1428. Comparing Outcomes of Diabetic Foot Infections Requiring Amputation, Negative vs. Positive Margins
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**Background.** This was a retrospective, observational cohort study of patients with diabetes and lower extremity osteomyelitis requiring amputation. Patients were categorized as having negative margins (without residual osteomyelitis or with joint disarticulation), or positive margins (with residual osteomyelitis). Health outcomes were compared between groups. The primary outcomes were relapse of infection at one year and reintervention at one year. Secondary outcomes include mortality at 30 days, 90 days, and 1 year; treatment failure at one year; and a composite of relapse of infection at one year, reintervention at 1 year, and death at 1 year.

**Methods.** CPRS ICD-10 codes were reviewed from patients at Audie L. Murphy VA with amputation for osteomyelitis between July 2, 2015 and July 13, 2017. Pathology reports were reviewed for the presence or absence of residual osteomyelitis, and outcomes were determined by chart review. Patient characteristics were recorded, such as age, serum albumin, presence of diabetes, hemoglobin A1c, organism on culture, peripheral vascular disease, and occurrence of a peripheral vascular intervention.

**Results.** The ALMV A is a 500-bed medical center with an active BMT program. Clinical data from 146 patients were obtained and analyzed. There were no significant differences in primary or secondary outcomes relative to patients with positive margins or negative margins. A lack of consistency in margin reporting by Pathology was noted. Albumin level and number of patients with residual osteomyelitis were significantly different between the two groups (table).

**Conclusion.** There were no significant differences in outcomes between amputations with positive margins and those with negative margins. Based on current IDSA guidelines, treatment varies significantly for patients with positive or negative margins, with the former requiring 6 weeks of parenteral antibiotic therapy. Extended courses of parenteral antibiotics increase risk for treatment-associated morbidity, and more evidence is needed to support these recommended durations. A quality improvement project is underway with the ID, Podiatry and Pathology departments to resolve issues related to obtaining and processing surgical samples, as well as interpreting and reporting margin results.

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1429. Diagnosis and Management of Osteomyelitis Associated with Stage IV Pressure Ulcers: Report of a Query to the Emerging Infections Network of the Infectious Diseases Society of America
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**Background.** Despite the high prevalence and morbidity of stage IV pressure ulcers, there are few clinical studies to guide diagnosis and treatment of osteomyelitis in such patients.

**Methods.** The Emerging Infections Network conducted an electronic survey of adult ID physicians in 2018 to determine their approach to managing patients with stage IV pressure ulcers (exposed bone, tendon, or muscle) and osteomyelitis.

**Results.** The overall response rate was 42% (558/1,332). Of the respondents, 94/558 (17%) had not seen such patients in the last year, so opted out. Of the remaining 464 respondents, 276 (60%) usually felt confident in diagnosing osteomyelitis by physical examination, and laboratory or imaging test results: the strongest indicator of osteomyelitis was thought to be palpable or visible bone at the ulcer base (Figure 1). Approaches to diagnosing osteomyelitis in patients with visible and palpable bone varied: 41% would assume osteomyelitis was present, 27% would try local wound care and pressure-offloading before doing tests, 22% would do diagnostic tests immediately, and 10% would follow another strategy. The preferred tests for osteomyelitis were bone biopsy (for culture or histopathology) and MRI (Figure 2). Regarding treatment, respondents differed widely regarding favored route(s) of antimicrobial therapy (all IV, partly IV and partly oral, or all oral), regardless of presumed pathogen (Figure 3). Respondents also differed widely regarding preferred duration of antimicrobial therapy, but generally would treat longer in the absence of full surgical debridement (P < 0.001 overall) (Figure 4). Overall, 62% of respondents believed that osteomyelitis under stage IV pressure ulcers usually or almost always is treated excessively. Most respondents (59%) had multiple suggestions for future research, primarily regarding the duration and utility of antimicrobial therapy in this context.

**Conclusion.** ID physicians (i) report significant practice variability in their approach to diagnosing and treating osteomyelitis underlying stage IV pressure ulcers, (ii) are concerned about excessive antibiotic use in such patients, and (iii) perceive a critical need for additional research in this area.
Conclusion. This study exposes and quantifies a substantial amount of resources devoted to dosing adjustments and serum level monitoring for vancomycin use in children with AHO and concurrent SAB. The cost differential in comparison to that of other nephrotoxic agents.

Table 1. Parameters Associated with Vancomycin Treatment of 130 Children with AHO Concurrent with SAB

| Parameter                                      | n  | Mean  | Median | St. Dev | Min | Max |
|-----------------------------------------------|----|-------|--------|---------|-----|-----|
| Length of Hospitalization (days)              | 130| 14.6  | 11.5   | 10.7    | 3.9 | 63.1|
| Days in Intensive Care Unit                   | 48 | 7.7   | 5.0    | 6.6     | 1   | 24  |
| Duration of Bacteremia (days)                 | 130| 1.6   | 3      | 2.8     | 1.3 | 9   |
| Number of Different Antibiotics Used†         | 130| 3     | 1      | 1.3     | 2   | 9   |
| Vancomycin Loading dose (mg/kg)               | 130| 10.6  | 15.2   | 4.8     | 9   | 33  |
| Vancomycin Dose/Interval Adjustments          | 75 | 3     | 2      | 1.5     | 11  |
| Days Until Target Trough Reached              | 65 | 3.4   | 2.9    | 2.9     | 0.2 | 17.3|
| Serum Creatinine Levels                       | 128| 9.2   | 4      | 11.1    | 1   | 62  |
| Vancomycin Trough Levels                      | 112| 5.3   | 7      | 7.0     | 1   | 45  |
| Highest Vancomycin Trough Level               | 112| 21.6  | 17.1   | 16.6    | 1.3 | 65.3|
| Total Duration of IV Antibiotics (days)       | 130| 17.0  | 10.9   | 17.0    | 1.2 | 82.4|

*†1 concomitant with vancomycin

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1431. Comparison of Treatment Outcomes with Definitive Antibiotic Therapy and Empiric Antibiotic Therapy in Osteomyelitis

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Background. Definitive therapy for osteomyelitis (OM) is thought to be superior to empiric antimicrobial therapy; however, identifying causative pathogens is difficult.

Methods. This retrospective cohort study included patients treated with either definitive or empiric antimicrobial therapy for OM at VA St. Louis HCS between 1 January 2010 and 1 January 2018. Definitive antibiotic therapy was defined as a regimen tailored to susceptibilities of an organism(s) cultured from bone or deep tissue. The primary outcome was treatment failure, defined as a need for unplanned surgical intervention or re-initiation of antibiotic therapy for OM of the same anatomical site within 6 months after initial therapy was discontinued. Secondary outcomes included the incidence of acute kidney injury (AKI), Clostridium difficile-associated diarrhea (CDAD), and thrombocytopenia. Surgical intervention as part of initial therapy, presence of peripheral vascular disease (PVD), creatinine clearance < 50 mL/minute at initiation of therapy, receiving antibiotics at an extended care facility, age ≥ 60 years, and receiving definitive antibiotics were included in a univariate analysis with variables with a P < 0.2 included in a multivariable logistic regression.

Results. There were 301 patients included; 179 in the definitive therapy group and 122 in the empiric therapy group. Baseline characteristics were similar among groups; however, more patients receiving definitive therapy had a bone biopsy compared with those treated with empiric therapy (58.1% (104/179) vs. 36.8% (45/122); P < 0.05). 33 percent (60/179) of patient treated with definitive therapy failed compared with 45% (55/122) treated with empiric therapy (P = 0.109). No significant differences were observed in secondary outcomes; however non-CDAD diarrhea occurred more in the empiric therapy group than definitive therapy group (3.8% (7/179) vs. 8.2% (10/122); P > 0.05). Receiving definitive therapy (OR 1.43, CI 0.89–2.31; P = 0.138) and presence of PVD (OR 1.34, CI 0.823–2.197; P = 0.238) were included in the multivariable logistic regression, but neither were independently associated with failure.

Conclusion. Definitive antibiotic therapy was not associated with a significant decrease in treatment failure.

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1432. Estimating the Incubation Period of Salmonella Urinary Tract Infection (UTI) Using Foodborne Outbreak Data

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Session: 157. Urinary Tract Infections

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Background. Urinary tract infections (UTI) are common bacterial infections that may occur as a part of foodborne outbreaks. Salmonella, a less common cause of UTI, has been identified during foodborne outbreaks, but the epidemiology and pathogenesis are poorly understood.

Methods. PulseNet, the United States national molecular subtyping network for foodborne disease surveillance, was used to identify Salmonella isolates associated with outbreaks from 2004 to 2013 containing at least one urine and one stool isolate in which the duration was ≥ 1 year and a food vehicle was suspected or confirmed. We standardized isolation dates across outbreaks by calculating the mean date for stool isolation within an outbreak and subtracting this from the date of each stool/urine

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1433. The Hidden Costs of Vancomycin Use During the Treatment of Staphylococcus aureus Bacteremia Concurrent with Acute Hematogenous Osteomyelitis

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Session: 156. Osteomyelitis

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Background. Current guidelines recommend the use of parenteral vancomycin for children with acute hematogenous osteomyelitis and concurrent Staphylococcus aureus bacteremia (SAB) due to Methicillin-Resistant Staphylococcus aureus (MRSA), despite vancomycin’s slow bactericidal activity. This study explores the hidden costs of this approach.

Methods. Children with AHO and concurrent SAB, treated from 2009 to 2018, who had received vancomycin at some point during their treatment course were studied. Data collected included antibiotic susceptibilities; duration of bacteremia, blood culture results, duration of vancomycin; number of dose/interval changes; vancomycin trough and creatinine levels; rate of achieving target trough; use of other nephrotoxic agents; occurrence of acute kidney injury (AKI); and length of stay.

Results. 130 children diagnosed with AHO and concurrent SAB received vancomycin. Isolates were CR MSSA (3 or 2.3%), MRSA (5 or 3.8%), CS MSSA (35 or 26.9%), and CS MRSA (87 or 66.6%). Mean LOS was 14.6 days. 1,312 blood cultures were obtained (503 positive cultures and 809 negative cultures). Bacteremia persisted an average of 3.6 days. Target trough level (15–20 µg/mL) was achieved in 65 children (50%) within an average of 3.4 days of initial dosing. Attempts to reach therapeutic levels were abandoned in 32 children (24.6%) as MSSA was isolated before the trough. There were 319 vancomycin dose and/or interval changes, 1,192 serum creatinine levels, and 589 vancomycin trough levels obtained. Fourteen children (10.8%) experienced AKI. Additional nephrotoxic exposure included: NSAIDs (127), IV contrast (100), loop diuretics (37), and aminoglycosides (11).

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1434. Pathogenesis of Clostridium difficile diarrhea during acute bacterial urinary tract infection

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Session: 157. Urinary Tract Infections

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Background. Clostridium difficile (CD) is a causative agent of diarrhea in patients with acute bacterial urinary tract infection. This study explores the hidden costs of CD and its impact on patient outcomes.

Methods. This is a retrospective cohort study of patients treated in the United States with acute bacterial urinary tract infection from 2009 to 2018. Data were collected on demographics, clinical characteristics, antibiotic susceptibilities, duration of bacteremia, blood culture results, and presence of AKI. Results. From 2009 to 2018, 130 patients were included; 79 in the definitive therapy group and 51 in the empiric therapy group. Baseline characteristics were similar among groups; however, more patients receiving definitive therapy had a bone biopsy compared with those treated with empiric therapy (58.1% (104/179) vs. 36.8% (45/122); P < 0.05). 33 percent (60/179) of patient treated with definitive therapy failed compared with 45% (55/122) treated with empiric therapy (P = 0.109). No significant differences were observed in secondary outcomes; however non-CDAD diarrhea occurred more in the empiric therapy group than definitive therapy group (3.8% (7/179) vs. 8.2% (10/122); P > 0.05). Receiving definitive therapy (OR 1.43, CI 0.89–2.31; P = 0.138) and presence of PVD (OR 1.34, CI 0.823–2.197; P = 0.238) were included in the multivariable logistic regression, but neither were independently associated with failure.

Conclusion. Definitive antibiotic therapy was not associated with a significant decrease in treatment failure.

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