

COMMON CLINICAL DIAGNOSES AND CONDITIONS**BONE AND JOINT INFECTIONS****INTRODUCTION**

Osteomyelitis is a pyogenic infection of the bone or periosteum, whereas septic arthritis is an infection of the joint space itself. These occur in children as a result of hematogenous spread or local invasion after soft tissue infection or trauma. Either site of infection may represent a medical emergency in children. Bone and joint infections are commonly caused by *Staphylococcus aureus*, Streptococcal species and *Salmonella*. These infections can occur at any age, with osteomyelitis occurring in as many as 1 in 5000 children every year. Males are nearly twice as likely to be affected compared to females. Prompt recognition and appropriate treatment are essential to reduce the risk of significant complications including permanent bone or cartilage destruction with life-long disability. Pediatric hospitalists are often in the best position to render acute inpatient care and coordinate transition to outpatient care to ensure best outcomes.

KNOWLEDGE

Pediatric hospitalists should be able to:

- Discuss the differential diagnosis of common presenting signs and symptoms of bone and joint infections including swollen joint, limp and bone pain.
- Describe the pathophysiology of osteomyelitis including the most common site of infection in a developing bone.
- Explain the pathophysiologic mechanisms involved in septic arthritis.
- Compare and contrast the varied clinical presentations of bone and soft tissue infections in children of differing ages (infancy to adolescence) and underlying co-morbidities (such as sickle cell disease, immunosuppressed, and others).
- Identify indications for admission to the hospital for children with suspected osteomyelitis and septic arthritis and goals for therapy during the inpatient stay.
- Classify the most likely pathogens based on age, underlying risk factors, and exposures and list appropriate antimicrobial agents for each.
- State relative local antimicrobial resistance rates for the most common organisms and explain the importance of these in prescribing therapy.
- Describe the relative advantages, disadvantages, and local availability of commonly used laboratory (such as C - reactive protein, blood cultures, bone aspirate and other) and radiologic (such as plain film, computed tomography, bone scan, magnetic resonance imaging and other) modalities in the evaluation of bone and joint infections.
- Discuss the role of various services in pain management, such as child life and the acute pain service.
- State the available home care services for children in the area served and explain the role of home care in discharge decision making.
- Define the role of the orthopedist and infectious diseases subspecialists in consultation, co-management, and follow-up care.
- Compare and contrast the expertise, skill sets, and availability of orthopedists with pediatric orthopedists in the local area and list criteria for transfer to a tertiary care center attending to local context.
- List the components of an efficient and effective hospital discharge, including documentation of appropriate clinical improvement, discharge planning completed, antimicrobial therapy duration and monitoring determined, and others.
- Identify aspects of diagnosis and treatment that may impact prognosis.

SKILLS

Pediatric hospitalists should be able to:

- Correctly diagnose osteomyelitis or septic arthritis by efficiently performing an accurate history and physical examination.
- Order appropriate diagnostic studies and correctly interpret study results.
- Develop a cost effective diagnostic work-up for bone and joint infections, including laboratory and radiographic testing.
- Manage pain for children with bone and joint infections.
- Consult appropriate subspecialists in a timely and effective manner.

COMMON CLINICAL DIAGNOSES AND CONDITIONS

- Demonstrate competence in placing parenterally inserted central catheters (PICC) or efficiently obtain services for PICC placement.
- Efficiently access and arrange for pediatric home care services as appropriate.
- Coordinate care with subspecialists and the primary care provider and arrange an appropriate transition plan for hospital discharge.

ATTITUDES

Pediatric hospitalists should be able to:

- Communicate effectively with patients, the family/caregiver and healthcare providers regarding findings and care plans.
- Assume responsibility for care as the primary attending or in collaboration with the orthopedic team.

SYSTEMS ORGANIZATION AND IMPROVEMENT

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Lead, coordinate or participate in the development and implementation of cost-effective, safe, evidence-based care pathways to standardize the evaluation and management for hospitalized children with bone and joint infections.
- Work with hospital administration to recruit a multidisciplinary team in the care of children with bone and joint infections that may include nursing, social work, physical therapy, pharmacy and care coordinators.
- Assist in creating systems to evaluate and improve pain management for children hospitalized with bone and joint infections.
- Lead, coordinate or participate in efforts to increase pediatric-specific community health care resources that allow for an efficient transition to outpatient therapy and management after inpatient goals are achieved.