Session: P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background: Penicillin allergy reclassification is an important aspect of antimicrobial stewardship with ~10% of the population reporting a penicillin allergy. Our facility utilizes a Penicillin Allergy Reconciliation Program (PARP) led by an Infectious Diseases (ID) Pharmacist and pharmacy students to identify patients with penicillin allergy who reconcile and intervene when necessary. Information is collected by interview, electronic medical record (EMR) review, prescription outpatient fill history. This study evaluated reconciliations with and without a PARP in patients in a community health system.

Methods: This was a retrospective study that compared reconciliations performed on adult patients admitted at least once in 2019 with a self-reported penicillin allergy and ID physician consult at a hospital with a PARP (Institution 1) and one without a formal evaluation and intervention program (Institution 2) within the same community health system with same ID physicians. The primary outcome was documented reclassification of a patient's penicillin allergy during an inpatient visit in 2019. Reconciliation was defined as an edit or clarification (updating the severity, reaction, or comments section, as well as deleting) to a patient's penicillin allergy in the EMR. The secondary outcome evaluated the percentage of total and ID consult patients with a penicillin allergy.

Results: There were 245 patients who met criteria and were included in the study. 113 from Institution 1 and 132 from Institution 2. For the primary outcome, there were 82 (72.6%) reconciliations at Institution 1 and 15 (11.4%) reconciliations at Institution 2 (p = 0.001). Interventions at Institution 1 and 2 resulted in 74 EMR updates and 8 removals and 14 EMR updates and 1 removal, respectively. Reconciliation was performed on the same visit as the ID consult in 59/82 patients (72%) at Institution 1 and 11/15 patients (73.3%) at Institution 2. All reconciliations at Institution 2 were made by pharmacy students (11/15, 74%). For the secondary outcome, 10.0% of patients with an ID consult and 12.6% of all patients admitted in 2019 had a penicillin allergy (p=0.027).

Conclusion: A PARP led by an ID pharmacist and students was an effective method to perform penicillin allergy reclassifications, even in the presence of active ID consult.

Disclosures: Bruce M. Jones, PharmD, BCPS, ALK-Abello (Research Grant or Support); Allergan/Abbvie (Speaker's Bureau); Christopher M. Bland, PharmD, FCCP (FIDS); BCPS, ALK Abello, Inc. (Grant/Research Support); Biomierieux (Consultant); Merck (Consultant, Grant/Research Support, Advisor or Review Panel member); Speaker's Bureau; Teraphase (Speaker's Bureau).

58. Evaluation of a Disease State Stewardship Intervention for Urinary Tract Infections at an Academic Medical Center

Xhilda Xhemali, PharmD;1 Derek W. Forster, MD, PhD;2 Bryant Clemmons, PharmD;3 Sarah Cotner, PharmD, BCPS;4 Jeremy Vanfloe, PharmD, BCPS;5 Donna R. Burgess, RPh, BPPh;6 David Burgess, PharmD, FCCP, FIDP;6 Then Myint, MBBS;7 Mito Maskey, MBBS;7 Katie Wallace, PharmD, BCPS-AQ ID;1 University of Kentucky HealthCare, Lexington, KY;1 University of Kentucky, Lexington, KY

Session: P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background: Urinary tract infections (UTIs) are often misdiagnosed and mismanaged. Disease state stewardship initiatives targeting UTIs may have a significant impact on the overuse of antimicrobials (ABX). The purpose of our study is to evaluate the effectiveness of a UTI focused disease state stewardship intervention.

Methods: This retrospective study was conducted at a tertiary care academic medical center. Patients ≥18 years of age with a collected urinalysis (UA) and receiving ABX for a UTI were included. Retrospective review of UTI management from 9/11/2017 to 2017 was performed and used as the baseline. In the post-intervention period, 9/11/2018, the UTI management guideline had been published and service lines educated. A prospective audit and feedback (PAF) initiative was started 6/2019, whereby the antimicrobial stewardship team performed daily reviews of patients on ABX for UTIs. Patients reviewed 9/11/2019 were included in the PAAF cohort. Exclusion criteria included: pregnancy, undergoing a urologic procedure, treatment of a concomitant infection, receiving therapy based on outside recommendations, or left AMA/expired time.

Results: There were 245 patients who met criteria and were included in the study. 113 from Institution 1 and 132 from Institution 2. All reconciliations at Institution 2 were made by pharmacy students (11/15, 74%). For the secondary outcome, 10.0% of patients with an ID consult and 12.6% of all patients admitted in 2019 had a penicillin allergy (p=0.027).

Conclusion: A PARP led by an ID pharmacist and students was an effective method to perform penicillin allergy reclassifications, even in the presence of active ID consult.

Disclosures: Bruce M. Jones, PharmD, BCPS, ALK-Abello (Research Grant or Support); Allergan/Abbvie (Speaker's Bureau); Christopher M. Bland, PharmD, FCCP (FIDS); BCPS, ALK Abello, Inc. (Grant/Research Support); Biomierieux (Consultant); Merck (Consultant, Grant/Research Support, Advisor or Review Panel member); Speaker's Bureau; Teraphase (Speaker's Bureau).

59. Evaluation of Drug-Bug Mismatch Alerts and Their Value in an Antimicrobial Stewardship Program

Cristen A. Whittaker, PharmD;2 Ethan Nhan, PharmD;2 Marc Storb, PharmMD;2 Shana Szymborski, PharmD;2 Manish Trivedi, MD;2 Joseph Reilly, PharmD;2 AtlanticCare Regional Medical Center, Pomona, NJ;2 Atlanticcare Regional Medical Center, Pomona, New Jersey

Session: P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background: Antimicrobial stewardship is a priority for hospitals and utilizing generated reports can enhance stewardship activities. At our institution, a software program was used to help optimize antimicrobial therapy by providing a drug-bug mismatch (DBM) alert which identifies patients with culture susceptibilities not covered by their current antimicrobial therapy. The purpose of this study was to evaluate the utility of this alert feature and determine whether or not an intervention was needed for patients identified.

Methods: From August 2019 to March 2020 the DBM alerts were reviewed by a pharmacist and interventions pursued when appropriate. Data collection included the patient's culture results and source, indication for current antibiotics, and potential for intervention. Alerts were stratified into different groups based on the type of culture, including urine, blood, sputum, bone or bodily fluid, wound or tissues, and stool. Those mismatches not resulting in an intervention were categorized as a contamination, colonization, or inappropriate. This study was approved by the institutional review board.

Results: A total of 105 DBM alerts were analyzed from various sources, including 51 (47.6%) urine, 17 (16.2%) sputum, 16 (15.2%) wound or tissue, 14 (13.3%) blood, 6 (5.7%) bone or bodily fluid, and 1 stool culture. Overall, 48 of 105 (45.7%) of alerts resulted in an intervention. Urine and sputum culture alerts required interventions at the lowest rate with treatment interventions in 12 of 51 (23.5%) and 5 of 17 (29.4%) respectively. For blood, culture alerts were the most successful with a total of 9 of 14 (64.3%) alerts required an intervention. Alerts with wound or tissue cultures identified gaps in therapy as 9 of 19 (46.3%) cases required intervention. Colonization or contamination appeared to be the major cause of alerts that did not result in an intervention.

Conclusion: The DBM alert can be a beneficial tool for pharmacists participating in antimicrobial stewardship activities. However, the alerts had varying value depending on the culture source. The DBM alert can identify real-time patient issues regarding appropriate antimicrobial therapy. Further modifications to our process in utilizing this DBM report are warranted to enhance value and allocate time accordingly.

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60. Evaluation of Outcomes Associated with Intermittent Versus Extended Infusion of Piperacillin/tazobactam in Acutely Ill Veterans

Marianne Angel Encarnacion, PharmD;1 Ariel Ma, PharmD;2 Scott T. Johns, PharmD;2 VA San Diego Healthcare System, San Diego, California;2 VA San Diego Medical Center, san diego, California;2 San Diego VA Healthcare System, San Diego, California

Session: P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background: Antibiotic dosing optimization is a key principle of antimicrobial stewardship. This study evaluated the impact of an extended infusion piperacillin/tazobactam dosing protocol on clinical outcomes in acutely ill veterans treated for infections at VA San Diego.

Methods: This retrospective cohort study looked at veterans admitted to the medical-surgical unit who were treated with piperacillin/tazobactam for at least 48 hours. The control group included patients who received treatment between 12/14/2017 to 7/22/2018, and the “protocol” or after protocol implementation group included patients who received treatment between 7/23/2018 to 2/28/2019. Excluded from the study were veterans with microbiological cultures showing intermediate sensitivity or resistance to piperacillin/tazobactam, those who experienced interruption in therapy, or those who required dialysis. Primary clinical outcomes included in-hospital mortality rate, 30-day mortality rate, hospital length of stay (LOS), and 30-day readmission rates. Rates of adverse effects such as elevated liver enzymes, thrombocytopenia, acute kidney impairment (AKI), and Clostridium difficile infection were also collected. χ2, Fisher’s exact, and Mann-Whitney U tests were used for statistical analysis.

Results: 260 veterans were included in the final analysis: 96% male, mean age 65 years, mean BMI 29.84, met SIRS criteria for sepsis, and 55% received at least 48 hours of concomitant vancomycin. Groups had similar outcomes for median LOS, in-hospital mortality, and 30-day mortality. The incidence of AKI was significantly lower in the protocol group (39.2% vs. 56.9%, p<0.004), in veterans on concomitant vancomycin (42.3% vs. 63.2%, p<0.011), and in veterans with obesity (36.4% vs. 70.8%, p<0.001). Rates of liver enzyme elevation, thrombocytopenia, and Clostridium difficile infection were lower in the protocol group though these were not significant.

Conclusion: There was a significantly lower rate of AKI with EI dosing which supports enhanced patient safety. This may be the preferred method of administration for obese patients and/or those receiving vancomycin concurrently. This is the first
study to demonstrate that Ei piperacillin/tazobactam dosing significantly reduces rates of AKI in patients on concomitant vancomycin.

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### 61. Evaluation of the Impact of a Micafungin Time-Out Protocol for Hospitalized Patients

Kelsey N. Williams, PharmD1; Ramy H. Elshaboury, PharmD1; Alyssa R. Letourneau, MD, MPH1; Meagan L. Adamsick, PharmD2; Ronak G. Gandhi, PharmD, BCPS1; Molly L. Paras, MD1; Monique R. Ridell, PharmD1; 1Massachusetts General Hospital, Boston, Massachusetts

**Session:** P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

**Background:** Echinocandin overuse is associated with increased prevalence of non-albicans Candida spp, resistance, and high costs. Prospective review of micafungin prescribing by an Antimicrobial Stewardship Pharmacist (ASP) has shown reduced rates of inappropriate therapy. The aim of this study was to describe ASP’s interventions following introduction of a micafungin time out (MTO) protocol.

**Methods:** The approved MTO protocol was implemented in November 2019. Active micafungin orders for hospitalized patients were reviewed Monday through Friday at initiation and on day five. The MTO algorithm assessed micafungin use based on patient risk factors for Candida infection and de-escalation was guided by clinical status, culture data, and susceptibility testing. Micafungin use and ASP’s interventions were reviewed post-implementations between 12/01/2019 and 02/28/2020. Micafungin use was also characterized between 12/01/2018 and 02/28/2019 to serve as a control.

**Results:** A random sample of 50 patients who received micafungin for ≥ 48 hours during the pre- and post- protocol periods were included. 39 (78%) and 38 (76%) patients in the pre- and post-MTO cohort had indications for micafungin initiation according to algorithm. In the post-MTO group, 9 (75%) of the 12 micafungin initiations outside of algorithm approval were intervened on successfully by the ASP, increasing appropriate antifungal therapy to 47 (94%) patients. On day five, 18 (50%) and 23 (65.8%) (p=0.17) micafungin orders were according to algorithm in the pre- and post-MTO groups, respectively. Culture data on day five revealed 18 (50%) in the pre-MTO and 13 (34.2%) in the post-MTO group were eligible for de-escalation. An ASP-initiated MTO on day five identified 23 opportunities for antifungal therapy optimization in the post-MTO group. Interventions included de-escalation (13; 61.9%), discontinuation (6; 28.6%), and dose optimization (4; 19%). Of the 23 ASP interventions on day 5, 10 (43.4%) led to micafungin discontinuation or de-escalation, increasing the overall antifungal appropriateness to 35 (92.1%) patients.

**Conclusion:** An ASP-initiated MTO can facilitate appropriate and timely optimization of antifungal therapy. The most frequent interventions were de-escalation from micafungin or therapy discontinuation.

**Disclosures:** All Authors: No reported disclosures

### 62. Factors Associated with 30-Day ED Readmission Following Initial ED Discharge for Suspected Sepsis

Anna E. Moscovitz, MD1; Esther Y. Bae, PharmD1; Ricardo M. La Hoz, MD1; James B. Cutrell, MD1; Marguerite Monogue, PharmD2; UT Southwestern, Dallas, Texas; 1University of Texas Southwestern Medical Center, Plano, Texas; 2University of Texas Southwestern, Dallas, TX

**Session:** P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

**Background:** Given the increased mortality associated with delayed recognition of sepsis, emergency departments (ED) often use protocols to rapidly identify and treat suspected sepsis. However, screening criteria such as systemic inflammatory response syndrome (SIRS) lack specificity and may over-diagnose sepsis in patients otherwise stable for discharge. Our study describes outcomes and identifies factors associated with ED readmission in those initially discharged directly from the ED who met sepsis criteria.

**Methods:** This retrospective cohort study evaluated adult patients (≥ 18 years) seen in the ED at UT Southwestern Medical Center from January to June 2018 who met all the following: ≥ 2 SIRS criteria; received ≥ 1 dose of intravenous (IV) broad-spectrum antibiotic(s) in the ED; were discharged home. A multivariable logistic regression model identified factors associated with 30-day readmission to the ED, using clinically significant variables parsimoniously. A two-sided P value < 0.05 was considered significant.

**Results:** A total of 179 patients were included. Forty-four patients (25%) returned to the ED within 30 days of their initial visit; of those 44, 43.6% (28) returned for issues related to their prior visit, and 50% (22) were admitted to the hospital. Table 1 compares baseline demographics of patients with suspected sepsis readmitted to the ED with those not readmitted within 30 days after initial ED discharge. In univariable analysis, quick Sequential Organ Failure Assessment (qSOFA), and length of antibiotic therapy (ED plus discharge antibiotics) were associated with ED re-admission (table 1). Receipt of antibiotics on discharge was not significant. In the final multivariable analysis (table 2), initial qSOFA ≥ 2 alone was associated with increased risk of ED re-admission (OR 7.5, p=0.01).

**Conclusion:** In this cohort, 25% of patients with suspected sepsis initially discharged from the ED were readmitted to our ED within 30 days. A qSOFA ≥ 2 at the initial ED visit was associated with increased risk of readmission, suggesting a potential use of qSOFA to triage those warranting admission or closer follow-up. Larger prospective studies are warranted in this understudied population of patients who meet screening sepsis criteria but are discharged from the ED.

**Disclosures:** All Authors: No reported disclosures

### 63. Frequency and Outcomes of Patients Prescribed Antibiotics for Extended Durations on Discharge from the Hospital to Nursing Homes

Kaitlyn E. Molina, BS1; Brië N. Noble, BS1; Christopher J. Crnich, MD, PhD2; Jessica C. McGregor, PhD, FSHEA2; David T. Bearden, PharmD, FIDP3; Dominic Chan, PharmD, BCPS1; Jon P. Furuno, PhD, FSHEA2; Jon P. Furuno, PhD, FSHEA2; 1Oregon State University, Portland, Oregon; 2University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; 3Oregon State University/Oregon Health & Sciences University, Portland, OR; 4Legacy Health, Portland, OR; 5Oregon State University College of Pharmacy, Portland, Oregon

**Session:** P-3. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

**Background:** Nursing home (NH) residents are at increased risk of being prescribed antibiotic for extended durations and experiencing antibiotic-associated adverse events. However, many of these antibiotics are prescribed in the hospital prior to NH admission. We quantified the frequency, characteristics and outcomes of patients receiving antibiotic treatment in the hospital and discharged to NHPs with an antibiotic prescription for greater than 7 days.

| Variable | OR (95% CI) | p-value |
|----------|-------------|---------|
| Quick SOFA score on initial ED admission | 1.59 (0.91-2.78) | 0.09 |

**Conclusion:** In this cohort, 80% of patients with suspected sepsis had ≥ 1 antibiotic prescribed at discharge with new antibiotics being prescribed in 60% of cases. A qSOFA ≥ 2 at the initial ED visit was associated with increased risk of readmission, suggesting a potential use of qSOFA to triage those warranting admission or closer follow-up. Larger prospective studies are warranted in this understudied population of patients who meet screening sepsis criteria but are discharged from the ED.