OHSU Department of Orthopaedics and Rehabilitation

Rotation Specific Objectives for Resident Education

Rotation: Pediatric Orthopaedics Resident year-in-training: PGY1

Attending Physicians:

OHSU/Kaiser Permanente

1. **Matthew Halsey, MD**
Orthopaedic Surgery, American Board of Orthopaedic Surgery
Fellowship: Pediatric Orthopaedics

2. Scott Yang, MD
Orthopaedic Surgery, American Board of Orthopaedic Surgery
Fellowship: Pediatric Orthopaedics

3. **Ronald Turker, MD**
Orthopaedic Surgery, American Board of Orthopaedic Surgery
Fellowship: Pediatric Orthopaedics

4. **Stephen Renwick, MD**
Orthopaedic Surgery, American Board of Orthopaedic Surgery
Fellowship: Pediatric Orthopaedics

Primary Objective:
Surgical and medical training related to orthopedic injury and conditions in children and adolescents including congenital, acquired, neuromuscular, developmental and traumatic conditions affecting the musculoskeletal and integumentary systems in the appendicular skeleton and spine.

Educational Philosophy:
The principal goal of the Pediatric Orthopaedic service is to familiarize all orthopedic residents with the nature of the developing child and adolescent highlighting the differences between the developing and mature skeleton as it relates to the manifestation of chronic conditions and traumatic injuries. Essential medical and surgical therapeutic interventions are considered in both clinical practice and during formal academic teaching sessions. The goal is to achieve a coordinated care approach across disciplines (Pediatrics, Radiology, PT/OT, Rheumatology, Genetics, Metabolic Disease, Infectious Disease and Pediatric Surgery) with the Pediatric Orthopedic surgeon as a member of the team dedicated to safe, effective and efficient patient care and advocacy.

Rotation Expectations and Opportunities:

At OHSU the Orthopedic Resident will work primarily with two full time University based Pediatric Orthopaedic surgeon; additional direct experience can occur with Kaiser-based Pediatric Orthopaedic surgeons (Drs Renwick and Turker).

Current Rotation; The PGY1 spends 4 weeks dedicated to Pediatric Orthopaedic Surgery. This rotation encompasses a 5 day week. The PGY1 will spend most of their time split between Dr. Halsey, and Dr. Yang, generally working with the alternate attending than whoever the current PGY4 on service is.

32+ hours are provided by 2 Full-time University-based surgeon at OHSU. Residents participate as 1st assist in all circumstances as no Fellows participate (except for occasional Spine fellow participation in deformity surgery). There are 300+ cases annually.

32+ clinic hours are offered each week in attending clinical practices. The opportunity includes one-to-one supervised instruction and direction in management of new patients, provision of continuity of care for both post-operative and non-operatively managed patients, and coordination of care across the spectrum of medical services.

There is a weekly preop/postop indications primarily run by the PGY4, however, if they are away, the PGY1 will cover. This is a conference in which the resident will present all surgical cases for the upcoming week, and review the past week's surgeries. To keep this more educational rather than administrative, no formal powerpoints are necessary. Xrays/images will be presented with IMPAX, as well as a BRIEF clinical history for each case. Residents are encouraged to look up the procedure and ask questions about the case during this time, as this will be a time to discuss the technical aspects and nuances about cases as well. It will serve to prepare for cases. Residents are also encouraged to find a controversial or challenging case during clinic, and present them for discussion during conference. The point of the conference is a dedicated time for case based education and discussion.

There is a conference once a month on Wednesdays that is a topic based conference. It is a combined conference with OHSU and the Shriner's hospital.

Generalized Rotation Goals & Mechanisms:

Didactic:

- A formal Pediatric Orthopaedic Attending/Resident monthly conference to specifically address topics in Pediatric Orthopaedic Surgery
    - Curriculum appendix A.
- Pre, mid and post-rotation meetings to assess expectations and progress of residents.
- Journal Club once a year to discuss important literature on trauma. This journal club is combined with the Shriner's Hospital.

Patient Care:

- Diagnose all aspects of musculoskeletal injury and infection in children and adolescents in acute and sub-acute settings (ER, fracture clinic)
- Develop a working mastery of casting techniques

- Develop plans for each postoperative patient, and anticipate patients who may need more careful attention (Ie: pulseless supracondylar humerus fracture, tibia shaft fracture with significant pain, tibial osteotomy postop, neuromuscular scoliosis patient).
- Your job as a PGY – I is not to merely report findings to the senior resident without having thought about what you would do next, but try your best to gain confidence and competence in decision making. Hence, always report ***a plan*** that you think will be best to your senior resident and attending, in addition to pertinent diagnostic and patient care information.
- Take ownership of patient care and always advocate for what is best for the patient. If you're worried about anything, speak up in a timely fashion. Communicate with attendings openly for consults and concerns, at any time during the day or night. (Never miss a pediatric compartment syndrome, be vigilant for all supracondylar humerus fractures. Even if this includes creating a plan for frequent documented extremity checks throughout the day and night)
- Attain competence in performing a comprehensive evaluation of new and return patients with chronic conditions in clinic. Comprehensive and concise history, physical examination, and diagnostic test ordering and interpretation are emphasized. This includes:

  Performing a thorough history & physical examination

  Ordering appropriate studies/consults

  Developing a differential and making a final diagnosis when appropriate

  Initiating therapeutic non-operative (including PT/OT, medication and/or bracing) or surgical interventions

<u>Medical Knowledge</u>:

At the conclusion of a rotation, each intern is expected to have a basic understanding of:

- common newborn and congenital orthopaedic conditions
- common developmental variants and physiologic development of the maturing musculoskeletal system
- pediatric spine conditions including deformity and degenerative conditions
- common overuse injuries
- common pediatric benign musculoskeletal neoplasms
- pediatric musculoskeletal trauma/injury evaluation and treatment
- the differences between the developing and mature skeleton
- common surgical approaches in pediatric orthopaedics
- how to prepare patients for operative and nonoperative management and how to guide them through the recovery process of either
- current standards of care by reading <u>Orthopedic Knowledge Update</u>, including the edition on Pediatric Orthopaedics. **We highly recommend reading the most recent pediatrics orthopaedic knowledge update from cover to cover during the rotation.**
- basic textbook information and current journal articles in pediatric orthopaedics
- the key orthopaedic literature in pediatric orthopaedics
- the techniques and modalities used by physical therapists and how to provide appropriate guidance and coordination of care for common and complex rehabilitation guidelines

- the role of the Pediatric Orthopaedic Surgeon as part of the health care team and the relationship of the working environment with Nurses, PAs, NPs, PTs, OTs, Orthotists, Trainers, Coaches & Families

Practice-Based Learning and Improvement:

- Participate as an assistant in surgical procedures and develop basic surgical techniques including approach, hardware implantation, percutaneous pinning, closure, and casting techniques.
- Demonstrate ability to effectively perform preoperative planning for surgical procedures
- Develop a working understanding of how to set up an operating room for surgery involving the spine, hip, knee, upper and lower extremities (know risks, pros and cons for each position)
- Understand and direct the role/limitations of Operating personnel: Scrubs, Nurses, Charge nurse, Company representatives, Schedulers and Surgeons.
- Identify and clearly communicate the indication for every operation;
  Prior to scrubbing to the attending and students
- Know the algorithm for several techniques for each indication
  Be prepared in advance to complete the operation
  Understand the choices for anesthesia and indications

Thoroughly understand the indications, anatomy, and safe surgical approaches for all of the following procedures. You will not gain full mastery or competence of all these procedures as PGY I. Your goal is to understand them, gain exposure to them, master the anatomical understanding, such that you will **safely** be able to perform these procedures on children as your experience rises. You will have plenty of opportunity to be first scrub on surgical cases, though the expectation as a PGY I lies more in understanding, planning, rather than technical competence which WILL come with time.

1. Infection
   a. Aspiration and Injection of any joint
   b. Open Arthrotomy of any joints, with a focus on the hip joint
2. Trauma:
   a. CRPP supracondylar humerus fracture
   b. ORIF lateral humeral condyle fracture
   c. CR-spica cast for femur fracture
   d. ORIF femur fracture (Flexible nail, Adolescent nail, Submuscular plating)
   e. CRPP distal radius fracture
   f. ORIF forearm fracture
3. Spine
   a. Posterior spine fusion and instrumentation for scoliosis, Scheurmann's Kyphosis)
   b. Application of Mehta infantile scoliosis cast
4. Hand
   a. Trigger thumb release
   b. Ganglion cyst resection
   c. Simple polydactyly excision
5. Neoplasm

a. Resection/biopsy benign bone lesion, skeletal stabilization as needed
b. Aspiration/injection UBC

6. Osteotomies
    a. Pelvic (ie: Salter, Pemberton, Dega)
    b. Proximal femoral (VDRO)
    c. Deformity correction (axial, coronal, sagittal plane)
    d. Osteotomies to improve gait in cerebral palsy
    e. Limb lengthening
    f. Epiphyseodesis/Hemi-epiphyseodesis
7. Feet
    a. Achilles tenotomy
    b. Tendon transfer/lengthening
    c. Coalition resection
    d. Ponsetti casting
    e. Cavovarus foot reconstruction
8. Adolescent and pediatric sports medicine
    a. Knee MPFL reconstruction
    b. Knee ACL reconstruction (BTB, Hamstring, and physeal sparing techniques)

Plan a complete rehabilitation program for all post-operative patients
Plan follow-up visits, PT, pain management and return to limits

Professionalism:

- Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
- Learn to organize patient clinic practice while participating in more advance patient evaluation and management activities.
- Actively and competently participate in supervising the educational and clinical activities of the junior level residents.
- Model appropriate professional values and behaviors for peers, faculty, and staff.
- Mature in the development of patient care, considering the cost, quality, outcomes, and impact on patient and healthcare system as essential variables in the equation.
- Demonstrate ability to engage in supportive, clear, and compassionate communication with patients and family members.
- Answer requests in a timely, cordial manner

Interpersonal and Communication Skills:

- The resident is expected on this rotation and all others to interact as a professional and team member with all the other staff and services within the hospital.
- The demeanor and tone of the resident in both verbal and nonverbal communication is expected to be exemplary.
- The same communication skills above are expected to be used with the patients and families.

Systems Based Practice

- Develop methods of analyzing complex data and prioritizing principles and issues to solve complex and ill-defined problems related to orthopaedic patient care.

- Demonstrate appropriate judgment, particularly as related to indications for surgical treatment of patients, nonoperative treatment options and algorithm.
- Understand the daily business of Medicine/Orthopedic Surgery
- Become facile with billing and coding issues
- Manage the patient and health system to manage a disease/injury in the context of the biopsycho-social model.

Supervisory Tasks;

Supervise Surgical Tech in proper use of equipment and instruments.
Supervise and direct nursing staff in patient positioning and draping technique, use and set up of arthroscopy towers and equipment

Supervise medical students during history and physical, in utilization of the electronic medical record, acquisition of radiography data.
Supervise medical assistants; in suture removal and bandaging , application of braces, application and removal of splints and casts.

Literature Resources:

Orthopaedic Knowledge Update 5: Pediatrics

Morrissy & Weinstein: Lovell & Winter's Pediatric Orthopaedics, 7th edition

Herring: Tachdjian's Pediatric Orthopaedics, 5th edition

Skaggs & Kocher: Master Techniques in Orthopaedic surgery: Pediatrics, 2nd edition

Morrissy & Weinstein: Atlas of Pediatric Orthopaedic Surgery, 3rd edition

Wenger & Rang: The Art and Practice of Children's Orthopaedics.

Canale & Beatty: Operative Pediatric Orthopaedics, 2nd edition

Green's Operative Hand Surgery, 5th edition

Weinstein: Pediatric Spine: Principles and Practice, 2nd edition

Smith, Micheal & Bowker: Atlas of Amputations and Limb Deficiencies: Surgical, Prosthetic and Rehabilitation Principles, 3rd edition

Simon & Springfield: Surgery for Bone and Soft-Tissue Tumors,

Unni: Dahlin's Bone Tumors, 5th edition

Library/Electronic Resources:

Journal of Pediatric Orthopaedics

Children's Orthopaedics

Journal of Bone and Joint Surgery

Journal of the American Academy of Orthopaedic Surgeons

Clubfoot: Ponseti Management, 3rd editon. Website http://www.global-help.org/publications/books/help_cfponseti.pdf

Recommended Reading
Ponseti: Congenital Clubfoot: Fundamentals of Treatment, 3rd edition

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Skaggs & Kocher: Master Techniques in Orthopaedic surgery: Pediatrics, 2nd edition