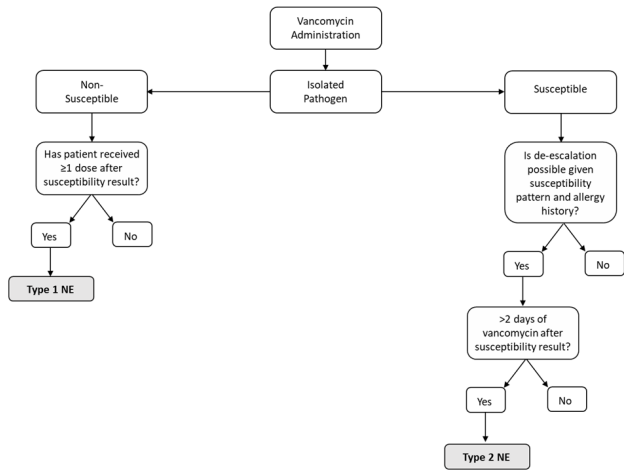Antibiotic Never Event (NE) Algorithm to Characterize Vancomycin Use

Results: A total of 38,774 unique cases of vancomycin use were available for screening. Of these, 0.6% (n=225) had a vancomycin non-susceptible pathogen identified, and 12.4% (28/225) was classified as a Type 1 NE by automated data capture. All 28 cases included vancomycin-resistant *Enterococcus* spp (VRE). Upon manual review, 11 cases were determined to be true positives resulting in a PPV of 39.3%. Reasons for the 17 false positives are given in Table 1. Asymptomatic bacteriuria (ASB) due to VRE in scenarios where vancomycin was being appropriately used to treat a concomitant vancomycin-susceptible infection was the most common reason for false positivity, accounting for 64.7% of false positive cases. After removing urine culture source (n=15) from the algorithm, PPV improved to 53.8%.

Conclusion: An automated vancomycin NE algorithm identified 28 Type 1 NEs with a PPV of 39%. ASB was the most common cause of false positivity and removing urine culture as a source from the algorithm improved PPV. Future directions include evaluating Type 2 NEs (Figure) and prospective, real-time application of the algorithm.

Disclosures: Marc H. Scheetz, PharmD, MSc, Merck and Co. (Grant/Research Support)

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239. Outcomes Associated with Empiric Aztreonam Use Compared to Anti-Pseudomonal β-lactams in Patients with Sepsis: An Opportunity for Allergy Stewardship

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Aztreonam is often given to patients with a documented β-lactam allergy in lieu of a first-line anti-pseudomonal β-lactam (APBL). However, aztreonam offers no gram positive coverage and data suggest that gram negative organisms have lower susceptibility rates to this antibiotic than to APBLs. Septic patients are especially vulnerable to poor outcomes since inappropriate initial antimicrobial therapy has been shown to be an independent predictor of increased mortality. The purpose of this study was to determine whether septic patients treated with aztreonam experience inferior outcomes compared to those treated with an APBL.

Methods: This was a retrospective, multicenter, cohort study of all adult patients in metro Charlotte Atrium Health facilities treated for sepsis or septic shock from January 2014 to October 2017. Patients receiving either aztreonam or an APBL were identified using the system-wide sepsis database and enrolled in a 1:2 ratio. Patients were excluded if there was no infection-related discharge ICD-9 or ICD-10 code, if they received both aztreonam and an APBL in the first 8 hours, or if they received fewer than 2 doses of the study antibiotic. The primary endpoint was in-hospital mortality.

Results: A total of 194 patients received aztreonam and 388 patients received an APBL. β-lactam allergies were more common in patients who received aztreonam compared to APBL (97% vs. 14.2%, p < 0.01). In-hospital mortality rates were greater in the patients who received aztreonam vs. APBL (22.7% vs. 12.9%, p = 0.0025). After adjusting for APACHE II score, initial aztreonam exposure remained independently associated with hospital mortality (OR = 1.74, 95% CI: 1.0 – 2.8, p = 0.02). Additionally, we identified an increase in combination therapy with the use of aminoglycosides (28.9% vs. 12.4%, p < 0.0001) and fluoroquinolones (50.5% vs. 25.8%, p < 0.0001) in patients receiving aztreonam. No difference was found in overall length of stay or ICU length of stay.

Conclusion: In septic patients, the use of aztreonam as the backbone of antimicrobial therapy may result in increased mortality. This highlights the importance of stewardship interventions that obtain an accurate allergy history and encourage the use of APBL antibiotics whenever feasible.

Disclosures: **Kelly E. Pillinger, PharmD, BCIDP**, **Pharmacy Times** (Other Financial or Material Support, Speaker)

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240. Reduction of antibiotic use in children admitted with viral respiratory tract infections

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Viral respiratory tract infections (VRTI) accounts for a significant proportion of hospitalized children and contributes to a substantial use of health care resources and costs. American Academy of Pediatrics (AAP) recommends against using antibiotics in uncomplicated viral respiratory infections in children. Overuse of antibiotics ranges between 29–80%. The goal of an Antibiotic stewardship programs (ASP) is to decrease antibiotic misuse, lower costs, and prevent emergence of antibiotic resistance in the community.

Proportion of children with Viral respiratory tract infections on antibiotics
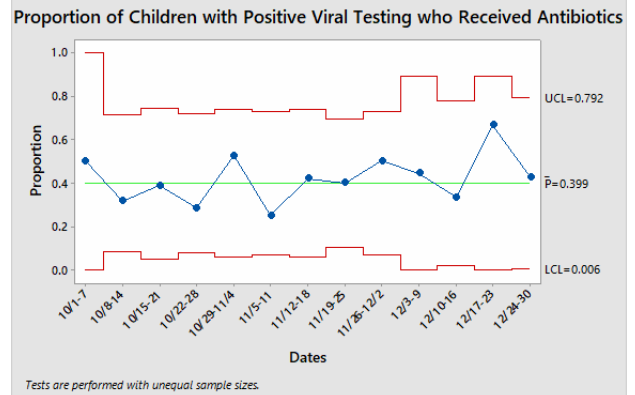
Methods: Our smart aim was to reduce antibiotic use by 25% in admitted children with VRTI between October 2019-March 2020. Our outcome measure was to reduce inappropriate antibiotic use during the 2019–20 season by 25%. Process measures included percentage of antibiotic used in viral RTI, antibiotic days of therapy and appropriate audit-feedback from the ASP team to facilitate discontinuation or de-escalation of antibiotics based on culture data. Our balance measure included re-admission rates in patients in whom antibiotics were discontinued or de-escalated. Several PDSA cycles implemented with predominant emphasis on communication between ASP team and primary providers.

Results: No differences were noted in patient demographics including sex, age, ethnicity between the viral season in 2018–19 and 2019–2020. In our previous study in 2018–2019 RSV season, there was 40.7% antibiotic use in patients admitted with RSV bronchiolitis. In 2019–2020 season we included all patients admitted with viral RTI. Of the 213 patients evaluated between October 2019 through Dec 2020, 40% of the patients received antibiotics. 100% of the antibiotics were justified, based on independent review of antibiotic data by the team. Most common cause of antibiotics were community acquired pneumonia, rule out sepsis and otitis media. Antibiotic discontinuation and de-escalation were achieved in over 90% of the justified antibiotics.

Conclusion: Though antibiotic usage was still at 40% at our institution, 100% of antibiotic use was deemed appropriate and significant proportion were discontinued or deescalated by the ASP team.

The ASP team played a crucial role in communicating with the primary providers to advocate for appropriate antibiotic use in the children.

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

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241. Rural-urban differences in antibiotic prescribing for uncomplicated urinary tract infections

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Session: P-8. Antimicrobial Stewardship: Trends in Antimicrobial Prescribing

Background: Identification of inappropriate antibiotic prescribing patterns is critical for designing antimicrobial stewardship programs. We sought to examine whether the risk of receipt of an inappropriate outpatient antibiotic prescription varied by rural-urban status among women with an uncomplicated urinary tract infection (UTI).

Methods: Using the IBM MarketScan Commercial Database, we identified U.S. women 18–44 years diagnosed with a new uncomplicated UTI and prescribed an oral antibiotic with activity against common uropathogens from April 2011 through June 2015. We classified first-line agents (nitrofurantoin, trimethoprim-sulfamethoxazole, and fosfomycin) as appropriate, non-first-line agents (fluoroquinolones and β-lactams) as inappropriate, and antibiotic duration as appropriate when the days' supply was consistent with Infectious Diseases Society of America 2011 guidelines. Rural-urban status was defined by residence in a metropolitan statistical area. We used modified Poisson regression to determine the association between rural-urban