MD, PhD4; Ricardo Arbulu, MD5; University of Pittsburgh Medical Center, Jefferson Hills, Pennsylvania; UPMC Mercy Hospital, Pittsburgh, Pennsylvania; University of Pittsburgh, Pittsburgh, Pennsylvania,

**Session:** 130. Antibiotic Stewardship: Antibiotic Utilization
**Friday, October 4, 2019: 12:15 PM**

**Background.** Several studies have demonstrated that patients with reported β-lactam allergies (BLA) receive less efficacious and more toxic alternative antibiotics. A previous study at our institution utilizing aztreonam as a surrogate marker for BLA demonstrated nearly 50% of patients receiving aztreonam had previously tolerated an alternative β-lactam (BL). In response to those results, our Antimicrobial Stewardship Program (ASP) provided dedicated hospitalist, medical resident and pharmacist education on appropriate utilization of aztreonam and BLA. Additionally, members of the ASP team began receiving real-time clinical surveillance alerts for all aztreonam orders.

**Methods.** A retrospective chart review of patients ≥18 years old who received at least one dose of aztreonam between July 1, 2018 – December 31, 2018. Patients were excluded if they did not have a documented BLA or if they received aztreonam as de-escalation therapy. Cost of aztreonam therapy was compared with the cost of alternative BL agents based on prior and subsequently tolerated classes of BLs. Comparator agents included: piperacillin/tazobactam (penicillin), ceftazidime (cephalosporin) and meropenem (carbapenem).

**Comparisons.** Total number of aztreonam patients and doses, cost of aztreonam, and cost of comparator agents included: piperacillin/tazobactam (penicillin), ceftazidime (cephalosporin) and meropenem (carbapenem). Our study demonstrates that ASP interventions including increased education, allergy documentation and clinical surveillance alerts targeted at reducing aztreonam utilization can reduce pharmaceutical expenditures.

**Conclusion.** Institutional-guideline compliance was high during atovaquone initiation. However, after 3 months, many patients who could have been safely transitioned to TMP-SMX continued to receive atovaquone. This resulted in excess costs and potentially sub-optimal therapy.

**Disclosures.** All authors: No reported disclosures.

---

1026. Ertapenem Use During Antibiotic Stewardship Interventions in Community Hospitals

David T. Bearden, BS, PharmD1; Patrick A. Tallman, PharmD2, FIDP3; Haley E. Holmer, MPH4; David T. Bearden, PharmD, FIDP5; Jessica C. McGregor, PhD, FSHEA6; 1Oregon State University/Oregon Health and Science University, Portland, Oregon; 2Oregon Health and Science University/ Oregon State University, Portland, Oregon; 3Pacific University School of Pharmacy, Hillsboro, Oregon; 4Oregon State University/Oregon Health and Sciences University, Portland, Oregon; 5Oregon State University/Oregon Health and Science University, Portland, Oregon; 6Oregon State University/Oregon Health and Science University, Portland, Oregon,

**Session:** 130. Antibiotic Stewardship: Antibiotic Utilization
**Friday, October 4, 2019: 12:15 PM**

**Background.** Antimicrobial stewardship programs (ASP) promote the judicious use of antimicrobials to reduce antimicrobial resistance and improve patient outcomes. In our institution, we identified the overutilization of ertapenem and implemented several interventions to decrease its usage. The objective of this study was to assess the impact of these interventions on ertapenem use, rates of surgical site infection (SSI), carbapenem-resistant Enterobacteriaceae (CRE), and hospital-onset Clostridioides difficile infection.

**Methods.** This was a retrospective study conducted in 3 community hospitals in Iowa and Illinois using surveillance of anonymized antibiotic and infection control data from 2015 to 2018. Target ASP interventions included a daily retrospective review of ertapenem use, alternative alerts to providers through electronic health records (EHR), carbapenem restriction to infectious disease (ID) providers, and educational meetings with high-use provider groups. The primary outcome was the usage trend of ertapenem, and secondary outcomes were rates of SSI, CRE, and hospital-onset C. difficile infection. Interrupted time series analysis was performed to assess changes in the rates over the study period.

**Results.** An overall significant reduction in ertapenem use was observed in all 3-community hospitals from 2015 to 2018. Ertapenem days of therapy adjusted for case-mix index per 1000 patient-days was 11.2 in 2015 and 20.5 in 2018. Two break-points were identified; the addition of an ID trained pharmacist to the ASP (10/2016) and educational meetings with colorectal surgeons (5/2017). No significant difference was seen for hospital-onset C. difficile infection, SSI, or CRE. Purchase costs decreased for ertapenem by 81% in 2018 compared with 2015 (P < 0.001).

**Conclusion.** Adding an ID trained pharmacist to an ASP decreased usage of ertapenem. The majority of ertapenem use was for surgical prophylaxis, and our data suggested that educational meetings with a high-usage group were effective. Surgical site infection rates did not increase when narrower spectrum surgical prophylaxis was used. Overall hospital-acquired C. difficile rate was unchanged, possibly due to alternative antibiotic use. Our study suggests ASP interventions can be cost saving.

**Disclosures.** All authors: No reported disclosures.

---

1027. Vancomycin Use in Community-Acquired Pneumonia: Assessing Inappropriate Therapy

Timothy Shan, BS1; Sara J. Gore, MD2; Caitlin M. McCracken, MA3; Gregory B. Tallman, PharmD4, 1Katy A. Gore, BS5; Haley E. Holmer, MPH6; David T. Bearden, PharmD, FIDP7; Jessica C. McGregor, PhD, FSHEA8; 1Oregon State University/Oregon Health and Science University College of Pharmacy, Portland, Oregon; 2Oregon Health and Science University, Portland, Oregon; 3Oregon State University/Oregon Health and Science University, Portland, Oregon; 4Pacific University School of Pharmacy, Hillsboro, Oregon; 5Oregon State University/Oregon Health and Science University, Portland, Oregon; 6Oregon State University/Oregon Health and Science University, Portland, Oregon; 7Oregon State University/Oregon Health and Science University, Portland, Oregon; 8Oregon State University/Oregon Health and Science University, Portland, Oregon,

**Session:** 130. Antibiotic Stewardship: Antibiotic Utilization
**Friday, October 4, 2019: 12:15 PM**

**Background.** Current Infectious Disease Society of America guidelines recommend anti-methicillin-resistant Staphylococcus aureus (MRSA) agents for treatment of community-acquired pneumonia (CAP) only in specific high-risk patients. There are limited data on duration of vancomycin use that is appropriate in hospitalized patients with CAP. The objective of this study was to evaluate the use of vancomycin for CAP among inpatients.

**Methods.** We conducted a retrospective cohort study of inpatients at Oregon Health and Science University Hospital from August 1st, 2017 to July 31st, 2018 who received IV vancomycin and had a pneumonia encounter ICD-9 diagnosis code.
Days of therapy (DOT). A total of 118 patients were included in this study. There were 5 (7.7%) treatment failures in the pretest group and 3 (5.7%) in the posttest group (P = 0.7). Of the patients with CK level <250 U/L, 6 (33%) were found to have significant elevations in the pretest group and 4 (40%) were found in the posttest group (P = 0.6). There was no difference observed in the risk of CK elevation with daptomycin administration in the presence of an HMG-CoA reductase inhibitor. For the two time periods reviewed, the pharmacy department purchased fewer vials of daptomycin in the posttest group.

Conclusion. Patients at CAMC receiving daptomycin after implementation of a new dosing policy did not experience an increased risk of treatment failure. The antibiotic stewardship program will continue to monitor patients receiving daptomycin therapy at CAMC.

Disclosures. All authors: No reported disclosures.

1030. Analysis of a Novel Mortality Prediction Rule for Organizing and Guiding Antimicrobial Stewardship Team Activities

Curtis D. Collins, PharmD, MS, BCIDP, FASHP; Caleb Scheidel, MS; Christopher J. Dietzel, BS; Lauren R. Leeman, BS;
Cheryl A. Morrin, BS, MT(ASCP), CIC; Anurag N. Malani, MD, FIDSA, FSHEA; St. Joseph Mercy Health System, Ann Arbor, Ypsilanti, Michigan; Methods Consultants of Ann Arbor, Ypsilanti, Michigan; St. Joseph Mercy Health System, Ypsilanti, Michigan.

Session: 130. Antibiotic Stewardship: Interventions

Background. Antimicrobial stewardship team (AST) surveillance at our hospital is facilitated by an internally-developed database. In 2013, the database was expanded to incorporate a validated internally-developed prediction rule for patient mortality within 30 days of hospital admission. AST prospective audit and feedback expanded to include all antimicrobials prescribed in patients with the highest risk for mortality determined by risk score. This study describes the impact of an expanded AST review in patients at the highest risk for mortality.

Methods. This retrospective, observational study analyzed all adult patients with the AST mortality risk score who received antimicrobials not historically captured via AST review. Patients were identified through administrative and AST databases.

Results. Study periods were defined as 2011 – Q3 2013 (historical group) and Q4 2013 – 2018 (intervention group). Primary and secondary outcomes were assessed for confounders including demographic data and infection-related diagnoses. Outcomes were assessed using both unweighted and propensity score weighted versions of the t-test or Wilcoxon rank-sum test for continuous variables and the chi-squared test or Fisher's exact test for discrete variables.

Results. A total of 2,852 and 5,460 patients were included in the historical and intervention groups, respectively. After adjusting for demographic and clinical characteristics, there were significant reductions in median antimicrobial duration (5 vs. 4, P = 0.002), antimicrobial days of therapy (7 vs. 7, P = 0.001), length of stay (LOS) (6 vs. 5 days, P = 0.001), intensive care unit (ICU) LOS (3 vs. 2 days, P = 0.001), and total hospital cost ($11,017 vs. $9,134, P = 0.001) in the intervention cohort. There were no significant differences observed in 30-day mortality or 30-day readmissions. Secondary analyses showed significant decreases in fluoroquinolone and intravenous vancomycin utilization between cohorts.

Conclusion. Reduction in AST mortality risk score, inpatient and ICU length of stay, and total hospital costs were observed in a cohort of patients following incorporation of a novel mortality prediction rule to guide AST surveillance.

Table 1. Outcomes by Cohort

| Variable                                | Pre-intervention 2011 – Q3 2013 (N=1852) | Post-intervention 2013 – 2018 (N=3540) | P value            | PS weighted P value |
|-----------------------------------------|------------------------------------------|----------------------------------------|-------------------|---------------------|
| Categorical Variables, N (%)            |                                          |                                        |                   |                     |
| 30-day Mortality                        | Mean (95% CI)                            | Mean (95% CI)                          | 0.001             | < 0.001             |
| 30-day Readmission                      | Mean (95% CI)                            | Mean (95% CI)                          | 0.001             | < 0.001             |
| Hospital Cost                           | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |
| ICU LOS                                 | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |
| Number of Days with Antimicrobials      | Mean (95% CI)                            | Mean (95% CI)                          | 0.0001            | 0.0001              |
| (Antimicrobial Duration)                | Median (IQR)                             | Median (IQR)                           | 0.0001            | 0.0001              |
| Antimicrobial Days of Therapy           | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |
| Continuous Variables, Median (IQR)      |                                          |                                        |                   |                     |
| Inpatient Hospital Cost                 | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |
| Total Hospital LOS                      | Mean (95% CI)                            | Mean (95% CI)                          | 0.001             | < 0.001             |
| ICU LOS                                 | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |
| Number of Days with Antimicrobials      | Mean (95% CI)                            | Mean (95% CI)                          | 0.0001            | 0.0001              |
| (Antimicrobial Duration)                | Median (IQR)                             | Median (IQR)                           | 0.0001            | 0.0001              |
| Antimicrobial Days of Therapy           | Median (IQR)                             | Median (IQR)                           | 0.001             | < 0.001             |

Note: P values shown for the continuous outcomes are from the Wilcoxon rank sum test. Median and IQR are presented for descriptive purposes.

Disclosures. All authors: No reported disclosures.

1029. Dalbavancin Use in Complicated Infections and-associated Cost-Savings

Amber C. Streifel, PharmD; Monica Sikka, MD; Monica Sikka, MD; James Lewis, PharmD; Oregon Health and Science University, Portland, Oregon; 2Oregon Health and Science University, Portland, Oregon.

Session: 130. Antibiotic Stewardship: Antibiotic Utilization

Background. Dalbavancin is a lipoglycopeptide antibiotic active against Gram-positive organisms with an extended half-life that allows for weekly dosing. Initially approved for treating skin and soft-tissue infections, use for more complicated infections provides several potential benefits, particularly in the outpatient setting when daily intravenous dosing is not practical due to social or financial issues.

Methods. We conducted a retrospective study to describe dalbavancin use at our institution and to estimate resulting cost avoidance. We identified all patients aged 18 years or older who received at least one dose of dalbavancin via medication records, regardless of setting.

Results. 46 patients received dalbavancin between April of 2015 and March of 2019. The most commonly treated infections were bone and joint infections (41%), complicated bacteremias (24%), and skin and soft-tissue infections (20%). The most commonly treated organisms was Staphylococcus aureus (55%). A variety of dosing regimens were used, 26 patients (57%) received a single dose to complete a therapy course. The majority of doses were administered in an outpatient infusion center (61%), although 28% of doses were administered in the inpatient setting prior to discharge. Reasons for dalbavancin selection included history of intravenous drug use (35%), contraindications to alternative antibiotics (30%), prior history of nonadherence or manipulation of PICC (18%), other social issues preventing PICC (11%), and limited outpatient daily infusion options due to lack of funding (9%). 4 patients (8.7%) were lost to follow-up. 11 (24%) patients were readmitted to the hospital within 30 days, 2 (4%) healthcare-associated infections were attributed to dalbavancin therapy. A total of 74 hospital days were saved. In total, this is estimated to be $1,885,479 in overall cost avoidance and a mean cost avoidance of $40,988 per patient.

Conclusion. As data regarding the efficacy of dalbavancin for more complicated infections continue to emerge, it should be considered as a cost-effective alternative therapy when social and financial factors limit treatment options.

Disclosures. All authors: No reported disclosures.

1028. Clinical and economic outcomes of a newly implemented daptomycin dosing policy in a four-hospital health system

Meredith Todd, PharmD1; Kelci Jones, PharmD1; Sharon Hill, MPH2; Charleston Area Medical Center, Charleston, West Virginia; 1CAMC Health Education and Research Institute, Charleston, West Virginia.

Session: 130. Antibiotic Stewardship: Antibiotic Utilization

Background. We characterized patients receiving inappropriate therapy and calculated the proportion of inappropriate days of therapy (DOT).

Results. We identified 52 patients with CAP who were treated with vancomycin for a median of 2 DOT (Interquartile Range (IQR): 1–3). Approximately 21% (11/52) of patients had risk factors warranting vancomycin empirical therapy and 42% (22/52) had current sepsis. Nine CAP patients received inappropriate courses of vancomycin, median of 1 day (IQR: 1–2.25) of inappropriate therapy. The most common reason for classifying use as inappropriate was a positive culture for organisms other than MRSA. Patients receiving inappropriate therapy were more frequently transferred from another hospital (44% vs. 30%, P = 0.22). Overall, 16% (20/125) of vancomycin DOT were inappropriate.

Conclusion. In our study, CAP patients accounted for a small number of pneumonia patients who received vancomycin. The median inappropriate DOT was relatively short, possibly indicating that identification and de-escalation was performed quickly. Further work is required to determine the impact of these findings on patients.

Disclosures. All authors: No reported disclosures.