adjacent disc that were similar to those seen in bacterial discitis. As early as 2001 Stirling noted a relationship between sciatica and Propionibacterium acnes cultured from disc space material obtained at discectomy. In 2013 Albert demonstrated that Modic type I changes, strongly associated with low back pain, responded to 100 days of antibiotic treatment in a large randomized controlled trial. The findings were controversial, and we proposed that modern microdiscectomy techniques would minimize the potential for contamination with the common skin bacteria reported most often in previous studies.

Methods. We performed a prospective uncontrolled case series of patients undergoing microdiscectomy for symptomatic disc degeneration or herniation. Subjects were greater than 18 years old, nonpregnant, with chronic low back pain, and meeting standard criteria for microdiscectomy. After giving informed consent, data were extracted from existing medical records and cultures of disc material were obtained at discectomy prior to perioperative prophylactic antibiotics, and were processed by standard methodology for aerobic, anaerobic and acid-fast bacterial growth.

Results. Thirty-three patients were included in the study, mean age 52.6 (SE 3.1), 19 females and 14 males. The study was terminated after these 33 cases when only one aerobic culture was positive from one male subject, and this for a minimal growth of Staphylococcus epidermidis.

Conclusion. If a significant fraction of chronic low back pain is indeed caused by chronic infection with low-virulence bacteria, this would be a paradigm shift in the evaluation and management of a common and often debilitating condition. In our study of patients with chronic low back pain undergoing microdiscectomy, we did not find evidence of chronic low-virulence bacterial infection.

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320. Variation in Use of Chronic Antibiotic Suppression (CAS) for Treatment of Staphylococcus aureus Prosthetic Joint Infection (PJI)
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Background. The Infectious Diseases Society of America (IDSA) guidelines observed that prescribing CAS for treatment of PJI is an unresolved issue. We aimed to characterize variation in the use of CAS while accounting for patient-level factors to identify targets for antimicrobial stewardship in the Veterans Affairs system.

Methods. A retrospective cohort study was conducted using data on veterans with a diagnosis of S. aureus PJI between 2003 and 2015. Patients managed with debridement, one-stage exchange (OSE), or two-stage exchange (TSE) were included. Differences in characteristics between any CAS and no CAS treatment (None) were determined by the Mann–Whitney U test for continuous variables and Fisher’s exact test for dichotomous variables. Generalized linear-mixed models were used to calculate the risk standardized measure (observed to expected [O/E] ratio) of a hospital’s CAS use.

Results. Nine hundred forty-four (75%), 310 (25%), and 11 (<1%) were managed with debridement, TSE, and OSE, respectively, among the 1,265 included patients. Patient factors associated with CAS use were different for debridement, TSE, and OSE, respectively, among the 1,265 included patients. Generalized linear-mixed models were used to calculate the risk standardized measure (observed to expected [O/E] ratio) of a hospital’s CAS use.

Conclusion. There is substantial variation in the use of CAS by patient characteristics for S. aureus PJI across the VA system. This variation differs between debridement and TSE surgery patients. Further research is warranted to guide CAS recommendations.

Table: Characteristics for Overall Cohort and by Type of Surgery

| Overall | Debridement | TSE |
|---------|-------------|-----|
| Age (P = 0.03) | Body mass index (P = 0.008) | Body mass index (P = 0.008) |
| Psychosis | Coagulopathy | Serum creatinine* |
| Erythrocyte sedimentation ratio* (P = 0.0003) | | |
| Serum creatinine* (P = 0.0002) | Average income* (P = 0.01) | \-
| C-reactive protein* (P = 0.0003) | Severity of illness at time of PJI | \-
| White blood cell count* (P = 0.0002) | Receipt of daptomycin* (P = 0.0007) | \-
| Proinflammatory marker* (P = 0.0006) | \- | \- |

*After PJI revision surgery and prior to initiation of CAS.

P = 0.0002

After PJI revision surgery and prior to initiation of CAS.

P = 0.01

321. Assessing the Role of Daptomycin as Antibiotic Therapy for Staphylococcal Prosthetic Joint Infection
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Background. Optimal antibiotic therapy following surgery for prosthetic joint infection (PJI) depends on potency, toxicity, convenience, and cost. Daptomycin, a potent, convenient, and low-toxicity antibiotic, is FDA approved for the treatment of skin and soft-tissue infections, but its role in treatment of PJI is less clear. We reviewed our experience with daptomycin in the treatment of staphylococcal PJI.

Methods. A retrospective cohort of staphylococcal hip and knee PJI treated with daptomycin after debridement (18D) or two-stage exchange was identified by query of hospital coding records from 2009 to 2014, with subsequent chart review. All cases met Musculoskeletal Infection Society International Consensus criteria for PJI; all staphylococcal species were included. The primary endpoint was defined as debrided joints as retention of the prosthesis at 2-year follow-up, and for two-stage exchanges, as prosthesis retention for 2 years from reimplantation. Descriptive statistics were completed using the Fisher’s exact test for categorical variables and the Mann–Whitney U test for continuous variables.

Results. Two hundred forty-one patients with staphylococcal PJI were identified: 148 two-stages (112 [75%] had success at 2 years) and 95 18D (44 [47%] had success at 2 years. Twenty-eight (19%) two-stages and nine (10%) of debridements received daptomycin; of which, 20 two-stages (72%) and six debridements (66%) reached a successful 2-year outcome. In univariate analysis, there was no association between success and receipt of daptomycin in patients with staphylococcal PJI (two-stages, P = 0.71; debridement, P = 0.63). There were no associations noted between outcome and age, sex, or BMI.

Conclusion. Daptomycin appeared no better or worse than comparator antibiotics in a relatively large retrospective cohort of staphylococcal hip and knee PJI patients, regardless of surgical strategy. Given its favorable convenience and toxicity profile, it is an attractive antibiotic choice for staphylococcal PJI despite its high cost.

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322. Joint Spacer Retention, Antimicrobial Suppression, and Risk of Re-infection
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Background. Two-stage exchange is the standard treatment of periprosthetic joint infection in the United States. Occasionally, for selected patients, temporary antibiotic-loaded spacers are retained “permanently” instead of proceeding with prosthesis re-implantation. It is unclear whether the “retained” spacer represents a nidus for re-infection, and would require secondary antibiotic suppression to prevent recurrence of infection. We aim to determine the risk of re-infection among patients with retained knee and hip spacers, and assess the role of antibiotic suppression.

Methods. We identified 51 patients with retained static or articulating knee (n = 34) and hip (n = 17) spacers between 1996 and 2014 using the Mayo Clinic Hospital Orthopedic database. Medical records were reviewed to collect clinical data,
including antibiotic use and offending organisms. We compared the cumulative incidence of reinfection between those with or without suppression using a competing risk model, with death and revision for mechanical failure as competing risks.

Results. The median age was 77 years (range, 48–94). Gender distribution was equal. The median Charlson Comorbidity Index (CCI) was 3 (1–11), while median BMI was 30 (17.8–59.5). Eleven of 51 patients received antibiotic suppression for 28 days after space re-creation. A history of prior antibiotic suppressive therapy was the only variable associated with being placed back on antibiotic suppression after space re-creation [OR 18 (95% CI 3.2–100)]. During the median follow-up period of 31.3 months, there were five re-infections. The cumulative incidence of re-infection was not significantly different between suppressed and unsuppressed groups (P = 0.89). The re-infecting pathogens were different from the index offending organisms. Only the presence of preoperative draining sinus was significantly associated with re-infection [OR 10 (95% CI 1–99.6)].

Conclusion. In infected patients where a second-stage prosthetic re-implantation is not an option, and retention of “temporary” antibiotic loaded spacer is surgically preferred, the risk of re-infection was not prevented by prolonged antibiotic suppression. The presence of a draining sinus was significantly associated with re-infection, often with new pathogens.

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Table 1: Correct Clinical Diagnosis in 1,241 Patients with a Discharge Diagnosis of Encephalitis by ICD-9 Codes.

| Diagnosis | Number of Patients (%) |
|-----------|------------------------|
| Non-CNS infection | 580 (46.7) |
| Encephalitis | 244 (19.6) |
| Nosocomial meningitis | 148 (11.9) |
| Bacterial meningitis | 101 (8.1) |
| Aseptic meningitis | 72 (5.8) |
| Fungal meningitis | 68 (5.4) |
| Tuberculous meningitis | 25 (2.0) |
| Parasitic meningitis | 3 (0.2) |

Abbreviation: ICD-9, an International Classification of Disease, Ninth; CNS, Central Nervous System.

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