Background. Bone cultures in diabetic foot infection is the most accurate method to identify causative pathogen, while there is only 30% concordance between superficial wound swab and bone biopsy cultures. Diabetic foot infection is commonly polymicrobial, therefore report on the bone biopsy culture may come with several updates before it is finalized. Our study is aimed to describe how often additional pathogens were identified after patients' discharge on antibiotics therapy for diabetic foot osteomyelitis, and evaluate microbiological appropriateness of antibiotic regimen upon discharge based on the final result of the bone culture.

Methods. Medical records of the patients 18 years old or older, who had inpatient bone biopsy, deep tissue debridement or amputation for diabetic foot infection, were reviewed from January 2014 through Dec 2015 in Rochester Regional Health System. Antibiotic regimens for the patients discharged before final culture result were evaluated for microbiological appropriateness by two reviewers trained in infectious diseases.

Results. In total, 198 procedures were screened, 158 procedures met inclusion criteria, out of which 74 patients with 80 procedures (51%) were discharged before the final culture result was available. Average time from procedure to the final culture report was 6 days, and from discharge to the final culture was 3.7 days. In most of the cases (70%, 56 out of 80) the patients were discharged on empiric regimen discordant with final culture result. Predominant organisms were Gram-positive bacteria 74%, with Gram negatives 24%, and yeast 2%. Most infections were polymicrobial (81%), mixed with anaerobic bacteria in 37%. The most frequent isolates were *Staphylococcus aureus* (15%), *Corynebacterium* (14%), anaerobic Gram-positive cocci (12%), and *Staphylococcus epidermidis* (8%). All negative Gram stains (31%, 25 out of 80) had positive growth on culture.

Conclusion. Half of the patients with diabetic foot osteomyelitis, who underwent bone biopsy, were discharged before final culture results were available. Most of them were discharged on empiric regimen discordant with final culture. This data suggests that careful outpatient follow-up on the final culture would likely result in modification of antibiotics therapy to target newly reported pathogen.

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210. Efficacy and Safety of Dalbavancin for the Treatment of Acute Bacterial Skin and Skin Structure Infection (ABSSSI) in Patients with Diabetes Mellitus

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Background. ABSSSIs are common in patients with diabetes and have an increased risk of complications. Dalbavancin is a long-acting lipoglycopeptide with potent activity against Gram-positive pathogens responsible for ABSSSI, including methicillin-resistant *Staphylococcus aureus* (MRSA), and has demonstrated activity in ABSSSI with single-dose administration. We assessed outcomes in patients with and without diabetes in a clinical trial evaluating the efficacy of dalbavancin for ABSSSI.

Methods. In a double-blind, phase 3 trial, adult patients with ABSSSI involving deeper soft tissue or requiring significant surgical intervention, defined as major abscess, cellulitis, and traumatic wound/surgical site infection were randomized 1:1 to dalbavancin as a single-dose (1500 mg) or as a two-dose regimen (1000 mg on Day 1 and 500 mg on Day 8). The primary endpoint was ≥20% reduction in erythema at 48–72 hours; clinical success on Days 14 and 28 was defined as improvement in lesion size and signs and symptoms. *P*-values were obtained using Fisher's exact test for categorical variables and Wilcoxon rank-sum test for continuous variables. In a post-hoc subgroup analysis, outcomes were compared among the subgroups of participants with and without diabetes.

Results. There were 76/698 (10.9%) participants with diabetes and 622/698 (89.1%) participants without diabetes. Participants with diabetes were more likely to be older or obese, and had higher rates of cellulitis, while participants without diabetes had higher rates of abscess (Figure 1). At Days 14 and 28, clinical success was achieved in ≥84% of participants with diabetes, and investigator assessment of cure was achieved in ≥95% of participants with diabetes (Figure 2). Drug-related adverse events were observed in 7 (9.2%) patients with and 44 (7.1%) participants without diabetes.

Conclusion. Dalbavancin has similar rates of clinical response and success for the treatment of ABSSSI in patients with or without diabetes.

Figure 1. Baseline Characteristics

Characteristic	With Diabetes (n=76)	Without Diabetes (n=622)	*P* value
Age, y, mean (SD)	55.8 (13.4)	47.2 (14.7)	<0.0001
Male, n (%)	39 (51.3)	368 (59.2)	0.22
BMI, kg/m^2, mean (SD)	35.5 (9.8)	28.0 (6.6)	<0.0001
Infection type, n (%)			0.052
Cellulitis	44 (57.9)	289 (46.5)	
Major abscess	11 (14.5)	164 (26.4)	
Traumatic wound/surgical site infection	21 (27.6)	169 (27.2)	
SIRS, n (%)	35 (46.1)	268 (43.1)	0.63

BMI=body mass index; SIRS=systemic inflammatory response syndrome.

Figure 2. Clinical Success

Characteristic	With Diabetes n/N (%)	Without Diabetes n/N (%)
Intent-to-treat population		
Clinical response at 48–72 h	58/76 (76.3)	520/622 (83.6)
Difference (95% CI)*	−7.3 (−18.3, 1.5)	
Clinically evaluable population		
Clinical success at end of treatment (Day 14)	54/64 (84.4)	483/540 (89.4)
Difference (95% CI)*	−5.1 (−16.1, 2.5)	
Clinical success at final visit (Day 28)	51/57 (89.5)	446/481 (92.7)
Difference (95% CI)*	−3.2 (−14.0, 3.0)	
Investigator assessment of cure at end of treatment (Day 14)	61/64 (95.3)	523/539 (97.0)
Difference (95% CI)*	−1.7 (−10.0, 1.9)	
Investigator assessment of cure at final visit (Day 28)	55/57 (96.5)	466/480 (97.1)
Difference (95% CI)*	−0.6 (−9.1, 2.7)	

CE=clinically evaluable; ITT=intent-to-treat.
*Miettinen and Nurminen method.

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211. *Corynebacterium* Bone and Joint Infection (BJI): A Retrospective Cohort Study in a Reference Center for BJI Management

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Background. *Corynebacterium* is a rare etiologic agent of BJI. We aimed to describe this rare clinical condition and to assess treatment failure determinants.

Methods. All adult patients with proven *Corynebacterium* BJI (i.e., consistent clinical/radiological signs, AND ≥2 reliable positive bacteriological samples, AND treated as such) were included in a retrospective cohort study. After cohort description, determinants of treatment failure (i.e., infection persistence, relapse, requirement of additional surgical procedure, and BJI-related death) were determined using stepwise logistic regression and Kaplan-–Meier curve analysis.

Results. The 51 included BJI were more frequently chronic (88.2%), orthopaedic device related (ODI, 74.5%) and polymicrobial (78.4%). Surgery was performed in 92.2% of cases, and considered as appropriate in 76.5% of them. The main first-line antimicrobials were glycopeptides (68.6%), β-lactams (50%), and/or clindamycin (10.0%). Three (5.9%) patients received daptomycin as part of first-line regimen, and 8 (15.7%) at any point of treatment. After a follow-up of 60.7 (IQR 30.1–115.1) weeks, 20 (39.2%) treatment failures were observed, including 4 (20%) *Corynebacterium*-documented relapse. Independent risk factors were initial biological inflammatory syndrome (OR 16.1; P = 0,030) and inappropriate surgical management (OR 7.481; P = 0.036). Interestingly, all patients receiving daptomycin as part of first-line regimen failed ($P < 0.001$), including one patient with a *Corynebacterium*-documented relapse with a daptomycin increased MIC. Among patients with ODI, survival curve analysis disclosed a worst prognosis in case of prosthetic joint infection (P = 0.030), unappropriate surgical management (P = 0.029) and daptomycin use as first-line regimen ($P < 0.001$).

Conclusion. *Corynebacterium* BJI is a poorly known condition, frequently chronic, and polymicrobial. An important rate of failure was observed, associated with inappropriate surgical management and daptomycin use as part of first-line regimen. As described for other clinical conditions such as infective endocarditis, daptomycin should be avoid or used in combination therapy to prevent resistance selection and treatment failure.

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212. Microbiological Epidemiology Depending on Time to Occurrence of Prosthetic Joint Infection (PJI): Impact on the Empirical Antimicrobial Strategies

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Background. Empirical antimicrobial therapy of prosthetic-joint infection (PJI) is a major clinical challenge and current guidelines recommend the combination of vancomycin plus a broad-spectrum β-lactamin. As Gram-negative bacilli (GNB) are probably less represented in late infections, we evaluate the microbiological epidemiology in patients with PJI according to the chronology of infection.

Methods. All patients managed in a reference center for complex bone and joint infections in France (2011 and 2016) were included in a prospective cohort study. Microbiological data at the time of diagnosis were collected and analyzed according to the chronology of infection.

Results. We included 567 PJI (284 males, 50.1%; median age 70.3 years). The median occurrence time was 23.4 weeks after prosthesis implantation (285 hip and 255 knee PJI, which were revision prosthesis in 216 [40.3%] cases). Microbiological bone samples found 164 [28.9%] *S. aureus* (including 26 [16.3%] MRSA), 162 [28.6%] coagulase-negative *Staphylococci* (CoNS, including 80 [58.8%] methicillin-resistant CoNS), 80 (14.1%) *Enterobacteriaceae*, 74 (13.1%) *Streptococci*, and 85 (15.0%) anaerobes (including 60 [10.6%] *Propionibacterium*). Infection was plurimicrobial in 10 [18.2%] cases. Among the 183 patients (32%) with late PJI (occurring >1 year), obtained after exclusion of the 59 patients (10.4%) with hematogenous origins, *Enterobacteriacecae* (n = 8; 4.4%; $P < 10^{-3}$) were much less represented than in patients with early PJI occurring <1 year. No difference was observed regarding the the presence of non-fermenting GNB, with a prevalence of 4.6 and 2.7% in early and late PJI, respectively. Taken together, these data suggest that a broad-spectrum β-lactam antibiotic might be useful in only 12 (6.6%) patients with late PJI, compared with 66 (20.3%) patients with early PJI ($P < 10^{-3}$). Of note, there were statistically more anaerobes (n = 40; 21.9%) in late PJI, including 32 *Propionibacterium* (17.5%; $P < 10^{-3}$).

Conclusion. Considering the minority amount of GNB in late post-operative PJI and the overrepresentation of anaerobes including *P. acnes*, the empirical treatment should be reconsidered, especially when a two-stage exchange is planned. In those situations, another acceptable option could be the vancomycin+clindamycin combination.

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213. Clinical Characteristics and Treatment Outcomes of Patients with Sternoclavicular Septic Arthritis Caused by *Staphylococcus aureus*

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Background. Aggressive surgical therapy such as en-bloc resection of the joint is favored in the treatment of sternoclavicular (SC) septic arthritis. However, this practice is based on expert opinion and small case series. We analyzed the clinical characteristics and treatment outcomes of patients with *S. aureus* SC septic arthritis treated with medical therapy alone or with limited surgical therapy.

Methods. All adult patients with SC septic arthritis caused by *S. aureus* at the Asan Medical Center between September 2009 and December 2016 were retrospectively reviewed. Demographic characteristics, laboratory results, underlying diseases/conditions, patient management, and treatment outcomes were assessed. SC septic arthritis due to *S. aureus* was defined if patients had positive cultures of specimens from the SC joint, or if blood cultures yielded *S. aureus*, together with physical findings and imaging studies supporting the diagnosis of SC septic arthritis. Limited surgical therapy was defined as simple incision, drainage, and debridement of infected SC joint.

Results. In total, 22 cases of *S. aureus* SC septic arthritis were enrolled. Of these 22 patients, 11 received medical therapy alone, 11 underwent limited surgical therapy, and none underwent aggressive surgery. Most patients (73%) had underlying predisposing conditions such as infection at a distant site, diabetes, and liver cirrhosis, and none had IV drug abuse or HIV infection. Complications such as chest wall and/or neck abscess, clavicular and/or sternal osteomyelitis were identified in 18 patients (82%). Patients with chest wall and/or neck abscess had a tendency to be treated with limited surgery than patients without them (73% vs. 27%, P = 0.09). The median duration of intravenous antibiotics in all patients was 35 days (IQR 25–46 days). After a median follow-up of 31 months (IQR 2–40 months), there was no relapse of SC septic arthritis or deterioration of joint function.

Conclusion. Medical therapy alone or with limited surgical therapy appears to be a successful therapeutic strategy for the complicated *S. aureus* SC septic arthritis in a selected patient.

Table 1. Demographic, clinical characteristics of 22 patients with sternoclavicular septic arthritis caused by *Staphylococcus aureus*

Characteristic/Outcome	All patients (n = 22)	Patients treated with medical therapy alone (n = 11)	Patients treated with limited surgical therapy (n = 11)
Age (year), median (IQR)	61 (50-71)	61 (50–80)	58 (37–64)
Male	17 (77)	9 (82)	8 (72)
Predisposing condition			
No underlying condition	6 (27)	1 (9)	5 (45)
Diabetes mellitus	5 (24)	3 (27)	2 (18)
Liver cirrhosis	5 (24)	1 (9)	4 (36)
Solid tumor	4 (18)	3 (27)	1 (9)
Hematologic malignancy	1 (5)	1 (9)	0
COPD	1 (5)	0	1 (9)
Chronic renal failure	2 (10)	2 (18)	0
Central venous catheter	2 (9)	2 (18)	0
Intravenous drug user	0	0	0
HIV infection	0	0	0
Infection at distant site	7 (32)	5 (45)	2 (18)
Site of acquisition			
Community-acquired	19 (86)	8 (73)	11 (100)
Health care-associated	1 (5)	1 (9)	0
Nosocomial	2 (9)	2 (18)	0
Joint involvement			
Right joint	11 (50)	8 (72)	3 (27)
Left joint	11 (50)	3 (27)	8 (72)
Bilateral joint	0	0	0
Bacteremia	19 (86)	9 (82)	10 (91)
MRSA	4 (18)	3 (27)	1 (9)
Complication	18 (82)	8 (73)	10 (91)
Clavicular and/or sternal osteomyelitis	10 (46)	5 (45)	5 (45)
Chest wall and/or neck abscess	11 (50)	3 (27)	8 (72)
Myositis	3 (14)	2 (18)	1 (9)
Mediastinitis	4 (18)	2 (18)	2 (18)
Time to first surgical therapy, median days (IQR)	–	–	5 (2–6)

Abbreviations: IQR, interquartile range; MRSA, methicillin-resistant *Staphylococcus aureus*
NOTE. Data are presented as number of patients (%), unless otherwise specified

Table 2. Outcomes of 22 patients with sternoclavicular (SC) septic arthritis caused by *Staphylococcus aureus*

Outcome	All patients (n = 22)	Patients treated with medical therapy alone (n = 11)	Patients treated with limited surgical therapy (n = 11)
Duration of fever, median days (IQR)	2 (2–6)	3 (2–4)	4 (2–6)
Duration of intravenous antibiotics, median days (IQR)	35 (25–46)	36 (23–49)	35 (25–42)
Hospital stay, median days (IQR)	30 (21–50)	30 (21–50)	29 (20–43)
Duration of oral antibiotics after hospital discharge, median days (IQR)	14 (5–42)	10 (0–28)	21 (13–44)
Treatment success of SC septic arthritis	22 (100)	11 (100)	11 (100)
Deterioration of joint function	0	0	0
Relapsed SC septic arthritis	0	0	0
Relapsed *S. aureus* infection	1 (6)	1 (9)	0
All-cause mortality	1 (6)	1 (9)	0

Abbreviations: IQR, interquartile range
NOTE. Data are presented as number of patients (%), unless otherwise specified

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214. Oral vs. Intravenous Antibiotics for the Treatment of Acute Bacterial Osteomyelitis in the Veteran Population

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Background. The optimal route for administration of antibiotics in the treatment of acute bacterial osteomyelitis (ABOM) has not been clearly defined. Based on pharmacokinetic data and expert opinion, intravenous (IV) antibiotics are considered the standard of care. Studies demonstrate reasonable oral (PO) absorption and bone penetration of certain antibiotics, supporting the potential efficacy of their use in the treatment of ABOM. The purpose of this study was to determine whether a difference exists in treatment outcomes in Veterans with ABOM treated with PO vs. IV antibiotics.

Methods. This is a retrospective, electronic chart review of patients diagnosed with ABOM between October 1, 2008, and September 30, 2013. Subjects were evaluated and placed into two groups: (1) IV antibiotics for at least 4 weeks or (2) PO antibiotics for at least 4 weeks. The primary endpoint was treatment failure within one year of diagnosis. Treatment failure was defined as recurrence of infection, amputation of the infected bone, or if they were lost to follow-up.

Results. In total, 83 patients, accounting for 89 episodes of ABOM were included in this study; 41 in the IV group and 48 in the PO group. Treatment failure occurred in 14 patients in the IV group (34.15%) and 17 patients in the PO group (35.42%), P = 0.90. Subgroup analysis of subjects with diabetes mellitus, peripheral vascular disease, body mass index ≥ 30 kg/m^2, and those ≥ 65 years also found no difference between groups. After at least 4 weeks of antibiotic therapy, 10 patients in the IV group and five patients in the PO group had an amputation of the infected bone, P = 0.14. Mean length of hospital stay was significantly longer in the IV group at 8.55 days as compared with the PO group at 2.23 days, $P < 0.0001$.

Conclusion. Treatment of ABOM with PO antibiotics may serve as a reasonable alternative to IV antibiotics, showing similar efficacy and reduced hospital stay.

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