Discordance detrimentally impacted survival in Gram-negative and streptococcal or enterococcal BSIs. Therapy was significantly higher for Gram-negative taxa (aOR = 1.7 [1.1–2.5]). Among Gram-positive taxa, risk of mortality from discordant therapy increased the risk of death [aOR = 1.3 (95% CI 1.1–1.6)] but unchanged for Gram-positive taxa. Of 33,161 unique encounters with BSIs, 4,219 (13%) at 123 hospitals met inclusion criteria for discordant antibiotic therapy. Discordance was defined as non-susceptibility to initial therapy administered from 2 days before pathogen isolation to 1 day before final susceptibility reporting. Discordance prevalence was compared across taxa; risk factors and its association with in-hospital mortality were evaluated by logistic regression. Adjusted odds ratios (aOR) were estimated for pathogen-, patient- and facility-level factors.

Results. Of 33,161 unique encounters with BSIs, 4,219 (13%) at 123 hospitals met inclusion criteria for discordant antibiotic therapy. Discordance was defined as non-susceptibility to initial therapy administered from 2 days before pathogen isolation to 1 day before final susceptibility reporting. Discordance prevalence was compared across taxa; risk factors and its association with in-hospital mortality were evaluated by logistic regression. Adjusted odds ratios (aOR) were estimated for pathogen-, patient- and facility-level factors.

Methods. We examined in vitro susceptibility interpretations for bacterial BSIs and corresponding antibiotic therapy among inpatient encounters across 156 hospitals from 2000 to 2014 in the Cerner Healthfacts database. Discordance was defined as non-susceptibility to initial therapy administered from 2 days before pathogen isolation to 1 day before final susceptibility reporting. Discordance prevalence was compared across taxa; risk factors and its association with in-hospital mortality were evaluated by logistic regression. Adjusted odds ratios (aOR) were estimated for pathogen-, patient- and facility-level factors.

Conclusion. The prevalence of discordant antibiotic therapy displayed extensive taxon-level variability and was associated with patient and institutional factors. Discordance detrimentally impacted survival in Gram-negative and S. aureus BSIs. Understanding reasons behind observed differences in discordance risk and their impact on outcomes could inform stewardship efforts and guidelines for empiric therapy in sepsis.
Disclosures. All authors: No reported disclosures.

140. Evolution of Antibiotic Tolerance During Oxacillin, Daptomycin and Dalbavancin Therapy Results in Breakthrough Staphylococcus aureus Bacteremias
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Session: 42. The Cutting Edge in Antimicrobial Resistance Emergence Therapy Thursday, October 5, 2017: 10:30 AM
Background. Clinicians can employ suppressive antimicrobial therapy in patients with persistent or relapsing bacteremia. However, bacteria with favorable susceptibility profiles may exhibit antimicrobial tolerance wherein bacteria cannot proliferate yet can survive in high concentrations of antibiotics. The antimicrobial tolerance phenotype can thwart efforts to prevent bacteremia recurrence with prolonged exposure to antimicrobials and may contribute to breakthrough bacteremias while the patient is receiving active therapy. Here we present a patient case consisting of multiple episodes of breakthrough Staphylococcus aureus bacteremia over several years in the setting of appropriately dosed antimicrobial suppressive therapy and describe organism mutations that developed during therapy.

Methods. Six clinical bloodstream isolates were recovered from the patient during distinct episodes of MSSA bacteremia over a 5-year period. The identified source for each bacteremia was a central line infection (CLABSI). Isolates recovered were susceptible to the individual therapies received, which included oxacillin, daptomycin, and dalbavancin. Bacterial whole genome sequence data were collected using Illumina technology.

Results. The two first isolates (USA600) and the last four isolates (USA800) represent distinct populations and suggest that a distinct MSSA strain displaced the previous population between bacteremia episodes 2 and 3. Of note, all of these strains were able to survive and establish breakthrough bacteremias despite favorable susceptibility profiles to the agents used as suppressive therapy. Although the MICs remain low and in the susceptible range to oxacillin, daptomycin, and dalbavancin, these isolates progressively developed significant antimicrobial tolerance phenotypes, which coincided with mutations in waU (yrpO), htrA2, fnsW, etsb and etsA that may be advantageous to survival under antibiotic pressure.

Conclusion. These genetic, phenotypic and patient case data identify important changes that can occur in bacterial populations over time that are distinct from antibiotic susceptibility. These findings point to factors that may result in breakthrough bacteremias, limiting the clinical utility of antimicrobial suppressive therapy.

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141. Carbapenem-resistant Enterobacteriaceae (CRE) or Delayed Appropriate Therapy (DAT)—Does One Affect Outcomes More Than the Other Among Patients With Serious Infections Due to Enterobacteriaceae
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Session: 42. The Cutting Edge in Antimicrobial Resistance Emergence Therapy Thursday, October 5, 2017: 10:30 AM

Background. While CRE and DAT are both associated with worse outcomes, their relative impact to the clinical and economic burden among patients with infections due to Enterobacteriaceae is not well understood. This study assessed the independent and combined effect of these two items on selected outcomes among patients with these infections.

Methods. Hospitalized adults between July 2011 and September 2014 were identified from Premier Hospital Database. Patients were diagnosed with complicated urinary tract infection, complicated intra-abdominal infection, hospital-associated pneumonia, or bloodstream infection, and had a positive culture for Enterobacteriaceae from a site consistent with infection type (date of culture draw was index date). Patients were required to receive antibiotics on this date or ≤2 days after. Delayed therapy was defined as receipt of an antibiotic with microbiologic activity ≤1 hour from the time of each positive culture. CRE was defined as resistant to ≥1 carbapenems. Inverse probability weighting and multivariate regression analyses were used to estimate the associations between CRE status, DAT and outcomes. Logistic models were used for composite mortality (in-hospital death or discharge to hospice), in-hospital mortality, and discharge to home (reference group was timely therapy plus non-CRE); generalized linear models, for post-index duration of antibiotic therapy, hospital length of stay (LOS), and costs.

Results. A total of 50,869 patients were included in the analyses; 514 had CRE and 16,114 received DAT. A greater effect was observed across strata as the burden of serious infections was least among the reference group, and greatest among patients with CRE infection who received DAT (Figure). For example, as compared with the reference group, the risk of composite mortality increased nearly fourfold in patients with CRE infection who received DAT, total in-hospital costs more than doubled.

Conclusion. DAT has a stronger association than CRE on outcomes, and their effects are synergistic. Given these findings, better methods of early pathogen identification (especially organisms such as CRE) should reduce time to appropriate therapy, thereby improving outcomes in this patient population.


879. Medical Students Have Limited Awareness, Knowledge, Beliefs, and Experiences of Pre-exposure Prophylaxis (PrEP) for HIV Prevention
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Session: 93. Preventing and Identifying New HIV Infections Thursday, October 5, 2017: 2:00 PM

Background. While studies of healthcare professionals have shown increasing awareness, knowledge, positive beliefs, and prescribing practices of emotricatibine/tenofovir pre-exposure prophylaxis (PrEP) for HIV prevention, PrEP is still underutilized in clinical practice. PrEP knowledge is associated with increased prescription so early education of healthcare professionals is recommended, but the extent of PrEP education in medical school is unknown. In this analysis, we describe medical students’ awareness, knowledge, beliefs, and experiences regarding PrEP.

Methods. Medical students at 18 US allopathic medical schools completed a survey on knowledge, beliefs, and experiences of PrEP in May–June 2016. Knowledge was