

## The University of Arizona Pediatric Residency Program

### Primary Goals for Rotation

# Orthopedics

1. **GOAL:** Understand the pediatrician's role in preventing and screening for orthopedic injury, disease and dysfunction.
2. **GOAL:** Differentiate normal variants from pathologic orthopedic conditions.
3. **GOAL:** Evaluate and appropriately treat or refer presenting orthopedic signs and symptoms.
4. **GOAL:** Diagnose and manage common orthopedic conditions that generally do not require referral to an orthopedist.
5. **GOAL:** Recognize, provide initial management, and refer appropriately conditions that usually require orthopedic referral.
6. **GOAL:** Acquire recommended proficiencies in orthopedic therapeutic procedures.
7. **GOAL:** Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.

**1. GOAL: Understand the pediatrician's role in preventing and screening for orthopedic injury, disease and dysfunction.**

A. Screen for developmental dysplasia of the hip in the newborn nursery and at appropriate health maintenance visits:

1. Use competent physical examination techniques.
2. Use radiographs and ultrasonography appropriately.
3. Educate parents about the rationale for screening and referral.
4. Refer when indicated.
5. Introduce parents to the management options that the orthopedist may offer.

B. Screen for scoliosis on routine examinations (by exam and scoliometer) and refer as needed.

C. Describe school-based scoliosis screening programs and the benefits and inherent limitations of such strategies.

D. Screen for occult dysraphism.

E. Counsel families regarding risks and prevention of orthopedic injuries sustained from play near motor vehicles, lawn mowers, snow blowers, farm equipment, bicycles, snowmobiles, motorbikes and all-terrain vehicles.

F. Advise families about optimal weight and style of backpacks in order to prevent back injury.

**2. GOAL: Differentiate normal variants from pathologic orthopedic conditions.**

1. Distinguish normal variations in foot, knee and leg development.

2. Distinguish normal variations in gait and posture.

3. Order and interpret (with the assistance of the radiologist) common diagnostic imaging procedures when evaluating and managing patients with orthopedic conditions: plain radiographs, body MRI, CT scan, radionuclide bone scans.

**3. GOAL: Evaluate and appropriately treat or refer presenting orthopedic signs and symptoms.**

A. Create a strategy to determine if the following presenting signs and symptoms are caused by an orthopedic condition, and if so, treat or refer appropriately:

1. Limp
2. Musculoskeletal pain
3. Refusal to walk or gait disturbance
4. Refusal to use a limb
5. Swollen or painful joint
6. Bowed legs or knock-knees
7. In-toeing or out-toeing

**4. GOAL: Diagnose and manage common orthopedic conditions that generally do not require referral to an orthopedist.**

B. Recognize and manage the following conditions, with appropriate referral for physical therapy services for rehabilitation when indicated:

1. Calcaneal apophysitis
2. Clavicular fracture
3. Annular ligament subluxation/nursemaid's elbow
4. Elbow medial epicondyle apophysitis/little league elbow
5. Erb's palsy or Klumpke's palsy
6. Femoral anteversion and retroversion
7. Pes planus (flat feet)
8. Internal and external tibial torsion
9. Low back strain
10. Metatarsus adductus
11. Muscle strains
12. Non-displaced finger and toe fractures
13. Tibial tuberosity apophysitis (Osgood-Schlatter disease)
14. Overuse syndromes
15. Patellofemoral syndrome
16. Inversion/eversion ankle sprains
17. Thrower's shoulder/epiphysiolysis
18. Soft tissue contusion
19. Subluxation of the patella or shoulder
20. Rotator cuff injury/tendonitis

**5. GOAL: Recognize, provide initial management, and refer appropriately conditions that usually require orthopedic referral.**

A. Recognize, provide initial management of and refer appropriately the following conditions:

1. Avascular necrosis of the femoral head/Legg-Calve-Perthes disease
2. Signs of child abuse
3. Cervical spine injury
4. Compartment syndromes
5. Talipes equinovarus
6. Developmental dysplasia of the hip
7. Fractures and dislocations not listed above, including stress fractures
8. Knee ligament and meniscal tears or disruptions
9. Limb length discrepancies
10. Osteochondritis dissecans
11. Osteomyelitis
12. Scoliosis with >20 degree curve
13. Septic joint
14. Slipped capital femoral epiphysis
15. Spondylolysis or spondylolisthesis
16. Subluxation of the knee or shoulder
17. Benign and malignant bone tumors

- B. Identify the role and general scope of practice of pediatric orthopedists; recognize situations where children benefit from the skills of specialists training in care of children; and work effectively with these professionals in the care of children with orthopedic conditions.

**6. GOAL: Acquire recommended proficiencies in orthopedic therapeutic procedures.**

A. Develop the expected level of proficiency in the following procedures:

1. Immobilization techniques for common fractures and sprains
2. Reduction of nursemaid's elbow
3. Cervical spine immobilization
4. Reduction of phalangeal dislocation

**7. GOAL: Demonstrate high standards of professional competence while working with patients under the care of a subspecialist. [**

A. **Competency 1: Patient Care.** Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of patients presenting for specialty care, applying principles of evidence-based decision-making and problem-solving.

2. Describe general indications for subspecialty procedures and interpret results for families.

B. **Competency 2: Medical Knowledge.** Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of this subspecialty area.

2. Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify your knowledge base accordingly.

C. **Competency 3: Interpersonal Skills and Communication.** Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for a condition(s) common to this subspecialty area.

2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.

3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for subspecialty patients in the outpatient and inpatient setting.

<p><b>D. Competency 4: Practice-based Learning and Improvement.</b> Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.</p>
<p>1. Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.</p>
<p>2. Identify personal learning needs related to this subspecialty; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.</p>
<p><b>E. Competency 5: Professionalism.</b> Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.</p>
<p>1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).</p>
<p>2. Demonstrate a commitment to carrying out professional responsibilities.</p>
<p>3. Adhere to ethical and legal principles, and be sensitive to diversity.</p>
<p><b>F. Competency 6: Systems-based Practice.</b> Understand how to practice high-quality health care and advocate for patients within the context of the health care system.</p>
<p>1. Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.</p>
<p>2. Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality</p>
<p>3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.</p>
<p>4. Recognize one's limits and those of the system; take steps to avoid medical errors.</p>

**Procedures**

<p><b>A. GOAL: Technical and therapeutic procedures.</b> Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.</p>
<p>1. Arthrocentesis</p>
<p>2. Immobilization techniques for common fractures &amp; sprains</p>
<p>3. Reduction of nursemaid elbow</p>
<p>4. Reduction/splinting of simple dislocation</p>

**B. GOAL: Diagnostic and screening procedures.** Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

1. Radiologic interpretation: cervical spine X-ray

2. Radiologic interpretation: extremity X-ray

3. Radiologic interpretation: skeletal X-ray (incl. abuse)

4. Scoliosis, scoliometer

**Adapted From**

Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric Residency. Ambulatory Pediatric Association Website. Available online: [www.ambpeds.org/egweb](http://www.ambpeds.org/egweb).