

# ANMC Pediatric Acute Hematogenous Septic Arthritis/Osteomyelitis Guideline

Signs and Symptoms	Initial Work Up	Kocher Score for Septic Arthritis
<ul style="list-style-type: none"> <li>Fever</li> <li>Joint warmth, swelling, and/or tenderness (Frequency: Knee&gt;hip&gt;ankle&gt;elbow=shoulder)</li> <li>Refusal to bear weight or range extremity</li> <li>Pseudo-paralysis in infants</li> </ul>	Labs: <ul style="list-style-type: none"> <li>CBC, ESR, CRP</li> <li>Blood culture if non-weight bearing and febrile</li> </ul> Radiology: X-Rays of the affected area	Assign 1 point each: <ul style="list-style-type: none"> <li>Non-weight bearing</li> <li>Temperature &gt;101.3F (38.5 C)</li> <li>ESR &gt;40mm/hr or CRP &gt;2.0 mg/dL</li> <li>Peripheral WBC &gt;12,000 cells/mm<sup>3</sup></li> </ul>

## Kocher Score Interpretation

Risk of Septic Arthritis	Initial Management of Kocher Score ≥2
<p><u>Score = Risk of Septic Arthritis:</u></p> <p>1 = 3%</p> <p>2 = 40%</p> <p>3 = 93%</p> <p>4 = 99%</p>	<p style="text-align: center;"><b><i>Urgent diagnosis and management is critical to prevent long-term joint damage.</i></b></p> <ul style="list-style-type: none"> <li>Make NPO and start IV fluids</li> <li>Collect blood culture if not already obtained</li> <li>Consult orthopedics <i>immediately</i></li> <li>STAT MRI* with contrast of wide region of suspicion</li> <li>Aspiration considered for joint effusion</li> <li>Surgical drainage considered for: sub-periosteal abscess, intramedullary abscess, soft tissue abscess or necrotizing fasciitis, septic joint.                             <ul style="list-style-type: none"> <li>-If NO SURGERY: consider needle aspiration of joint effusion or area of osteomyelitis</li> </ul> </li> <li>Send sample for cell count, gram stain, and culture.</li> <li><b>Initiate empiric antibiotics as soon as culture is obtained.</b></li> <li>Admit to the hospital including infectious disease consult</li> <li>Narrow to targeted antibiotic therapy based on specimen results</li> </ul>
<p style="text-align: center;"><b>Initial Management of Kocher Score ≤1</b></p> <p>Candidate for close outpatient observation</p> <p>Ibuprofen 10 mg/kg q6h PRN pain</p> <p>Repeat workup if no improvement or worsening in 2-3 days</p>	<p>Synovial fluid WBC Counts Typically Seen in Septic Arthritis: &gt;25,000cells/microL (hip), &gt;50,000cells/microL (all other joints); PMN predominance</p>

## Antibiotic Selection

Common Organisms: *Staphylococcus aureus*, Beta-hemolytic Streptococci, *Haemophilus influenza a*, *Kingella kingae*

	Preferred Therapy	Type I PCN allergy	IV to PO Conversion Criteria
<b>Empiric therapy*</b>	<p><b>Vancomycin</b> – initial dose 15 mg/kg/dose IV q6h (Max 4g/day; pharmacy will manage dosing)</p> <p><b>AND</b></p> <p><b>Ceftriaxone</b> 100 mg/kg/day IV q24h (Max 2g/dose)</p>	<p><b>Vancomycin</b> initial dose 15 mg/kg/dose IV q6h (Max 4g/day; pharmacy will manage dosing)</p> <p><b>AND</b></p> <p><b>Gentamicin</b> 5-7.5 mg/kg/day IV (pharmacy will manage dosing)</p>	<ul style="list-style-type: none"> <li>Afebrile x48h</li> <li>CRP &lt;3 mg/dL</li> <li>Susceptibility of organism reveals adequate oral therapy option</li> <li>No further surgery planned</li> </ul>

## Treatment Duration and Follow-up

Septic Arthritis	Osteomyelitis
<ul style="list-style-type: none"> <li>At 3 week visit: CBC, ESR, CRP and x-ray</li> <li>If evidence of osteomyelitis by x-ray or ESR &gt;20 mm/hr or CRP &gt;1 mg/dL, extend therapy to 6 weeks</li> <li>End of therapy: Stable x-ray, ESR &lt;20mm/hr, CRP &lt;1mg/dL</li> </ul>	<ul style="list-style-type: none"> <li>At 3 week visit: CBC, ESR, CRP</li> <li>At 6 week visit: CBC, ESR, CRP and x-ray</li> <li>End of therapy: Stable x-ray, ESR &lt;20mm/hr, CRP &lt;1mg/dL</li> </ul>

## Considerations

\* If sedation required for MRI, with appropriate coordination MRI and surgery can often be performed under one anesthesia

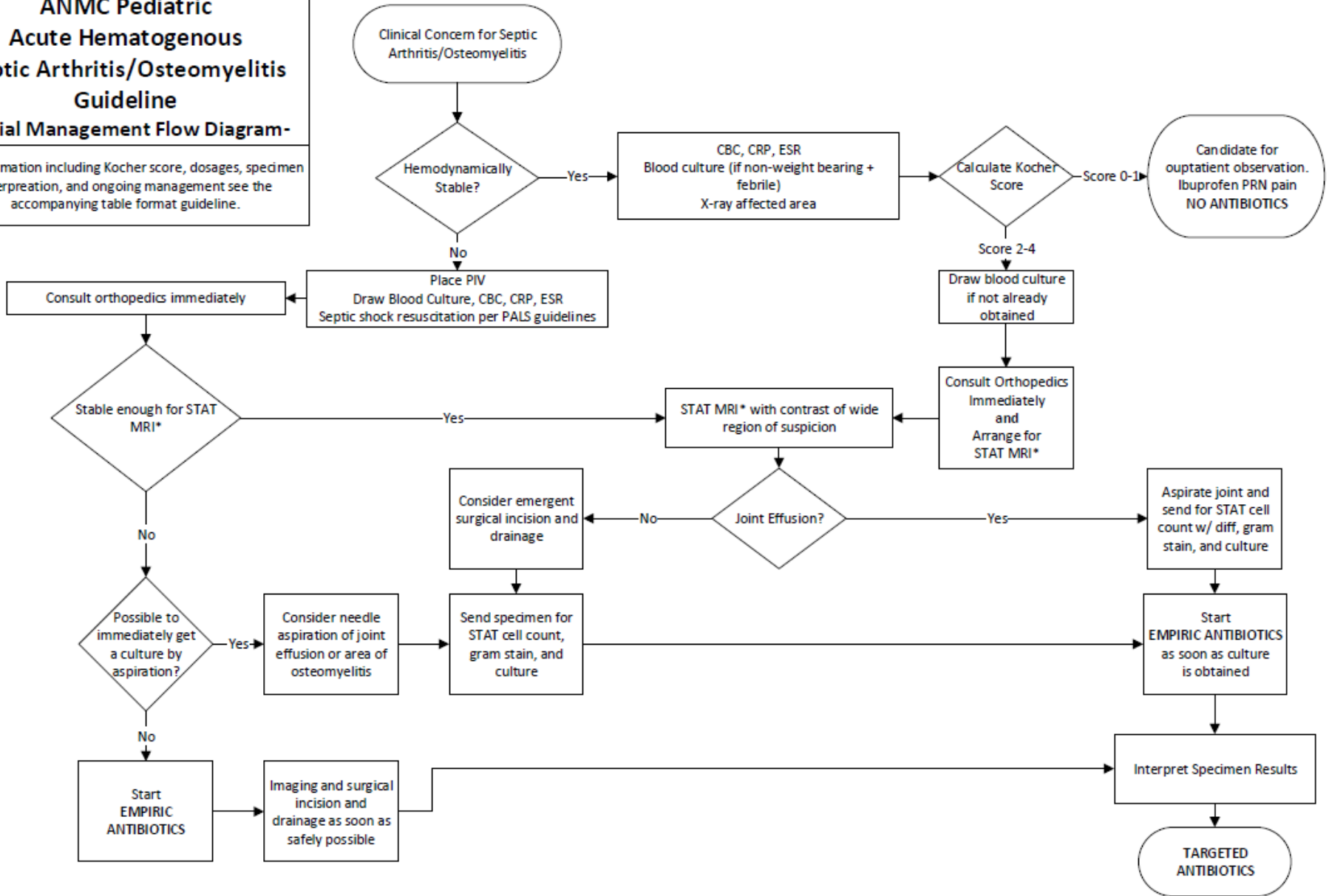
If delay to antibiotics of >6 hours, consider empiric antibiotics in discussion with orthopedics and pediatrics

\*Empiric antibiotics selected to cover MRSA, MSSA, beta-hemolytic streptococci, *Haemophilus influenza a*, *Kingella*, and enteric GNRs

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# ANMC Pediatric Acute Hematogenous Septic Arthritis/Osteomyelitis Guideline -Initial Management Flow Diagram-

For information including Kocher score, dosages, specimen interpretation, and ongoing management see the accompanying table format guideline.



Goal 1: Obtain sample prior to starting antibiotics if patient stable  
 Goal 2: Start empiric antibiotics as soon as possible after specimen collection  
 Goal 3: Transition to targeted antibiotics as soon as possible based on specimen results

**Empiric Antibiotics:**  
 Preferred Therapy: Vancomycin + Ceftriaxone  
 Type I PCN Allergy: Vancomycin + Gentamicin  
**Targeted Antibiotics:** Based on gram stain and culture

\*If requires sedation for MRI consult anesthesia for sedation with goal of MRI + surgery to be performed under one sedation.  
 If delay MRI of >6 hours consider EMPIRIC ANTIBIOTICS in discussion with orthopedics and pediatrics.