between groups. There was no difference in the incidence of VAN-associated nephrotoxicity (16% vs. 10%, P = 0.20).

Table 1. Baseline Demographics

| Variable                  | Pre-Revision (n = 100) | Post-Revision (n = 100) | P Value |
|---------------------------|------------------------|-------------------------|---------|
| Age, years                | 53.7 ± 13.7            | 48.8 ± 15.6             | 0.06    |
| Gender, male              | 21%                    | 17%                     | 0.47    |
| BMI, kg/m²                | 44.5 (41.0–49.0)       | 45.5 (41.5–50.8)        | 0.33    |
| Frequency of LD           | 30%                    | 68%                     | <0.001  |
| Initial MD, mg/kg         | 15.0 (12.8–17.0)       | 14.0 (12.9–15.0)        | <0.001  |

**Conclusion.** The revised VAN dosing protocol for MO patients improved initial TTC attainment and decreased incidence of subtherapeutic TCs compared with current standard of care recommendations with no difference in clinical or safety outcomes.

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

1559. Balancing the Efficacy and Safety of Implementing a Piperacillin/tazobactam (PTZ) Antibiotic Time-out

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**Session:** 168. Stewardship: Improving Outcomes

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**Background.** With the rise of antimicrobial resistance, the Centers for Disease Control and Joint Commission have promulgated a national initiative for antimicrobial stewardship programs (ASP). ASP use a multimodal approach such as antibiotic time outs to limit the duration of empiric therapy. Yale New Haven Hospital implemented the use of a 72-hour step down in the electronic medical system (EMR) for empiric PTZ orders. To mitigate the risk of orders inadvertently falling off, a dynamic scoring system was created in the EMR to alert pharmacist of expiring orders in real time. The primary objective of this study was to evaluate the duration of empiric PTZ prior to and after the implementation of the antibiotic time-out. Secondary outcomes included de-escalation, appropriateness of dosing, and safety.

**Methods.** A retrospective cohort study using the EMR was conducted. Cases were defined as adult inpatients who had empiric orders for PTZ without positive cultures. The control group consisted of patients from September to October of 2014, prior to the 72-hour step down. The intervention group included patients from September to October of 2016. Due to the nationwide shortage of PTZ in 2015, this year was excluded in addition to patients with culture documented infections, stem cell/solid organ transplants or febrile neutropenia. Data collected included baseline demographics, renal function, PTZ dose, frequency and duration, indication and final antibiotic selection.

**Results.** Of the 537 random patients reviewed, 300 met inclusion criteria; 150 patients in the control group and 150 patients in the intervention group. The average duration of PTZ decreased from 2.9 days in the control group to 1.7 days in the intervention group (P = 0.0013). Overall antibiotic use decreased from 6 days in the control group to 5 days in the intervention group (P = <0.0001). There was an increase in the correct dose and frequency from 35% to 60% of orders in the intervention group compared with the control group (P = 0.004). With the aid of the scoring system, there were no orders that fell of inappropriately in the intervention group.

**Conclusion.** Following the successful implementation of a 72-hour antibiotic timeout we saw a significant decrease in the duration of empiric use, inappropriate dosing and an increase in the rate of antibiotic de-escalation.

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1560. Safety of a Carbapenem Restriction Policy in Patients with Gram-Negative Bacteremia

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**Background.** Antibiotic restriction policies may decrease antimicrobial use and reduce resistance rates. However, it is unknown whether they inadvertently harm patients. We evaluated whether the implementation of a carbapenem restriction policy led to adverse patient outcomes.

**Methods.** A carbapenem restriction policy was implemented at the University of Washington Medical Center on 11/1/15. This policy required Infectious Disease consultation for meropenem and imipenem use beyond 72 hours (except for cystic fibrosis and neonatal patients). We conducted retrospective chart review on all inpatients with Gram-negative bacteremia and compared outcomes between the pre- and post-restriction periods. Medical records were reviewed for culture, antibiotic, APACHE score, and patient outcome data. Primary outcomes were (1) time from blood culture to effective antibiotic therapy and (2) number of drug-bug mismatches (DBM). Secondary outcomes included (1) inpatient mortality, (2) length of stay (LOS), (3) whether sepsis resulted in transfer to the intensive care unit (ICU), and (4) ICU LOS.

**Results.** There were 153 patients in the pre-restriction group and 163 in the post-restriction group. The mean time to effective antibiotic was 11.1 and 14.9 hours in the pre- and post-restriction periods, respectively (P = 0.13), with median times of 2.8 and 3.3 hours. DBM occurred in 12% of cases before the restriction and 19% after (P = 0.11). Hospital mortality rate was 16% pre-restriction and 17% post-restriction (P = 0.7). ICU transfer due to sepsis occurred in 12% of cases pre-restriction and 17% post-restriction (P = 0.3). There was a significantly longer mean LOS post-restriction (P < 0.01). Among patients with ICU days >0, mean ICU LOS was 1.2 (95% CI: -1.6 to 4.3) days shorter before the restriction (P = 0.2).

**Conclusion.** When carbapenem use was restricted, there was no statistically significant change in change in time to effective antibiotic therapy, percent of DBM, hospital mortality, or ICU transfers. There was a statistically significant increase in mean LOS post-restriction in the adjusted analysis, which may not be clinically important. We conclude that carbapenem restriction may be safe, and we plan to continue this policy at our institution.

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1561. Impact of an Antimicrobial Stewardship Bloodstream Surveillance Program (BSP) in Hospitalized Patients

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**Background.** Bloodstream infections (BSI) in hospitalized patients represent sentinel events characterized by increased mortality. These infections represent an attractive stewardship opportunity because they warrant rapid initiation of empiric antimicrobial therapy, delay transition to directed (gram stain guided) and definitive (susceptibility guided) therapy.

**Methods.** Under a retrospective pre-post study design, a review of patient charts was performed. Between 11-11-15, 12/1-15, and 01/17-15, patients were identified pre- and post-intervention, respectively. A total of 226 patients with BSI were identified pre-intervention and 195 patients post-intervention. The two cohorts were similar in baseline characteristics: the most common source of infection was urinary tract (Figure 1); the most common bloodstream isolates were E. coli, S. aureus, β-hemolytic streptococci and K. pneumoniae (Figure 2); 71.7% of infections were community acquired; 11.4% were polymicrobial. Empiric therapy was given in 82.6% of patients (16.3% non-susceptible). Directed therapy was given in 54.9% of patients (3.5% non-susceptible). The post-intervention cohort received directed therapy on average 4.36 hours earlier (P = .003), were more likely to receive adequate definitive therapy (99.0% post vs. 79.1% pre, P < .001), and were stepped down to oral therapy earlier (6 days vs. 8 days). Prescription of second generation cephalosporins (0.0% vs. 4.3%, P = .05), quinolones (16.7% vs. 32.7%, P = .005), daptomycin (2.6% vs. 10.3%, P = .03) and aminoglycosides (6.1% vs. 14.6%, P = .05) were decreased for directed therapy post-intervention.

**Conclusion.** A hospital BSP can improve time to first dose of parental antimicrobial directed therapy and adequacy of definitive therapy, shorten time from IV to oral step-down and reduce prescription of targeted antimicrobial classes. A BSP can be an effective stewardship strategy in hospitalized patients.
1562. Impact of Education on Fluoroquinolone Use in Uncomplicated Cystitis
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Session: 168. Stewardship: Improving Outcomes
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Background. The Food and Drug Administration released a safety alert in May 2016 against the use of fluoroquinolones (FQ) in uncomplicated cystitis because of increased risk of disabling and potentially permanent adverse drug effects (ADEs). The aim of the study is to compare the rates of FQ prescriptions for uncomplicated cystitis before and after prescriber education to assess if prescriber education decreases the use of FQs.

Methods. This is a single-center, two-phase retrospective chart review comparing a five year pre-intervention and a four month post-intervention periods that evaluated patients seen at UC Irvine’s emergency department (ED) or outpatient clinics for uncomplicated cystitis. Adult female, non-pregnant patients 18 years of age or older with the diagnosis of uncomplicated cystitis were included. The treatment guideline for uncomplicated cystitis was developed by the antibiotic stewardship subcommittee with the recommendation to use nitrofurantoin as the first line agent. The infectious diseases pharmacy resident provided educational sessions from December 2016 to January 2017. The primary objective is to evaluate the impact of prescriber education on FQ prescribing rates for uncomplicated cystitis in the ED and outpatient clinics. Secondary objectives include the resistance rates of FQs and trimethoprim/sulfamethoxazole (TMP/SMX) against uropathogens to determine the local resistance rates and ADEs due to FQs.

Results. A total of 1056 patients were included in the analysis: 974 in the pre-intervention and 82 in the post-intervention groups. The rate of FQ prescriptions decreased from 32.3% in the pre-intervention group to 13.1% in the post-intervention group (P = 0.0002). The overall resistance rates of uropathogens were 19.3% to FQ and to 33.4% to TMP/SMX. There were 5 (0.5%) ADEs in the pre-intervention and 2 (2.5%) in the post-intervention groups.

Conclusion. Prescriber education regarding the appropriate treatment of uncomplicated cystitis and proper use of FQs was effective in reducing the rate of FQ prescriptions in management of uncomplicated cystitis. After prescriber education, the rate of FQ prescriptions decreased by 59%.

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1563. Effect of a Multifaceted Stewardship Intervention on Antibiotic Prescribing and Outcomes for Acute Bacterial Skin and Skin Structure Infections
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Background. Acute bacterial skin and skin structure infections (ABSSSI) are a leading cause of hospitalization; however, ABSSSI are often treated inappropriately in the inpatient setting. A multifaceted stewardship intervention was implemented at a large health care system to encourage guideline-concordant (GC) antibiotic prescribing. Components included development of a clinical pathway, computerized order set, and provider education. The objective of this study was to examine the impact of this initiative on antimicrobial prescribing practices and patient outcomes.

Methods. This was a single center, retrospective cohort study of adult inpatients admitted to a medical service over a 9-month period with a primary or secondary diagnosis of ABSSSI. Patients were excluded if they had necrotizing fasciitis, code sepsis, diabetic foot infection, decubitus ulcers, perineal cellulitis, or if immunocompromised. ABSSSI was classified by type (purulent or non-purulent) and severity (mild, moderate, or severe) based on signs of systemic infection. Patients treated during the pre-intervention period (pre-IP) were then compared with patients treated during the post-intervention period (post-IP). The primary endpoint was receipt of GC therapy. Secondary endpoints included receipt of anti anaerobic (AA) or broad-spectrum agents (BSA), and clinical outcomes such as hospital readmission.

Results. 125 patients met eligibility criteria, 64 in the pre-IP and 61 in the post-IP. There was a statistically significant increase in prescribing of GC therapy during the post-IP compared with the pre-IP (14% vs. 56%, P < 0.0001). There was also a significant decrease in use of AA therapy (56% vs. 34%, P = 0.01). No difference was observed with the use of BSA, as overall use was low (16% vs. 15%, P = 0.89). The use of the computerized order set during the post-IP was low (18%). There was a numerical, but non-significant reduction in 30-day readmission (14.1% vs. 6.6%, P = 0.17).

Conclusion. The multifaceted intervention was effective for improving prescribing of GC therapy for ABSSSI. Given low use of the computerized order set, this seemed to be driven by provider education. Strategies around ongoing education may be key to sustain positive results of stewardship interventions.

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1564. High- vs. Low-Intensity Prospective Audit and Feedback on Internal Medicine Wards and Impact on Antimicrobial Use at a Community Hospital
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Background. Antimicrobial stewardship program (ASP) interventions, such as prospective audit and feedback (PAF), have been shown to reduce antimicrobial use and improve patient outcomes. However, there is a lack of data comparing different PAF approaches. We examined the impact of a high-intensity interdisciplinary rounds-based PAF compared with low-intensity PAF on antimicrobial use on internal medicine wards in a 400-bed community hospital.

Methods. Prior to the intervention, low-intensity PAF was performed by ASP pharmacists with a focus on targeted antibiotics (fluoroquinolones, anti-pseudomonal penicillins, carbapenems, vancomycin, clindamycin, third-generation cephalosporins). Recommendations were made directly to the internist for each patient. High-intensity rounds-based PAF was introduced to 5 internal medicine wards sequentially. Rounds-based PAF compared with low-intensity PAF on antimicrobial use on internal medicine wards and impact on antimicrobial use at a community hospital.

Results. Following the intervention, there was a non-statistically significant drop in antimicrobial use from 469 to 435 DDD/1000 PD. See Table 1 and Figure 1 for analyses of antibiotic use.

Conclusion. Although high-intensity PAF did not result in lower antibiotic use compared with low-intensity PAF overall, a delayed reduction (>12 months) in usage seemed to be driven by provider education. Strategies around ongoing education may be key to sustain positive results of stewardship interventions.

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Table 1. Change in Antimicrobial Use After High-Intensity PAF (DDD/1000 PD)

|                | Unadjusted (95% CI) | Adjusted (95% CI) |
|----------------|---------------------|-------------------|
| All            |                     |                   |
| 1–24 months    | -34.2 (-75.0 to 6.6) | -20.5 (-67.8 to 26.8) |
| 1–12 months    | -14.0 (-56.9 to 28.8) | -20.3 (-68.1 to 27.5) |
| 13–24 months   | -73.0 (-115.7 to -30.3) | -82.7 (-141.6 to -23.7) |
| Targeted       | -8.0 (-28.0 to 12.0)  | -14.7 (-28.8 to -0.6)   |
| Non-Targeted   | -26.2 (-50.0 to -2.3) | -9.6 (-59.5 to 40.3)    |

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