Table 2a. Anatomic and microbiological patterns of MSKI incidents with their one-year outcome from January, 2008 to December, 2018 in a single academic medical center.

	Total incidents n (%)	1-year outcome			
		Incidents completed treatment	Incidents treated and relapsed	Incidents deceased	Incidents lost to follow-up
	n=86	n=62	n=5	n=3	n=16
Anatomic infection site, n (%)					
Axial	53 (61.6)	38 (71.7)	3 (5.7)	1 (1.9)	11 (20.7)
Appendicular	22 (25.6)	17 (77.3)	1 (4.5)	1 (4.5)	3 (13.6)
Axial and appendicular	2 (2.3)	2 (100.0)	0	0	0
Soft tissue	8 (9.3)	4 (50.0)	1 (12.5)	1 (12.5)	2 (25.0)
Axial and soft tissue	1 (1.2)	1 (100.0)	0	0	0
Organism, n (%)					
MSSA	31 (36.0)	19 (61.3)	3 (9.7)	2 (6.4)	7 (22.6)
MRSA	27 (31.4)	19 (70.4)	3 (11.1)	1 (3.7)	4 14.8)
Pseudomonas aeruginosa	10 (11.6)	9 (90.0)	0	0	1 (10.0)
Serratia marcescens	4 (4.7)	4 (100.0)	0	0	0
Viridans group streptococci	3 (3.5)	2 (66.7)	0	1 (33.3)	0
Eikenella corrodens	2 (2.3)	2(100.0)	0	0	0
Enterobacter cloacae	2 (2.3)	2 (100.0)	0	0	0
Candida albicans	2 (2.3)	0	0	0	2 (100.0)
Candida parapsilosis	2 (2.3)	2 (100.0)	0	0	0
Haemophilus species	1 (1.2)	1 (100.0)	0	0	0
Enterococcus faecalis	1 (1.2)	1 (100.0)	0	0	0
Klebsiella oxytoca	1 (1.2)	0	0	0	1 (100.0)
Propionibacterium acnes	1 (1.2)	0	0	1 (100.0)	0
MRSE	1 (1.2)	0	0	1 (100.0)	0
Prevotella	1 (1.2)	0	0	0	1 (100.0)

MSSA=Methicillin-susceptible Staphylococcus aureus, MRSA=Methicillin-resistant Staphylococcus aureus, MRSE = Methicillin-Resistant Staphylococcus epidermidis

Anatomy and Microbiology of MSKI in PWID and 1-year Treatment Outcomes

Table 2a. Anatomic and microbiological patterns of MSKI incidents with their one-year outcome from January, 2008 to December, 2018 in a single academic medical center.

	Total incidents n (%)	1-year outcome			
		Incidents completed treatment	Incidents treated and relapsed	Incidents deceased	Incidents lost to follow-up
	n=86	n=62	n=5	n=3	n=16
Anatomic infection site, n (%)					
Axial	53 (61.6)	38 (71.7)	3 (5.7)	1 (1.9)	11 (20.7)
Appendicular	22 (25.6)	17 (77.3)	1 (4.5)	1 (4.5)	3 (13.6)
Axial and appendicular	2 (2.3)	2 (100.0)	0	0	0
Soft tissue	8 (9.3)	4 (50.0)	1 (12.5)	1 (12.5)	2 (25.0)
Axial and soft tissue	1 (1.2)	1 (100.0)	0	0	0
Organism, n (%)					
MSSA	31 (36.0)	19 (61.3)	3 (9.7)	2 (6.4)	7 (22.6)
MRSA	27 (31.4)	19 (70.4)	3 (11.1)	1 (3.7)	4 14.8)
Pseudomonas aeruginosa	10 (11.6)	9 (90.0)	0	0	1 (10.0)
Serratia marcescens	4 (4.7)	4 (100.0)	0	0	0
Viridans group streptococci	3 (3.5)	2 (66.7)	0	1 (33.3)	0
Eikenella corrodens	2 (2.3)	2(100.0)	0	0	0
Enterobacter cloacae	2 (2.3)	2 (100.0)	0	0	0
Candida albicans	2 (2.3)	0	0	0	2 (100.0)
Candida parapsilosis	2 (2.3)	2 (100.0)	0	0	0
Haemophilus species	1 (1.2)	1 (100.0)	0	0	0
Enterococcus faecalis	1 (1.2)	1 (100.0)	0	0	0
Klebsiella oxytoca	1 (1.2)	0	0	0	1 (100.0)
Propionibacterium acnes	1 (1.2)	0	0	1 (100.0)	0
MRSE	1 (1.2)	0	0	1 (100.0)	0
Prevotella	1 (1.2)	0	0	0	1 (100.0)

MSSA=Methicillin-susceptible Staphylococcus aureus, MRSA=Methicillin-resistant Staphylococcus aureus, MRSE = Methicillin-Resistant Staphylococcus epidermidis

Anatomy and Microbiology of MSKI in PWID with Different Treatment Modalities

Table 2b. Anatomic and microbiological patterns of MSKI incidents with different treatments

	Total incidents n (%)	Incidents with medical treatment only	Incidents with medical and surgical treatment	
	n=86	n=32	n=52	P-value
Anatomic infection site, n (%)				<0.001**
Axial	53 (61.6)	29 (56.9)	22 (43.1)	
Appendicular	22 (25.6)	1 (4.5)	21 (95.5)	
Axial and appendicular	2 (2.3)	1 (50.0)	1 (50.0)	
Soft tissue	8 (9.3)	1 (12.5)	7 (87.5)	
Axial and soft tissue	1 (1.2)	0	1 (100.0)	
Organism, n (%)				
MSSA	31 (36.0)	13 (43.3)	17 (56.7)	0.49
MRSA	27 (31.4)	4 (14.8)	23 (85.2)	0.0035*
Pseudomonas aeruginosa	10 (11.6)	6 (60.0)	4 (40.0)	0.17
Serratia marcescens	4 (4.7)	1 (25.0)	3 (75.0)	1.00
Viridans group streptococci	3 (3.5)	1 (33.3)	2 (66.7)	1.00
Eikenella corrodens	2 (2.4)	1 (50.0)	1 (50.0)	1.00
Enterobacter cloacae	2 (2.4)	2 (100.0)	0	0.14
Candida albicans	2 (2.4)	2 (100.0)	0	0.14
Candida parapsilosis	2 (2.4)	0	2 (100.0)	0.52
Haemophilus species	1 (1.1)	0	1 (100.0)	1.00
Enterococcus faecalis	1 (1.1)	0	1 (100.0)	1.00
Klebsiella oxytoca	1 (1.1)	0	1 (100.0)	1.00
Propionibacterium acnes	1 (1.1)	0	1 (100.0)	1.00
MRSE	1 (1.1)	0	1 (100.0)	1.00
Prevotella	1 (1.1)	0	1 (100.0)	1.00

Two incidents left against medical advice

* P<0.05, **P<0.001.

Conclusion: MSKI in PWID continue to be found in younger persons with relatively few comorbidities. The infections predominantly involve the axial skeleton and are caused most often by *Staphylococcus aureus*. Gram-negative infections also occur and are due to environmental bacteria. Spinal infections were managed medically whereas infections of peripheral joints were also managed with surgery. An unfortunate number had relapse of infection, died or were lost to follow-up at 1 year, demonstrating the challenges of managing MSKI in this unique population

Disclosures: **All Authors**: No reported disclosures

322. Evaluation of the BioFire® Bone and Joint Infection (BJI) Panel for the Detection of Microorganisms and Antimicrobial Resistance Genes in Synovial Fluid Specimens

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Session: P-10. Bone and Joint

Background: Bone and Joint Infections (BJIs) present with non-specific symptoms that may include pain, swelling, and fever and are associated with high morbidity and significant risk of mortality. BJIs can be caused by a variety of bacteria and fungi, including anaerobes and microorganisms that can be challenging to culture or identify by traditional microbiological methods. Clinicians primarily rely on culture to identify the pathogen(s) responsible for infection. The BioFire® Bone and Joint Infection (BJI) Panel (BioFire Diagnostics, Salt Lake City, UT) is designed to detect 15 gram-positive bacteria (including seven anaerobes), 14 gram-negative bacteria (including one anaerobe), two yeast, and eight antimicrobial resistance (AMR) genes from synovial fluid specimens in about an hour. The objective of this study was to evaluate the performance of an Investigational Use Only (IUO) version of the BioFire BJI Panel compared to various reference methods.

Methods: Remnant synovial fluid specimens, which were collected for routine clinical care at 13 study sites in the US and Europe, underwent testing using an IUO version of the BioFire BJI Panel. Performance of this test was determined by comparison to Standard of Care (SoC) consisting of bacterial culture performed at each study site according to their routine procedures.

Results: A total of 1544 synovial fluid specimens were collected and tested with the BioFire BJI Panel. The majority of specimens were from knee joints (77.9%) and arthrocentesis (79.4%) was the most common collection method. Compared to SoC culture, overall sensitivity was 90.2% and specificity was 99.8%. The BioFire BJI Panel yielded a total of 268 Detected results, whereas SoC yielded a total of 215 positive results for on-panel analytes.

Conclusion: The BioFire BJI Panel is a sensitive, specific, and robust test for rapid detection of a wide range of analytes in synovial fluid specimens. The number of microorganisms and resistance genes included in the BioFire BJI Panel, together with a reduced time-to-result and increased diagnostic yield compared to culture, is expected to aid in the timely diagnosis and appropriate management of BJIs.

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323. First case of Prosthetic joint infection due to Nocardia veterana-elegans

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Session: P-10. Bone and Joint

Background: Nocardia are Gram-positive filamentous bacteria that cause Nocardiosis, a rare opportunistic infection. The most common site of infection is the lungs, with metastatic spread usually to the central nervous system. Prosthetic joint infection due to Nocardia is very rare.

Methods: We report the first case of prosthetic joint infection due to *Nocardia veteran-elegans,* and review the literature regarding Nocardia septic arthritis, with particular attention to prosthetic joint infection.

Results: The patient was a 35 year old male with history of Hodgkin's Lymphoma for which he received chemotherapy previously, poorly controlled diabetes, motor vehicle accident in 2003 with right open tibial plateau fracture requiring hardware placement, who was admitted with a two week history of right knee pain and swelling. Knee aspiration revealed purulent fluid and synovial culture grew Nocardia species. He underwent right knee arthrotomy and debridement with removal of hardware. The Nocardia species was speciated as *N. veterana-elegans,* sensitive to trimethoprim/sulfamethoxazole, linezolid, clarithromycin, imipenem and amikacin. He was placed on oral linezolid for four weeks, which was then switched to oral trimethoprim/sulfamethoxazole, with a plan for a six month course of therapy. He has completed two months of therapy thus far and is doing well clinically.

Nocardia is an uncommon cause of septic arthritis. We found only 37 cases reported in the English literature thus far. Amongst these, only six involved prosthetic joints, including our case, which is the first one to be caused by *N. veterana-elegans.* Three cases were caused by *N. nova* and one each by *N. farcinica* and *asteroides.* Septic arthritis due to Nocardia has a favorable outcome with a combination of surgical debridement and prolonged antimicrobial therapy of three to six months. For prosthetic joint infections, removal of hardware seems to carry a better prognosis. Trimethoprim/sulfamethoxazole is the preferred antimicrobial, including for bone and joint infection, although susceptibilities can vary amongst the different species.

Conclusion: Nocardia is an uncommon cause of septic arthritis. Prosthetic joint infection is very rare. Prognosis is fair with a combination of hardware removal and prolonged antibiotic therapy.

Disclosures: **All Authors**: No reported disclosures

324. Implant Sonication Improves Microbiologic Diagnosis of Elbow Prosthetic Joint Infection

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Session: P-10. Bone and Joint

Background: With a reported incidence of up to 12%, periprosthetic joint infection (PJI) is a frequent complication of total elbow arthroplasty (TEA). Its microbiologic diagnosis is usually based on periprosthetic tissue culture (hereafter referred to as tissue culture), despite the poor sensitivity of this technique. Although implant sonication cultures have been shown to be superior to tissue cultures for hip and knee PJI diagnosis, only a single small study (including fewer than 10 infected implants) has assessed sonication of elbow arthroplasties.

Methods: We retrospectively analysed 116 sonicate fluid cultures from patients who underwent revision of a TEA at our Institution between 2007 and 2019, comparing results to tissue cultures. Nine elbows who had fewer than 2 tissue samples obtained during surgery were excluded. Using the IDSA guidelines to define PJI, there were 46 infected cases and 61 aseptic failures. We reviewed clinical characteristics and calculated the sensitivity and specificity of periprosthetic tissue culture compared to culture of samples obtained by implant sonication. In addition, we compared the sensitivity of tissue culture to the combination of tissue and sonicate fluid culture.

Results: A total of 107 elbows were included. Median ages in the aseptic failure and PJI groups were 60 and 67 years, respectively. Gender distribution was similar for both groups (PJI group 62% females; aseptic group 65% females). The most common pathogens were coagulase negative *Staphylococcus* species (66%), followed by *Staphylococcus aureus* (18%). The sensitivity of tissue culture was 63% and the sensitivity of sonicate fluid culture was 76% (p=0.14). The specificity of tissue culture was 86% and the specificity of sonicate fluid culture was 100%. Sensitivity of sonicate fluid culture in combination with tissue culture was 91% (p=0.045).

Table. Comparison of tests for microbiologic diagnosis of PJI

	PJI (n=46)	Aseptic Failure (n=61)	Sensitivity (%) (95% CI)	Specificity (%) (95% CI)	Positive Predictive Value (%) (95% CI)	Negative Predictive Value (%) (95% CI)
Periprosthetic tissue culture[1]	29	7	63 (48-77)	89 (78-95)	81 (67-90)	76 (68-82)
Sonicate fluid culture[2]	35	0	76* (61 -87)	100 (94-100)	100 (100-100)	85 (77-90)
Sonicate fluid and/or periprosthetic tissue culture	42	7	91** (79-98)	89 (78-95)	86 (75-92)	93 (84-97)

[1]Positive tissue culture was defined as ≥1 positive tissue for *Staphylococcus aureus* and ≥2 positive tissues for less virulent organisms
[2]Positive sonicate fluid culture was defined as growth of ≥20 CFU/10 ml sonicate fluid
*p<0.05 in comparison to positive tissue culture
**p≥0.05, in comparison to positive tissue culture

Conclusion: The combination of sonicate fluid culture and tissue culture had a greater sensitivity than tissue culture alone for microbiologic diagnosis of elbow TEA infection.

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325. Invasive and Non-Invasive Osteomyelitis Caused by Group B Streptococcus Infection Among Veterans

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Session: P-10. Bone and Joint

Background: Epidemiological studies that assess invasive Group B Streptococcus (GBS) infections may not capture cases of osteomyelitis diagnosed using non-invasive cultures in combination with imaging, laboratory tests, and clinical assessment. Here, we compare GBS osteomyelitis among individuals diagnosed using invasive and non-invasive cultures.

Methods: Using the Veterans Health Administration corporate data warehouse, we studied a national retrospective cohort review of Veterans diagnosed with GBS osteomyelitis between 2008 – 2017. Invasive cases were defined as an International Classification of Disease (ICD) code for osteomyelitis accompanied by a blood or bone culture positive for GBS within 2 weeks. Non-invasive cases were defined as an ICD code for osteomyelitis and a non-invasive culture positive for GBS from a concordant site within 2 weeks. We compared demographics, comorbid conditions, mortality, and time to below- or above-knee amputation among patients with invasive and non-invasive GBS osteomyelitis.

Results: We identified 1167 cases of invasive osteomyelitis among 1077 patients and 692 cases of non-invasive osteomyelitis among 644 patients. Most patients were male (98%) with an average age of 63.2 years (± standard deviation (SD) 10.1 years). The Charlson Comorbidity Index (CCI) was similar among patients with invasive and non-invasive disease (3.85 ± SD 2.3 and 3.83 ± SD2.4, respectively). Among those with lower extremity osteomyelitis, 11% of invasive cases had an amputation at 30 days while 2% of non-invasive cases had an amputation in the same time frame (**Figure 1**). Mortality was similar among those with invasive and non-invasive GBS osteomyelitis at 30-days (1% and 1%, respectively) and at 1-year (11% and 9%, respectively) (**Figure 2**).

Figure 1: Time to Amputation