Results. The mean age of subjects was 63 years old and 85% had no history of prior C. difficile infection. The most common intervention was de-escalation of antibiotics (46%). The post-intervention SIR was 0.55 and hospital-onset C. difficile rate was 13, both of which were significantly lower than predicted.

Conclusion. Targeting patients who have a history of or are newly diagnosed with C. difficile infection may decrease hospital-onset C. difficile rates.

Disclosures. All Authors: No reported disclosures

55. Impact of Testing Methodology and Reporting on Time to Preferred Antibiotic Therapy in Extended Spectrum Beta-Lactamase producing Enterobacteriaceae (ESBL-E) Bloodstream Infections

Hannah Bui, PharmD; Dink Tverekal, PharmD; Stephanie Carnes, PharmD; Jeanne D. Chan, PharmD, MPH; Andrew Bryan, MD, PhD; Lori Bourassa, PhD MPH; Rupali Jain, PharmD; Brendan Matsuda-Fong, n/a; 1/ UW Medicine, Seattle, Washington; 2/Fred Hutchinson Cancer Research Center, Seattle, Washington; 3/UW Medicine, Harborview Medical Center, Seattle, WA; 4/University of Washington, Seattle, Washington; 5/University of Washington School of Medicine, Seattle, WA

Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. Harborview Medical Center (HMC) identifies organisms and an ESBL genotype (CTX-M) via Verigene® Gram-Negative Blood Culture Nucleic Acid Test (BC-Test). University of Washington-Montlake (UWML) uses matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) for organism identification directly from positive blood cultures and ceftazolin results by Kirby Bauer disk diffusion (KB) are reported 18 hours later. No ESBL comment is reported at UWML. We aimed to determine whether the methodology in identification and reporting of ESBL-E from blood cultures between two hospitals has an impact on the time to preferred therapy with a carbapenem antibiotic.

Methods. Retrospective observational study conducted at UWML and HMC in Seattle, WA between 1/10/2015 and 9/15/2020. Adult patients were eligible if they had ≥1 positive blood culture with an Enterobacteriaceae isolate resistant to ceftazolin and were on an antibiotic treatment. The primary outcome was the difference in time to preferred definitive therapy with a carbapenem antibiotic in patients an ESBL-E bloodstream infection (BSI) identified by Verigene® vs. MALDI-TOF MS/KB.

Results. A total of 199 patients were screened; 67 were included for UWML and 68 at HMC. The average time to initiation of a carbapenem antibiotic was 42.1±26.2 hours at UWML and 28±19.7 hours at HMC. A t-test detected a difference in time to preferred therapy between a Verigene® vs. MALDI-TOF MS/KB tested ESBL-E BSI [95% confidence interval (CI), 5.4-10.4]. A t-test detected a difference in time to preferred definitive therapy with a carbapenem antibiotic in patients an ESBL-E bloodstream infection (BSI) identified by Verigene® vs. MALDI-TOF MS/KB.

Conclusion. A statistically significant difference in time to preferred definitive therapy among patients with an ESBL-E BSI processed by Verigene® was found compared to MALDI-TOF MS/KB. The results suggest standardization in protocols between the UWML and HMC hospitals is warranted.

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56. High Frequencies of Adverse Drug Events with Intravenous vs Oral High-Dose Trimipramine-Sulfamethoxazole: An Opportunity for Antibiotic Stewardship

Lisa Vuong, PharmD; Susan L. Davis, PharmD; Susan L. Davis, PharmD; Tyler Jedrzejeski, PharmD; George Medier, PharmD; Kristen Zolchak, PharmD; Michael P. Veve, PharmD; Rachel Kenney, PharmD; 1/Henry Ford Hospital, Detroit, Michigan; 2/Wayne State University, Detroit, MI; 3/Johns Hopkins Medicine, Baltimore, Maryland

Trimipramine-sulfamethoxazole: intravenous versus oral therapy

Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. Trimipramine-sulfamethoxazole (TSM-SMX) is a high-bioavailability antibiotic associated with potentially serious adverse drug events (ADE). The objective of this study was to evaluate the safety of intravenous (IV) and oral (PO) high-dose TSM-SMX.

Methods. IRB-approved retrospective cohort of hospitalized patients from January 2016 to November 2020. Inclusion: ≥ 18 years old admitted to hospitals during the study period. Exclusion: prophy (1-1.5). 56% had a diuretic added, and 38% had a diuretic dose increase. Majority of patients experienced any adverse event with IV ≥70% with PO (unAdjOR 2.43; 95% CI 1.89-3.13). Most common ADE in both groups: hypertension, hyperkalemia, and elevated creatinine. Hypotension: 39% with IV and 32% with PO (unAdjOR 24.44; 95% CI 7.50-79.68). Edema on physical exam, an ADE specific to IV-TSM-SMX, was the third most common side effect in the IV group. Relative changes from baseline in sodium, potassium, and creatinine from those who experienced hypotension, hyperkalemia and elevated creatinine were listed in Table 2.

Table 2. Adverse Effects

| ADE Event | Oral, n = 50 | Intravenous, n = 60 | p-value |
|-----------|-------------|-------------------|--------|
| Asystole   | 6/50 (12%)  | 9/60 (15%)        | 0.05   |
| Hypotension| 12/50 (24%) | 18/60 (30%)       | 0.2    |
| Elevated Creatinine: mmol/L, median (IQR)| 1.5 (1.2-2.0) | 2.0 (1.5-2.5) | 0.003 |
| Elevated Potassium: mmol/L, median (IQR) | 4.5 (3.7-5.2) | 5.0 (4.5-6.0) | 0.003 |
| New-onset Hypertension | 12/50 (24%) | 20/60 (33%) | 0.003 |
| Thrombocytopenia: mmol/L, median (IQR) | 70 (36-91) | 100 (75-120) | 0.12 |
| Diuretic Reaction: mg/kg/day | 18/50 (36%) | 25/60 (42%) | 0.003 |
| Stentorhomonas multiplica | 12/50 (24%) | 20/60 (33%) | 0.003 |
| Plasma K+ level: mmol/L, median (IQR) | 3.5 (3.0-4.0) | 4.0 (3.5-4.5) | 0.003 |

Conclusion. Patients on IV-TSM-SMX therapy were more likely to experience an ADE compared to PO, likely driven by the high volume of free water. Most patients on IV-TSM-SMX were on other PO medications, suggesting a missed stewardship opportunity for IV to PO conversion to reduce patient harm.

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57. Financial Impact of a Regional Antimicrobial Stewardship Cost Saving Initiative in a Large Integrated Healthcare System

Van Nguyen, PharmD; Colton Taylor, PharmD; Alyssa Christensen, PharmD, BCIDP; Brent Footer, PharmD, BCPS; 1/Abbott Northwestern Hospital, Minneapolis, Minnesota; 2/Providence Saint Vincent Medical Center, Portland, Oregon; 3/Providence Portland Medical Center, Portland, Oregon

Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. A regional antibiotic stewardship program (ASP) within a large integrated healthcare system covering two non-academic, tertiary care medical centers and an additional six community hospitals implemented multiple interventions to optimize antimicrobial therapy and reduce unnecessary hospital costs, such as transition to extended-infusion (EI) piperacillin/tazobactam (TZP), formulary restriction of antimicrobials, and antimicrobial stewardship clinical review. The purpose of this study was to evaluate the cost savings associated with these regional ASP initiatives.

Methods. This was a multicenter, retrospective, observational review of regional stewardship interventions across eight inpatient medical centers in Oregon. Data was collected from January 2019 to December 2020. Cost savings associated with reduced TZP administrations was based on the duration of therapy for each encounter in adults who received TZP for ≥24 hours in 2020. The regional antimicrobial restriction policy was implemented in February 2020. Cost savings attributed to antimicrobial formulary restrictions and reduction in overall days of therapy/1000 patient days (DOT) were based on EPIC costs.

Results. The reduction in number of administrations with implementation of EI TZP resulted in $226,420 saved in 2020. $182,837 was saved due to decreased usage of restricted antimicrobial agents. An additional $433,341 was saved for overall antimicrobial costs due to 19,775 days reduction in overall DOT/1000 patient days.

Conclusion. A community-based regional ASP has resulted in substantial financial impact and identified areas for future cost savings within the region.

Disclosures. All Authors: No reported disclosures

58. Impact of Order-set Modifications and Provider Education on Broad-Spectrum Antibiotic Use in Patients Admitted with Community Acquired Pneumonia

Jessica L. Colmerauer, PharmD; Kristen Linder, PharmD; 1/Casey J. Cherry Hill, New Jersey; 2/Hartford HealthCare, Hartford, Connecticut; 3/Center for...
Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. A significant proportion of inpatients labeled with penicillin allergies do not have a true IgE-mediated hypersensitivity, which may unnecessarily limit options for treatment of infection and lead to suboptimal antibiotic selection. Post-acute care settings may provide a unique opportunity to capture patients at risk for adverse outcomes related to penicillin allergy labels. The objective of the study was to assess the feasibility and impact of a penicillin delabeling program in an inpatient rehab setting.

Methods. We conducted a prospective observational study. Inpatients with penicillin allergies were identified weekly by manual review of electronic medical records. A clinical pharmacist reviewed each patient’s chart and identified patients for inclusion. Patients were excluded if they had a history of IgE-mediated hypersensitivity to penicillin within last 5 years, a history of a non-IgE mediated hypersensitivity, were severely immunocompromised, or were prescribed a contraindicated medication.

Results. A total of 72 charts were reviewed over nine months, and 37 (51.4%) had their penicillin allergy updated to reflect prior beta-lactam tolerance. Of the 72 patients that were evaluated, 28 (38.9%) were eligible for potential penicillin allergy delabeling, and 44 (61.1%) were ineligible. 59 (81.9%) of the patients had a moderate-risk high allergy, 12 (16.6%) had a low risk allergy, and 1 (1.4%) had an intolerance. Of the 28 eligible patients, 11 (39.3%) had their allergy removed, 13 (46.4%) deferred testing, and 4 (14.2%) could not be tested due to staff. Of the 28 patients that had their allergy delabeled, 7 (21.4%) had their allergy removed by MAR review, 2 (7.2%) had a skin test with a negative result, and 2 (7.2%) had a direct oral challenge with a negative result.

Conclusion. A penicillin allergy delabeling program using a collaborative physician-pharmacist team model efficiently removed reported allergies in post-acute care patients. The post-acute care setting is an opportune environment to conduct a penicillin allergy delabeling program for patients not currently needing acute medical treatment.

Disclosures. All Authors: No reported disclosures

61. A Multidisciplinary Quality Improvement Initiative to Promote Penicillin Allergy Delabeling

Lea Monday, PharmD, MD1; Jaclyn Michniak, Nurse Practitioner2; Edward Zoratti, MD3; Allison J. Weinmann, MD1; Henry Ford Health System, Detroit, Michigan

Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. Penicillin (PCN) allergies are reported in up to 10% patients and are associated with adverse clinical and antimicrobial stewardship outcomes. Here we describe a multidisciplinary quality improvement (QI) initiative to facilitate PCN delabeling at a large urban hospital.

Methods. Starting in August 2020, the departments of Allergy and Infectious Diseases (ID) began a joint QI effort to employ a part-time allergist nurse practitioner (ANP) for PCN allergy assessment and delabeling. The ANP used a daily system generated list to identify and assess adult patients with PCN allergy and contact teams to request a consult. An ID fellow was also assisting in identifying patients and contacting care teams. The ANP then offered skin/oral PCN challenge or direct label removal based on history after discussion with an allergist physician.Baseline, clinical, and allergy characteristics were compared between patients delabeled and not delabeled using Chi-square and Mann-Whitney U test. Primary endpoints were antibiotic utilization outcomes from index admission post ANP assessment to 30-days post discharge. Secondary endpoints included readmission, length of stay (LOS), mortality, and sustained removal of the PCN allergy at 30-days.

Figure 1. Penicillin Delabeling Process Performed by Allergist Nurse Practitioner

Delabel

Penicillin Delabeling Process

Delabel

Penicillin Allergy Delabeling Program in the Post-acute Care Setting

Joseph Galipean, Pharm.D., BCIDP1; Jerry Jacob, MD, MS2; 1Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania; 2University of Pennsylvania, Philadelphia, Pennsylvania

Session: P-04. Antimicrobial Stewardship: Outcomes Assessment (clinical and economic)

Background. Following updates to IDSA guidelines in 2019, Hartford HealthCare implemented changes to the community acquired pneumonia (CAP) order-set in August 2020 to reflect criteria for prescribing of broad-spectrum antimicrobial therapy. The objective of the study was to evaluate changes in broad-spectrum antibiotic days of therapy (DOT) following these order-set updates with accompanying provider education.

Methods. This was a multi-center, quasi-experimental, retrospective study of patients with CAP from 9/1/19 to 10/31/19 (pre-intervention) and 9/1/20 to 10/31/20 (post-intervention). Patients were identified using ICD-10 codes indicating lower respiratory tract infection and excluded if had a positive SARS-COV-2 PCR during admission. Data collected included demographics, labs and vitals, radiographic, microbiological, and antibiotic data. The primary outcome was change in broad-spectrum antibiotic DOT, specifically anti-pseudomonal β-lactams and anti-MRSA antibiotics. Secondary outcomes included guideline-concordance of initial antibiotics, utilization of an order-set to prescribe antibiotics, and length of stay (LOS).

Results. A total of 331 and 352 patients were included in the pre- and post-intervention groups, respectively. The overall duration of broad-spectrum therapy was a median of 2 days (IQR 0-8 days) in the pre-intervention period and 0 days (IQR 0-4 days) in the post-intervention period (p < 0.001). Patients in whom the order-set was used in the post-intervention period were more likely to have guideline-concordant regimens (76/46) 90% vs. (190/312) 60.9%; p = 0.003. There were no differences in order set usage (10% vs. 11.3%; p = 0.662) between the pre- and post-intervention groups, respectively. Hospital LOS was lower in the post-intervention cohort (4.8 days [2.9-7.2 days] vs. 5.3 days [IQR 3.5-8.5 days]; p = 0.002).

Conclusion. Despite low utilization of the order-set, education surrounding order-set changes appeared to improve antibiotic prescribing and hospital LOS in our population. Further opportunities to improve order-set use and thus further increase guideline-concordant therapy are still available.

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