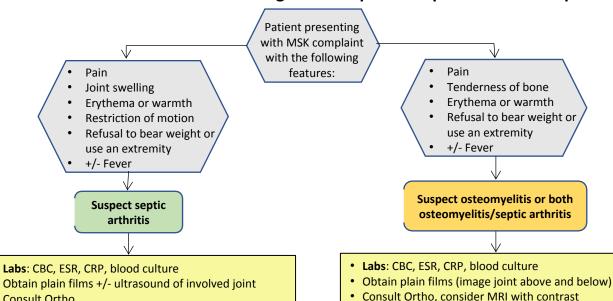
# Guidelines for management of pediatric patients with suspected musculoskeletal infections



- Labs: CBC, ESR, CRP, blood culture
- Consult Ortho
- Consult ID
- If hemodynamically unstable, start vanco and cefazolin
- If Ortho performs an arthrocentesis:
  - → Send cell count, glucose, protein, gram stain/cx
  - $\rightarrow$  If < 4 year old, send **Kingella PCR** from joint and inoculate synovial fluid into blood culture bottles to increase yield for Kingella
- If joint fluid consistent with infection (purulent or cloudy, >50,000 WBC, high% PMNs, positive gram stain)
  - → Start Empiric IV clindamycin
  - → Consider addition of cefazolin if age <4 years
  - → Consider Lyme serum titers if from endemic county. Can also send Lyme PCR from joint fluid.

If I/D performed:

Consult ID

- → Send pathology and microbiology (bacterial gram stain/cx, +/- AFB, fungal)
- → Consider sending bone to Univ of Washington for broad range PCR
- → After I/D, start empiric IV clindamycin

If hemodynamically unstable, start vanco and cefazolin

- → Consider addition of cefazolin if age <4 years
- If no I/D performed, please discuss with ID prior to starting antibiotics

#### Counties endemic for Lyme in CA:

Nevada, Mono, Amador, Tuolumne, Mendocino, Trinity, Humboldt, Sonoma, Marin, Santa Cruz

- While hospitalized, daily physical exam and CRP every 1-2 days
- If patient is not improving, consider repeating imaging, labs, or cultures; or expanding differential dx (discuss with ortho and ID)

#### Criteria to transition to oral antibiotics

- Clinically improving (i.e. weight bearing or moving extremity)
- Tolerating oral antibiotics and pt/family understand importance of compliance
- Afebrile x 24 hr
- CRP <3mg/dL or half of initial
- Known susceptibilities

#### **EXCLUSION** criteria

- Age < 6 months</li> (may need to consider LP, unusual organisms)
- Chronic infection or previous septic joint/osteomyelitis
- Immunocompromised
- Hardware infection
- Penetrating trauma injuries

# How to send special labs:

### Place miscellaneous order with the following information:

- Kingella DNA PCR from joint fluid: Send out to Quest (Test Code 18872)
- Lyme PCR from joint fluid: Send out to ARUP (Test Code 0055570)
- University of Washington broad range PCR (bacterial, fungal, AFB)
  - Needs a separate fluid/bone sample to be sent directly to send out lab
  - Needs add'l lab form faxed to sendout lab (734-5665) available at: http://depts.washington.edu/ molmicdx/forms/order.pdf

#### Discharge and outpatient management

- General length of therapy:
  - Septic arthritis 3-4 weeks
  - Osteomyelitis 4-6 weeks
- If indicated, arrange for outpatient parenteral (IV) antimicrobial therapy (OPAT) with ID and discharge planner
- Ortho outpatient referral for follow-up in 1-2 weeks
- ID outpatient referral for follow-up in 2-3 weeks
- Weekly labs if receiving parenteral therapy to monitor side effects of antibiotics (see below)

## Weekly labs for patients while on IV antibiotics

 All will need CBC, CRP, ESR, BMP Additional:

Ceftriaxone: LFTs

Vancomycin: Weekly trough

Daptomycin: CK

# Most commonly used antibiotics for MSK infections with typical dosing and side effects

	Cefazolin (IV)	Cephalexin (PO)	Ceftriaxone (IV)	Vancomycin (IV)	Clindamycin (IV or PO)	Ampicillin (IV)	Amoxicilli n (PO)	Bactrim (IV or PO)	Linezolid (IV)	Daptomycin (IV)
Daily amount	150 mg/kg/da y divided Q8H	100-150 mg/kg/day divided TID or QID	50-100 mg/kg/day divided Q12- 24h	Start at 15mg/kg Q6H	40mg/kg/day divided Q6H or Q8H	200 mg/kg/day divided Q6H	100 mg/kg/day divided TID	12mg/kg/ day divided BID	<12 years: 10mg/kg Q8H ≥12 years: 10mg/kg Q12h	6-10 mg/kg daily (more frequent dosing < 2mo)
Single daily max for MSK infection	2000 mg max dose	1000 mg max dose	2000 mg max dose	Adjust based on vanc trough level and renal function	900 mg max IV dose 600 mg max PO dose	2000 mg max dose	1000 mg max dose	160 mg max dose	600mg max dose	No max dose
Side Effects										
Diarrhea including <i>C.</i> difficile colitis	+	+	+	+	++	+	+	+	++	+
Bone marrow suppression	+	+	+	+		+	+	+	++	
Rash, including Stevens-Johnson syndrome	+	+	+	+	+	++	++	++	+	+
Nephrotoxicity	+	+		++		+	+	+		+
Elevated transaminases			+					+	+	+
Elevated CK										+
Optic neuropathy	,								+	
Serotonin syndrome									+	
Lactic acidosis									+	

(modified from Antimicrobial Stewardship at Children's Hospital Colorado, Sarah Parker and Jason Child 2014)