Musculoskeletal (MSK) Infection Clinical Practice Guideline

Urgent Care Management

Inclusion Criteria
- 6 months to 21 years
- Suspected acute musculoskeletal infection (Symptoms less than 2 weeks): osteomyelitis, septic arthritis, pyomyositis

Exclusion Criteria
- Infants (less than 6 months)
- Chronic and subacute musculoskeletal infection (Symptoms greater than 2 weeks)
- Postoperative infection
- Penetrating trauma
- Patient with hardware
- Myelomeningocele
- Chronic recurrent multifocal osteomyelitis (CRMO)
- Immunocompromised

Initial Diagnostic Management
- Make patient NPO
- Imaging: Radiograph of affected region
- Labs: CBC with diff, CRP, ESR, blood culture
  Consider BMP given potential for nephrotoxic drugs

Refusal to bear weight and fever present. Is radiograph consistent with infectious process OR does patient have at least one of the following predictors?
- WBC > 12,000
- CRP > 2 mg/dl
- ESR > 40

High Risk for MSK infection
- Trial NSAIDs
- Does patient meet the following criteria?
  - Clinical improvement (Afebrile, able to ambulate)
  - Patient has reliable follow-up

Low Risk for MSK infection
- Continue usual UC management

High Risk for MSK infection
- Consult Ortho for disposition
- Admit to Hospitalist for scheduled NSAIDs (POV vs. Transport based on clinical/social factors)

Low Risk for MSK infection
- Discharge home with PCP follow-up within 48 hours

High Risk for MSK infection
- Trial NSAIDs
- Concern for significant MSK Infection?
  - Yes
  - Consult Ortho for disposition
  - No
  - Continue usual UC management

Concern for Joint Effusion?
- Yes
- Transfer to the ED NPO Consider starting antibiotics (See table, page 2)
- No
- Consider Direct Admission to Hospitalist Service

Blood Cultures
- Obtain maximum allowable blood culture volume per Blood Culture Policy
- Send blood culture by courier to hospital for any patient being transferred

Suspicion of MSK Infection
- Low Suspicion for MSK Infection
  - Afebrile, history of trauma < 24 hours
  - Continue usual UC management
- High Suspicion for MSK Infection
  - Fever AND refusal to bear weight, focal pain, limited use and/or immobility of extremity
  - Initial Diagnostic Management
  - Make patient NPO
  - Imaging: Radiograph of affected region
  - Labs: CBC with diff, CRP, ESR, blood culture
  - Consider BMP given potential for nephrotoxic drugs
  - Refusal to bear weight and fever present.
  - Is radiograph consistent with infectious process OR does patient have at least one of the following predictors?
    - WBC > 12,000
    - CRP > 2 mg/dl
    - ESR > 40
  - Low Risk for MSK infection
    - Trial NSAIDs
    - Does patient meet the following criteria?
      - Clinical improvement (Afebrile, able to ambulate)
      - Patient has reliable follow-up
    - Discharge home with PCP follow-up within 48 hours
  - High Risk for MSK infection
    - Consult Ortho for disposition
    - Admit to Hospitalist for scheduled NSAIDs (POV vs. Transport based on clinical/social factors)

Developed through the efforts of Children's Healthcare of Atlanta and physicians on Children's medical staff in the interest of advancing pediatric healthcare. This is a general guideline and does not represent a professional care standard governing providers' obligation to patients. Ultimately the patient's physician must determine the most appropriate care.

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### IV Antibiotic Table

<table>
<thead>
<tr>
<th>Patient Demographic</th>
<th>Bacterial Targets</th>
<th>Drug</th>
<th>Dose</th>
<th>Max Single Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 months - ≤ 4 years</td>
<td>S. aureus, S. pyogenes (GAS), K. kingae</td>
<td>Clindamycin AND</td>
<td>13mg/kg IV q8h</td>
<td>900mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cefazolin</td>
<td>40mg/kg IV q8h</td>
<td>2000mg</td>
</tr>
<tr>
<td>6 months - ≤ 4 years and not fully immunized against H. influenzae or S. pneumoniae</td>
<td>S. aureus, S. pyogenes (GAS), K. kingae, H. influenzae, S. pneumoniae</td>
<td>Clindamycin AND</td>
<td>13mg/kg IV q8h</td>
<td>900mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceftriaxone</td>
<td>75mg/kg IV q24h</td>
<td>2000mg</td>
</tr>
<tr>
<td>&gt; 6 months and ill appearing</td>
<td>S. aureus, S. pyogenes (GAS), K. kingae, H. influenzae, S. pneumoniae</td>
<td>Vancomycin AND</td>
<td>15mg/kg IV q6h</td>
<td>1000mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ceftriaxone</td>
<td>75mg/kg IV q24h</td>
<td>2000mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider Clindamycin</td>
<td>13mg/kg IV q8h</td>
<td>900mg</td>
</tr>
<tr>
<td>&gt; 4 years old</td>
<td>S. aureus, S. pyogenes (GAS)</td>
<td>Clindamycin</td>
<td>13mg/kg IV q8h</td>
<td>900mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider Ceftriaxone</td>
<td>75mg/kg IV q24h</td>
<td>2000mg</td>
</tr>
</tbody>
</table>

1. Recommended vancomycin starting dose. Goal trough 10-15µg/mL. Pharmokinetic service will monitor trough levels and adjust accordingly.

2. Consider adding clindamycin empirically in critically ill patients while waiting for confirmation of therapeutic vancomycin level.

3. If not fully immunized against *H. influenzae* or *S. pneumoniae* OR concern for Lyme disease or Gonorrhea, add ceftriaxone.

Only Cefazolin and Ceftriaxone available in Urgent Care