Table 1

| Antibiotic | ASC II | ASC III | ASC IV | ASC V | Total (N=100) |
|------------|--------|---------|--------|-------|--------------|
| Cefazolin   | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |
| Cefalexin   | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |
| Ceftriaxone | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |
| Ciprofloxacin| 0.0 | 0.0     | 0.0    | 0.0   | 0.0          |
| Gentamicin  | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |
| Linezolid   | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |
| Tigecycline | 0.0    | 0.0     | 0.0    | 0.0   | 0.0          |

Table 2

| Demographics and Comorbidities in SCI Patients with Stage 3 and 4 Pressure Injury |
|----------------------------------|----------------------------------|----------------------------------|
| Age (year) Gender                | Non-Flap Patients N=51           | Flap Patients N=27               |
| Male                              | 58.5                             | 58.1                             |
| Female                            | 26.9                             | 21.6                             |
| Average Age                       | 57.4                             | 57.8                             |

Table 3

| Healthcare Utilization, Osteomyelitis Classification, and Outcomes in PI-related Hospitalizations |
|-------------------------------------------------------------------------------------------------|
| Stage 3 and 4 PI had very poor wound outcomes and high mortality, particularly in NFP. Evidence-based, high value care paradigms are needed for this population and disease state. |

Disclosures: Cecilia G. Carvalheas, MD, PhD, A. Menarini Industrie Farmaceutiche Riunite S.R.L. (Research Grant or Support)Allergan (Research Grant or Support)PharmaTherapeutics (Research Grant or Support)Cipra Ltd. (Research Grant or Support)Fox Chase Chemical Diversity Center (Research Grant or Support)Melinta Therapeutics, Inc. (Research Grant or Support)Merck (Research Grant or Support)Pfizer (Research Grant or Support)Jennifer M. Streit, BS, A. Menarini Industrie Farmaceutiche Riunite S.R.L. (Research Grant or Support)A. Menarini Industrie Farmaceutiche Riunite S.R.L. (Research Grant or Support)Allergan (Research Grant or Support)Merck (Research Grant or Support)Melinta Therapeutics, Inc. (Research Grant or Support)Melinta Therapeutics, Inc. (Research Grant or Support)Merck (Research Grant or Support)Cipra Ltd. (Research Grant or Support)Fox Chase Chemical Diversity Center (Research Grant or Support)Melinta Therapeutics, Inc. (Research Grant or Support)Cipra Ltd. (Research Grant or Support)

Background: Pressure injuries (PI) and the complication of PI-related osteomyelitis (PIrOM) are significant sources of morbidity and mortality in spinal cord injury (SCI) patients. This study describes the epidemiology, healthcare utilization, and outcomes of SCI patients with PI at a large Veterans’ Affairs (VA) hospital.

Methods: We retrospectively reviewed all SCI patients with stage 3 or 4 PI in the pelvic area admitted to the VA North Texas Health Care System from 1/1/2013 to 12/31/2018. We abstracted demographic, diagnostic testing, treatment, and outcomes data from PI-related admissions for wound care from the electronic medical record. A composite definition categorizing the diagnosis of PIrOM was created (Table 1). Two-sample t-test and Fisher’s exact test were used to compare variables between flap patients (FP) and those who received at least one flap surgery (NFP) and non-flap patients (NFP, those without any flap surgery).

Table 1. Composite Definition for Pressure Injury-related Osteomyelitis

| Category                  | Definition                                                                 |
|---------------------------|---------------------------------------------------------------------------|
| Pressure Injury            | The presence of inflammatory cells/pus/tender/ulcerative/-pressure ulcer in a tissue or bone |
| Pressure Infection         | The presence of inflammatory cells/pus/tender/ulcerative/-pressure ulcer in a tissue or bone |

Results: A total of 78 patients, accounting for 113 hospitalizations, and 138 unique PI were identified (Table 2). Patients had a mean age of 59 years at index admission and male predominance (97%). Of the 138 PI, 49% were ischial and 88% were non-ischial. Patients had a mean length of antibiotic therapy of 54 days and mean length of stay of 122 days per hospitalization. The rates of healed PI overall at discharge and at 1 year were 27% and 39%, and 12% and 40% in the NFP group. The 1-year mortality for NFP was 22%, while all FP were alive at one year.

Table 2. Demographics and Comorbidities in SCI Patients with Stage 3 and 4 Pressure Injury

| Demographics and Comorbidities in SCI Patients with Stage 3 and 4 Pressure Injury |
|----------------------------------|----------------------------------|----------------------------------|
| Age (year) Gender                | Non-Flap Patients N=51           | Flap Patients N=27               |
| Male                              | 58.5                             | 58.1                             |
| Female                            | 26.9                             | 21.6                             |
| Average Age                       | 57.4                             | 57.8                             |

Conclusion: Despite significantly high healthcare utilization, VA SCI patients with stage 3 and 4 PI had very poor wound outcomes and high mortality, particularly in NFP. Evidence-based, high value care paradigms are needed for this population and disease state.

Disclosures: Roger Bedimo, MD, Gilead Sciences (Consultant)Merck & Co. (Advisor or Review Panel member)ViiV Healthcare (Advisor or Review Panel member, Research Grant or Support)

329. Performance of Next Generation Sequencing in Isolating a Pathogen in Pediatric Osteoarticular Infections

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Session: P-10. Bone and Joint

Background: Osteoarticular infections are often encountered in the pediatric population. Therapy is guided by isolation of a putative organism, however, operative cultures are often negative. Next generation sequencing (NGS) allows for more sensitive sampling of body compartments generally considered sterile. We sought to evaluate the utility of NGS in comparison to culture in detecting a pathogenic organism in acute osteomyelitis and septic arthritis in children.

Methods: This was a single-site study to evaluate the utility of NGS in comparison to culture in detecting a pathogenic organism in acute osteomyelitis and septic arthritis in children. Eligible patients were all patients with osteomyelitis or septic arthritis
admitted to Rady Children's Hospital from July 2019 through July 2020. We excluded any patients with bone or joint surgery within 30 days prior to admission. Operative samples were chosen at the surgeon's discretion (joint aspirate, synovium, or bone) based on operative findings. We compared NGS testing to standard care culture from the same site.

**Results:** 428 patients underwent an orthopedic surgery that involved insertion of ALBC at our institution between 2015 and 2018. We excluded patients under age 18, those who had antibiotic irrigation only, trauma patients, non-arthroplasty surgeries (such as fractures and debridement of deep wounds), and patients with missing data for 30 days after the surgery. We identified 57 patients who fit our inclusion criteria and received a bone cement spacer or beads to treat an infection of the hip, knee, shoulder, or ankle. We matched patients who had AKI to 2 patients who did not have AKI. Matching was based on age (±5 years), joint operated on, and antibiotics used.

**Results:** 15 patients showed an elevated serum creatinine level of over 1.2 within 30 days of surgery. 86.7% of these patients were male, their average age was 64.1 ± 6.2 years old. 40% had hip surgery, 46.7% knee surgery, 6.7% ankle, and 6.7% shoulder.

All received vancomycin and tobramycin in Palacos bone cement. Compared to their negative blood cultures, 22% (16/72) had pathogen recovery by CT-guided methods and 33% (24/72) from surgical specimens. S aureus was the most common pathogen isolated at 53.7% (71/132); MSSA comprised 38.6% (51/132) and MRSA 15.2% (20/132). The mean CRP (4.6 ± 15.83 mg/dL; P < 0.001) and WBC (9.08 ± 13.18/μL; P < 0.001) were higher in culture-positive as compared to culture-negative cases. Mean ESR and temperature more than 100.4°F did not differ significantly between these two groups. The 8-week median recurrence rate was 11.4%, of which nearly half had index S aureus bacteremia.

**Frequency of organisms isolated**

**Gram Positive**

| Organism | Frequency (%) |
|----------|---------------|
| MSSA     | 51 (36.6%)    |
| MRSA     | 29 (21.5%)    |
| Staphylococcus spp | 16 (12.1%) |
| Coagulase negative Staph. | 11 (8.3%) |
| Others   | 11 (8.3%)     |

**Gram Negative**

| Organism | Frequency (%) |
|----------|---------------|
| E.coli   | 3 (2.3%)      |
| Pseudomonas | 3 (2.3%)    |
| Serratia | 3 (2.3%)      |
| Enterococcus | 2 (1.5%)  |
| Klebsiella pneumoniae | 2 (1.5%) |
| Proteus     | 2 (1.5%)      |
| Others     | 4 (3.0%)      |

**Fungi**

| Organism | Frequency (%) |
|----------|---------------|
| C. Albicans | 2 (1.5%)   |

**Polymerase**

| Organism | Frequency (%) |
|----------|---------------|
| Polymeric | Polymeric     |

**Association of mean inflammatory markers with positive cultures**

| Temperature | P value | ESR (mg/dL) | P value | CRP (mg/dL) | P value | WBC (k/μL) | P value |
|-------------|---------|-------------|---------|-------------|---------|------------|---------|
| 37.08       | 0.185   | 76.14       | 0.021   | 11.12       | 0.008   | 3.06       | <0.001  |
| 37.12       | 0.111   | 89.66       | 0.200   | 7.13        | 0.832   | 9.46       | 0.020   |
| 37.51       | 0.488   | 64.95       | 0.350   | 8.57        | 0.824   | 9.82       | 0.025   |
| 37.18       | 0.717   | 57.57       | 0.102   | 10.12       | 0.030   | 11.98      | <0.001  |
| 37.18       | 0.117   | 71.36       | 0.003   | 5.68        | 0.892   | 8.92       | 0.024   |
| 37.19       | 0.144   | 70.10       | 0.129   | 9.46        | 0.954   | 9.98       | <0.001  |
| 37.19       | 0.184   | 81.74       | 0.003   | 5.07        | 0.892   | 8.92       | 0.024   |
| 37.19       | 0.184   | 70.10       | 0.129   | 9.46        | 0.954   | 9.98       | <0.001  |
| 37.19       | 0.184   | 81.74       | 0.003   | 5.07        | 0.892   | 8.92       | 0.024   |

**Conclusion:** Our study affirmed that S aureus is the most common cause of SI, of which MSSA was predominant. Epidural abscess was encountered in a substantial number of cases.

### Session: P-10. Bone and Joint

### Background:

There has been an increasing trend in spinal infections (SI) in the U.S. over recent years. We sought to characterize the clinical and microbiological characteristics of SI at our hospital.

### Methods:

We conducted a retrospective review of SI over a 3-year period (2016 - 2019) utilizing ICD codes for data retrieval. Search terms included vertebral osteomyelitis, discitis, and epidural abscess. SPS was used to compute the data.

### Results:

Of the initially screened 254 patients, 166 were included for analysis. Pertinent demographics were: mean age 59 years, male (61.4%), obese (44.5%), diabetic (25%), and drug-users (20%). Lumbosacral involvement was most common (69.8%); epidural abscess was present in 51.8% of patients. 15.7% had existing hardware. Overall, 79.5% (132/166) of cases had a positive culture from at least one site: blood 56.6% (94/166), CT-guided 51.1% (84/166). Of those patients with negative blood cultures, 22% (16/72) had pathogen recovery by CT-guided methods and 33% (24/72) from surgical specimens. S aureus was the most common pathogen isolated at 53.7% (71/132); MSSA comprised 38.6% (51/132) and MRSA 15.2% (20/132). The mean CRP (4.6 ± 15.83 mg/dL; P < 0.001) and WBC (9.08 ± 13.18/μL; P < 0.001) were higher in culture-positive as compared to culture-negative cases. Mean ESR and temperature more than 100.4°F did not differ significantly between these two groups. The 8-week median recurrence rate was 11.4%, of which nearly half had index S aureus bacteremia.

### Frequency of organisms isolated

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| Organism | Frequency (%) |
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| Pseudomonas | 3 (2.3%)   |
| Serratia | 3 (2.3%)      |
| Enterococcus | 2 (1.5%)  |
| Klebsiella pneumoniae | 2 (1.5%) |
| Proteus | 2 (1.5%)       |
| Others  | 4 (3.0%)       |

### Fungi

| Organism | Frequency (%) |
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### Polymeric

| Organism | Frequency (%) |
|----------|---------------|
| Polymeric | Polymeric     |