Third-Generation Cephalosporin Susceptibility Among Citrobacter, Enterobacter, Morganella, and Serratia: The Importance of Adhering to a 48-Hour Rule Out

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After prolonged third-generation cephalosporin (TGC) exposure, Citrobacter, Enterobacter, Morganella, and Serratia species can exhibit resistance via derepression of AmpC beta-lactamase despite initial susceptibility. Some of these organisms also have intrinsic resistance. The aim of this study was to determine factors associated with TGC non-susceptibility in these organisms when isolated in a urine or respiratory tract culture among pediatric patients.

The impact of pharmacist-provided penicillin allergy consultation and testing on the use of meropenem, levofloxacin, aztreonam or vancomycin at a midsize community hospital

Authors: Jessie Hipple, PharmD, MM & Zina Gugkaeva PharmD, BCIDP

Penicillin allergy is the most commonly reported drug allergy, and while 10% of patients report a penicillin allergy, only 1% have a true allergy. When a patient has a penicillin allergy listed this can severely limit how a prescriber treats an infection, and could prevent patients from receiving first line antibiotics. The purpose of this study is to determine the impact of pharmacist-provided penicillin allergy consultation on the deescalation of meropenem, levofloxacin, aztreonam and vancomycin in patients after removal of the penicillin allergy from their electronic health record (EHR), compared to patients who do not have it removed.

Impact of procalcitonin testing on the use of antibiotic therapy in patients with suspected viral-bacterial coinfections: a retrospective analysis

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Resistant bacterial infections have recently become a nationwide public health crisis. Appropriate diagnosis of infections of unknown etiology, where symptomatic presentation of viral infections can mimic those of bacterial infections, is paramount to choosing the correct treatment and decreasing antibiotic overuse and ultimately, microbial resistance. Recent studies have been conducted on the use of procalcitonin, the peptide precursor of the hormone calcitonin, as a diagnostic tool in determining if an infection is of bacterial origin. The objective of this study is to evaluate the impact of procalcitonin testing on the use of antibiotics in patients with suspected viral-bacterial coinfections.

Institutional occurrence of clostridium difficile infection with and without the use of probiotics

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Clostridium difficile infection (CDI) is the most common cause of infectious diarrhea in healthcare settings. Antibiotic related gastrointestinal disturbances may cause an overgrowth of pathogens like Clostridium difficile. Probiotics are used to maintain the balance of gut flora, which aids in the prevention of CDI. According to the Infectious Diseases Society of America (IDSA) guidelines, there is insufficient data to recommend probiotic administration as primary prevention. However, there have been studies that link probiotics to CDI prevention. The objective of this study is to determine the occurrence of CDI in patients taking antibiotics with and without the use of probiotics.
Pharmacist lead penicillin allergy review in surgical patients

Authors: April Ingason, PharmD; Tyler Byrd, PharmD; Jamie Hopkins, PharmD, BCIDP

Penicillin is one of the most commonly reported allergies. Approximately 10% of the population reports a penicillin allergy, and consequently, beta lactam antibiotics are avoided in this patient population. However, data suggests only 1-3% of people have a true IgE-mediated allergic reaction to penicillin and up to 80% will lose sensitivity ten years after exposure. According to current guidelines for antimicrobial prophylaxis in surgery, a cephalosporin is preferred for most general and orthopedic surgeries. Improperly reported and/or documented beta-lactam allergies can lead to unnecessary use of second-line antibiotics. This may result in increased antibiotic resistance, toxicity, and cost. The purpose of this study is to determine if a pharmacist-driven allergy review and cephalosporin test dose program leads to a decrease in second-line antibiotic use for surgical prophylaxis.

Evaluation of intravenous vancomycin use at Vanderbilt University Hospital (VUH)

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Intravenous (IV) vancomycin is one of the most prevalently used inpatient antibiotics at VUH. Overuse contributes to the development of antibiotic resistance and adverse events. The purpose of this systematic review is to characterize and evaluate the use of IV vancomycin at VUH.

A report on the real world use of eravacycline

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Eravacycline, a novel, fully synthetic fluorocycline of the tetracycline class, was recently approved by the Food and Drug Administration (FDA) for use in complicated intra-abdominal infections (cIAIs). Its unique design helps it retain in vitro activity against two acquired tetracycline-specific resistant mechanisms, in addition to its activity against anaerobes, methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant Enterococcus spp. (VRE), some extended-spectrum beta-lactamase (ESBL) producing Enterobacteriaceae, and some carbapenem-resistant Enterobacteriaceae (CRE). Though it does not have pseudomonal activity, eravacycline MIC90s for carbapenem-resistant Acinetobacter are 2 to 4 times lower than other tetracyclines. In light of the current landscape of limited and oftentimes intolerable side effects of last line antibiotic therapy for treatment of multi-drug resistant pathogens, we aim to characterize early clinical experience with this new antibiotic.

Pilot Testing of an Antimicrobial Discharge Education Performed by APPE Students

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Discharge planning is paramount to patient safety. Antimicrobial stewardship also plays a huge role in patient safety and quality. An important target in antibiotic stewardship programs is to improve adherence to recommended treatment guidelines for infection, including recommended duration of therapy at hospital discharge. Student pharmacist are capable of performing discharge education on antimicrobials and can serve as dedicated resource for service expansion. The aim of the study was to determine the effects of targeted antimicrobial discharge counseling performed by advance pharmacy practice experience (APPE) students.
Impact of Methicillin-Resistant *Staphylococcus Aureus* Screening on the Length of Empiric Vancomycin Therapy for Pneumonia

**Authors:** Emily Byers, PharmD; Jarett Worden, PharmD; Robin Tagatz, PharmD

The purpose of this study is to determine the extent to which nasal methicillin-resistant *Staphylococcus aureus* (MRSA) polymerase chain reaction (PCR) screening impacts length of empiric vancomycin therapy for pneumonia.

Assessing Antimicrobial Stewardship Knowledge and Attitudes of Frontline Health Workers (Clinical Officers, Nurses and Midwives, Community Pharmacists and Community Health Extension Workers) in Wakiso District, Uganda

**Authors:** Olvia Bahemuka, DNP, MSN, RN-BC & Laura Gray, PhD, RN

Antimicrobial resistance could cause as many as 10 million deaths per year by 2050 if left unchecked. This is a crisis recognized in every country of the world, but perhaps most critical in countries with limited resources, such as Uganda. In Uganda, resistance to antimicrobials such as penicillins, tetracyclines and cotrimazoles were reported near 80% in 2015. In response to the World Health Organization’s call for countries to develop a strategy to address antimicrobial resistance (AMR), Uganda has developed a National Action Plan (GoU AMR-NAP, 2017). However, like other sub-Saharan countries, Uganda has a shortage of well-trained healthcare workforce, limited access to care, inadequate laboratory and AMR surveillance capabilities. For most Ugandans who get sick, the first point of care is their local health center and or pharmacy; yet thus far, Ugandan antimicrobial stewardship efforts have focused on physicians and some hospitals. Hence there is an urgent need to educate frontline providers such as clinical officers, nurses and midwives, community pharmacists and community health extension workers (CHEWs). This best practice project aims to assess the antimicrobial stewardship knowledge and attitude of the frontline health workers including clinical officers, nurses and midwives, community pharmacists and CHEWs at 6 community health centers and 6 community pharmacies in Wakiso District, Uganda.