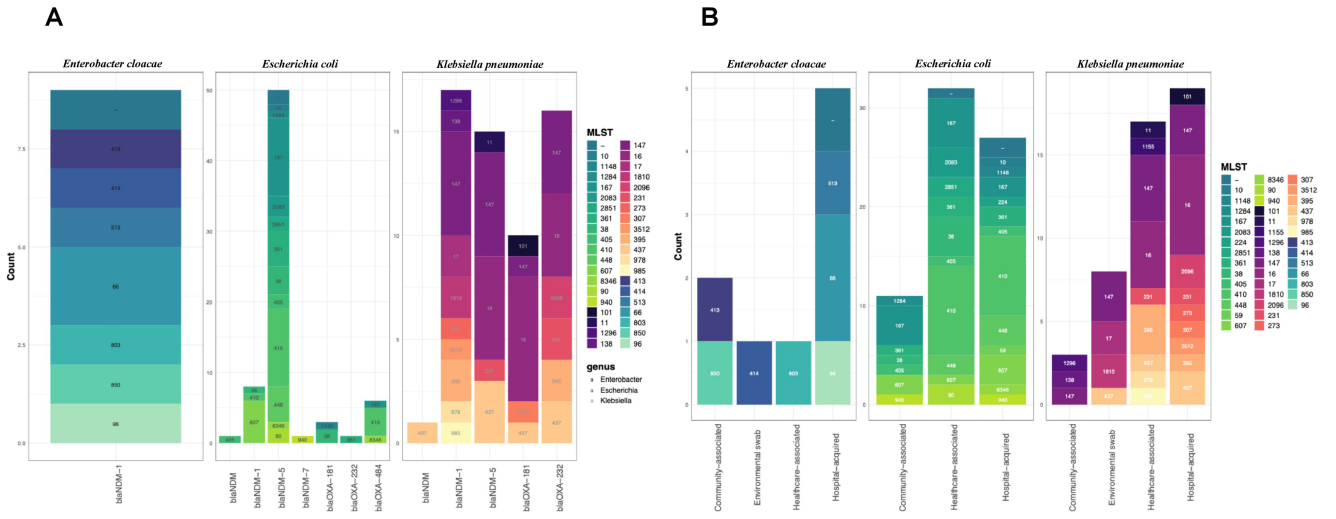

Figure 6A: Carbapenemase genes and strain typing among carbapenem resistant *Enterobacterales* (CRE) isolates; Figure 6B: Strain typing of CRE isolates by source (environment and patients classified as community associated, healthcare associated, hospital acquired) in a surgical intensive care unit in a tertiary care hospital, Kerala, India, July 31 – November 30, 2023

113 had repeat PRS testing > = 1 times during their stay; 43 (29%; 43/147) acquired CP-CRE (Figure 1). The predominant organism in admission and acquisition cases was Escherichia coli (52%) and Klebsiella pneumoniae (37%), respectively (Figure 2). Previous hospitalization = 2 antibiotics (aOR 2.77; 95%CI 1.12-6.82) were associated with admission CP-CRE colonization (Figure 3). In Cox regression analysis hospital stay before SICU admission was associated with CP-CRE acquisition in the SICU, but no risk factor was associated with acquisition during the entire hospital stay (Figure 4). Abundance of ARGs was lower in CA CP-CRE isolates compared to HCA, HA and environmental isolates (Figure 5). blaNDM and blaOXA genes were present in 79% (99/126) and 29% (36/126) of isolates, respectively; blaNDM-5 was the most common carbapenemase [65 (52%) of 126 isolates] (Figure 6A). E. coli ST410, which was associated with HA and HCA classifications was the most frequent ST (n=17) and 70% (12/17) carried NDM (Figure 6B). Twenty-seven E. coli and 17 K. pneumoniae isolates were separated by 20 or fewer core genome single-nucleotide polymorphisms, indicating potential relatedness amongst CP-CRE (Figure 7). **Conclusion:** More than 25% of SICU patients were colonized with CP-CRE on admission and also acquired CP-CRE during hospital stay. Healthcare-related CP-CRE isolates carried more resistances genes with NDM being the most commonly detected resistance gene in this cohort. Small sample size limited our understanding of risk factors associated with CP-CRE acquisition in hospital.

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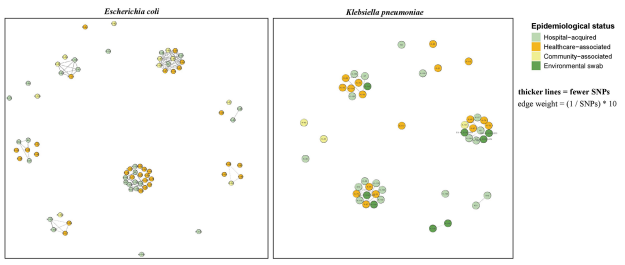

Figure 7: Relatedness among carbapenemase producing *Escherichia coli* and *Klebsiella pneumoniae* isolates obtained from peri-rectal swab samples (classified as community associated, healthcare associated, hospital acquired) and environmental swabs in a surgical intensive care unit in a tertiary care hospital, Kerala, India, July 31 – November 30, 2023

Presentation Type:
Oral Presentation - Top Oral Abstract
Subject Category: MRSA/VRE

Alcohol-Based Nasal Sanitizer Provides Superior Protection Against MRSA Bacteremia Compared to Mupirocin in Burn Patients

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Background: Burn injuries pose a significant risk for infections. Nasal decolonization with mupirocin nasal ointment (MNO) is an established method to prevent infections with Methicillin-resistant Staphylococcus aureus (MRSA). We compared the effectiveness of an alcohol-based nasal sanitizer (ABNS) to MNO against MRSA bacteremia in burn patients. **Methods:** This was a retrospective before/after study comparing the impact of an MNO (study arm 1; Bactroban 2%, GlaxoSmithKline, NC; application: twice daily for five days after admission) and an ABNS (study arm 2; Nozin, Bethesda, MD; application: twice daily for entire stay on Burn unit) on Healthcare Associated (HA-) MRSA bacteremia events in burn patients. The Burn unit consists of eight intensive care beds for burn care and 15 regular beds in an 885 bed, tertiary care, academic hospital. Inclusion criteria were all burn patients 18 years of age and older admitted under the burn service for more than four consecutive days. No mandatory MRSA screening was performed. Outcome measure was HA-MRSA bacteremia acquired > four days after admission. Patient characteristics included demographics, BMI, intensive care need, MRSA colonization at admission, type and degree of burn, inhalation injury, total burn surface area, Baux score, inpatient mortality, length of stay by total, burn mixed acuity and burn ICU were documented. Daily compliance with treatments was extracted from patient records (EPIC, Verona, WI). Continuous patient characteristics were compared using t-tests or Wilcoxon signed-rank test (for factors with skewed distributions), and chi-square tests for categorical factors. Product-limit time-to-event analysis and log-rank test were used to compare the outcome measure between groups. **Results:** From 08/01/2021 to 07/31/2024 a total of 920 patients were enrolled (MNO arm: 448; ABNS arm: 462) with 239 and 217 meeting inclusion criteria. No differences in patient characteristics were detected between the two groups at all patients and >80% treatment compliance levels (MNO: 121 encounters; ABNS: 98 encounters). Patients in the MNO arm encountered 14 events compared

to one event in the ABNS arm (p=0.0021). The figure displays the product-limit time to event estimates for developing HA-MRSA bacteremia at the >80% adherence level (p= 0.021). Lower adherence levels (50%, 60%, 70%) did not show significance (p>0.05) in the time-to-event analysis. **Conclusion:** Providing ABNS >80% of the time resulted in a significant decrease in HA-MRSA bacteremia events in burn patients compared to an MNO. The daily application throughout hospitalization may offer additional protection against MRSA in patients hospitalized for extended periods of time.

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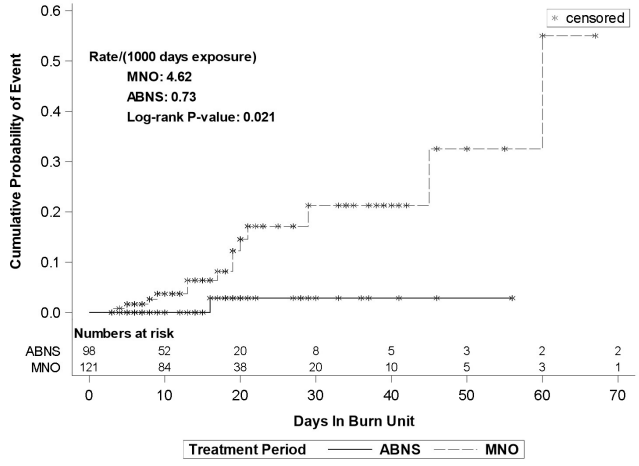
Figure: Product-limit Estimate of Time to HA-MRSA Bacteremia by Treatment Group (MNO vs ABNS)



Presentation Type:
Oral Presentation - Top Poster Abstract
Subject Category: Antibiotic dosing / Pharmacy

Optimizing Daptomycin Dosing: Environmental Benefit and Cost Savings

Pamela Lee[1], Marina Nguyen[1], Michelle LeBrun[2], Gary Fong[3] and Loren Miller[3]
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Background: The pharmaceutical industry is estimated to have a larger environmental footprint than the automotive industry. Discarded and unused doses of pharmaceuticals generate financial waste and pollution, and exacerbate antibiotic shortages. The antibiotic daptomycin is dispensed in standard-sized single-use vials and dosed based on patient weight. Residual daptomycin in the vial after dose preparation must be disposed of and cannot be used for another patient. We hypothesized that daptomycin dosing nomogram use would reduce daptomycin waste, environmental impact, and financial costs. **Methods:** We performed a retrospective chart review quantifying daptomycin waste, defined as disposed of unused daptomycin, at Harbor-UCLA Medical Center, a 400-bed Level 1 Trauma Center, from 1/1/2023 to 12/31/2023. We then adjusted dosing using a daptomycin dosing nomogram. We modeled the difference in daptomycin waste (mg of daptomycin disposed of unused), pharmaceutical waste (weight of excess daptomycin vials required due to wasted antibiotic), and cost between the two dosing strategies. Our model assumed a daptomycin vial weight of 16.8g and cost of $30 per 500mg daptomycin vial. We conservatively estimated pharmaceutical waste as waste only from daptomycin vials, ignoring all other supplies and materials necessary to prepare daptomycin. **Results:** During the 1 year time period at our Medical Center, 138,882mg daptomycin was wasted. This level of daptomycin waste equates 4671g excess pharmaceutical waste and $8332 spent on unused, discarded daptomycin. In our model, we found that nomogram implementation would have reduced mean monthly daptomycin waste from 11,002mg to 1387mg (p<0.001). This reduction would have decreased the proportion of daptomycin wasted from a mean of 19% to 3% of all consumed daptomycin (Figure 1). Nomogram use would also have saved $7333 and averted 4111g of pharmaceutical waste in 2023. **Conclusion:** A daptomycin dosing nomogram would have prevented 122,322mg of daptomycin from being wasted and saved over $7000 at a 400 bed Medical Center over one year. Given the 4111 g of pharmaceutical waste is a conservative estimate, and ignores waste from other supplies/materials as well as upstream waste and emissions from daptomycin manufacturing, the overall generated environmental impact prevented by nomogram use is likely significantly higher. Our findings demonstrate that intentionally designed dosing strategies aimed at reducing drug waste can save hospital costs and reduce the environmental footprint of clinical care. When implemented at large health systems these strategies are likely to result in substantial cost savings and reduction in the negative environmental impact associated with pharmaceuticals.

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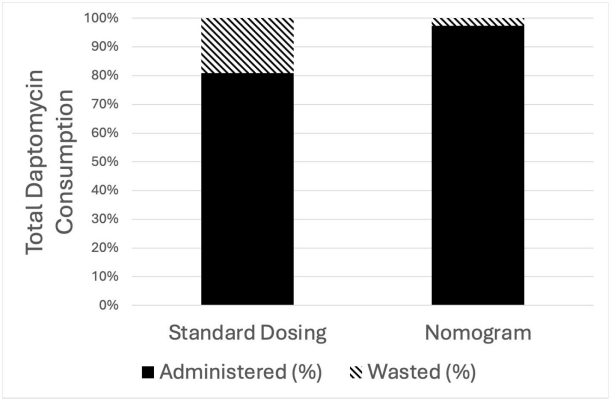

Figure 1: Comparison between percent of daptomycin wasted using standard dosing versus daptomycin nomogram dosing.

Presentation Type:
Oral Presentation - Top Poster Abstract
Subject Category: Antibiotic Stewardship

Medical School Ranking & Provider Outpatient Medicare Part D Claims for Antibiotics Among Older Patients in the US

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Background: The overuse of antimicrobials contributes to the development of antibiotic resistance, the development of Clostridioides difficile infections, and increased patient morbidity and mortality. The impact of U.S. News medical school ranking on provider antimicrobial prescription is largely unknown. Our study aimed to assess whether there was a relationship between graduating from higher-ranked medical schools and the rate of prescribing antibiotics among Medicare Part D providers in the US. **Methods:** The ecological study obtained data from the Medicare Part D Prescribers (FY2013-2021) and the Doctor and Clinicians National repositories. The study's main outcome was antibiotic days supplied per 100 beneficiaries. Secondary outcomes included antibiotic claims per 100 beneficiaries, days per claim, and antibiotic cost per 100 beneficiaries. A regression model was fitted to assess the relationship between provider medical school ranking and study outcomes. The study controlled for several state, provider, and patient variables. **Results:** A total of 197,540 providers were included (Table 1). No association was found between