and ≥3 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

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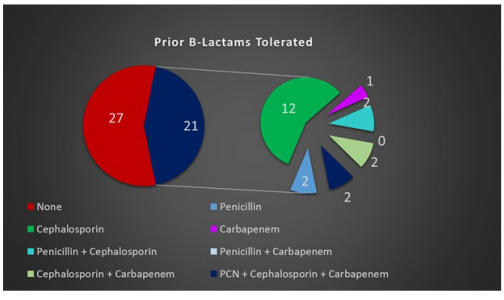
Background. Several studies have demonstrated that patients with reportedly β-lactam allergies (BLA) receive less efficacious and more toxic alternative antibiotics. A previous study at our institution utilizing aztreonam as a surrogate marker for BLA demonstrated nearly 50% of patients receiving aztreonam 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 inpatients >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), cefepime (cephalosporin) and meropenem (carbapenem). Comparisons of total number of aztreonam patients and doses, cost of aztreonam, and cost of alternative therapy were compared with the index population from 2017

Results. Similar to our prior study, 43.7% (48.5% in 2017) had prior BL tolerance with an additional 31.3% (19.4% in 2017) demonstrated subsequent BL tolerance following aztreonam administration. Following the ASP interventions, orders, doses and cost of aztreonam was reduced. Forty-eight patients during the 6-month period received aztreonam, a 26.7% reduction. There was a 38.5% reduction in the number of aztreonam doses (P = 0.001), which yielded a cost savings of $14,067.67 (extrapolated to 1 year). Median aztreonam cost in 2017 $382.40 vs. $191.20 in 2018 ($P$ = 0.004). In 2018, 41.7% of patient's allergy profiles were appropriately updated compared with 3.3% in 2017.

Conclusion. Our study demonstrates that ASP interventions including increased education, allergy documentation and clinical surveillance alerts targeted at reducing aztreonam utilization can reduce pharmaceutical expenditures.

	2017	2018	2018 (extrapolated)	Difference 2017 → 2018
Total patients	131 (12 months)	48 (6 months)	96 (estimated 12 months)	↓ **35 patients (26.7%)**
# Aztreonam Doses	1233	379	758	↓ **475 doses (38.5%)**
Cost Aztreonam	$38,410.83	$12,171.58	$24,343.16	↓ **$14,067.67**
Est Cost Alternative	$13,143.25	$3,724.17	$7,448.34	n/a
Potential Cost Savings	$27,625.59	$8,447.41	$16,894.82	$>16,894.82



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

1026. Ertapenem Use During Antibiotic Stewardship Interventions in Community Hospitals

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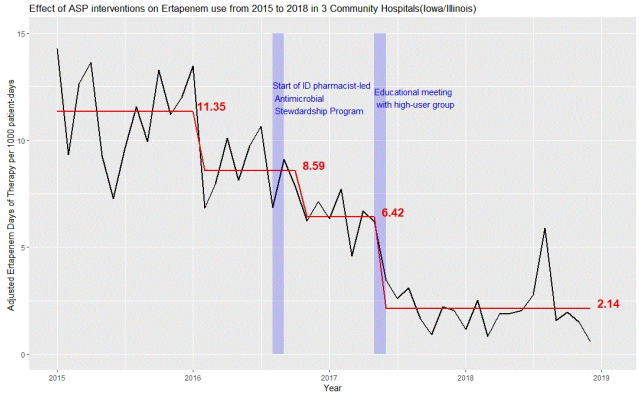
Background. Antimicrobial stewardship programs (ASP) promote the judicious use of antimicrobials to reduce antimicrobial resistance and improve patient outcomes. In our institution, we identified the overutilization of ertapenem and implemented several interventions to decrease its usage. The objective 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 2.05 in 2018. Two breakpoints 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

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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.

Patients with hospital or ventilator-associated pneumonia were excluded. Appropriate therapy was defined as empiric therapy with known risk-factors, concordant therapy with no de-escalation option, or concurrent sepsis or febrile neutropenia. Vancomycin appropriateness was assessed based on medical history and microbiology for both empiric and definitive therapy. 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 empiric therapy and 42% (22/52) had concurrent 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.

1028. Dalbavancin Use in Complicated Infections and-associated Cost-Savings

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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 antibiotics are 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 organism was *Staphylococcus aureus* (55%). A variety of dosing regimens were used, 26 patients (57%) received a single dose to complete a treatment 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%) of these patients were readmitted with a concern related to their infection or an adverse effect of the dalbavancin infusion. Based on a calculation of equivalent dalbavancin therapy days for each patient, 774 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.

1029. Clinical and economic outcomes of a newly implemented daptomycin dosing policy in a four-hospital health system

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Background. In light of recently published clinical and pharmacokinetic data regarding the use of daptomycin in obese patients, the Charleston Area Medical Center (CAMC) Antimicrobial Stewardship Program implemented an adjusted body weight dosing strategy for obese patients. Along with this new dosing strategy, an effort to reduce drug waste was also implemented by restricting the timing of routinely scheduled daptomycin doses for inpatients. This study aims to determine the clinical outcomes for patients receiving daptomycin both before and after this policy change. Secondary objectives include assessing creatinine phosphokinase (CK) levels in the study participants, defining the risk of CK elevation with the coadministration of HMG Co-A reductase inhibitors and daptomycin, and assessing any reduction in drug waste for the pharmacy department.

Methods. This study is a single-center, one-group pretest-posttest, quasi-experimental study evaluating the implementation of a two-part daptomycin dosing policy. The pretest group included all patients meeting inclusion and exclusion criteria that received daptomycin at CAMC from September 1 - November 30, 2017. The new daptomycin dosing policy was implemented on September 1, 2018. The posttest group included all patients meeting the stated criteria that received daptomycin from September 1 - November 30, 2018.

Results. 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 levels monitored, 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 Antimicrobial 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

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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 highest mortality risk score who received antimicrobials not historically captured via AST review. Patients were identified through administrative and AST databases. 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 fluroquinolone and intravenous vancomycin utilization between cohorts.

Conclusion. Reductions in antimicrobial use, 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=2852)	Post-intervention Q4 2013 – 2018 (N=5460)	P Value	PS weighted p-value
Categorical Variables, N (%)				
30-day Mortality	1030 (36.12%)	1922 (35.2%)	0.422	0.551
30-day Readmission	592 (20.76%)	1099 (20.14%)	0.525	0.346
Continuous Variables, Median [IQR]				
Inpatient Hospital Cost	Median [IQR]: $11017 [6332, 19892]	Median [IQR]: $9134 [5611, 15394]	< 0.001	< 0.001
Total Hospital LOS	Median [IQR]: 6 [3, 9] Mean (SD): 7.335 (7.688)	Median [IQR]: 5 [3, 8] Mean (SD): 6.575 (5.801)	< 0.001	0.001
ICU LOS	Median [IQR]: 3 [2, 6] Mean (SD): 4.897 (5.401)	Median [IQR]: 2 [1, 4] Mean (SD): 3.648 (4.454)	< 0.001	< 0.001
Number of Days with Antibiotics (Antimicrobial Duration)	Median [IQR]: 5 [3, 8] Mean (SD): 5.905 (5.309)	Median [IQR]: 4 [2, 7] Mean (SD): 5.266 (4.423)	< 0.001	0.002
Antimicrobial Days of Therapy	Median [IQR]: 7 [4, 13] Mean (SD): 10.396 (10.805)	Median [IQR]: 7 [3, 12] Mean (SD): 8.896 (8.759)	< 0.001	0.001
Secondary Analyses				
Intravenous Vancomycin Days of Therapy	Median [IQR]: 2 [1, 4] Mean (SD): 3.365 (3.205)	Median [IQR]: 2 [1, 3] Mean (SD): 2.538 (2.071)	< 0.001	< 0.001
Fluoroquinolone Days of Therapy	Median [IQR]: 2 [1, 4] Mean (SD): 3.142 (3.306)	Median [IQR]: 2 [1, 3] Mean (SD): 2.532 (2.107)	0.002	0.015

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

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