The Ohio State University
Department of Orthopaedics

Residency Curriculum

Pediatric Orthopaedics
About This Curriculum

- It is the responsibility of both the resident and the attending to go over the goals and guidelines included in this handbook
  - At the beginning of the rotation
  - At the conclusion of the rotation

- Additional materials and/or service handbooks may be provided by the attendings at the beginning of the rotation
The orthopaedic service at Nationwide Children’s Hospital is a very busy service with many obligations. Because of this we have, in the past, taken the view that the orthopaedic residents work as a team even though they are assigned to individual services. The object of this is to give the patient the care they need and in a timely manner.

**PRECEPTOR MODEL**

Our program uses the preceptor model of teaching. The resident is assigned to a pediatric orthopedist attending physician (preceptor) on a 1 month period throughout the rotation. During the rotation, the resident works in a close relationship with the preceptor and their respective practices in both the clinic and surgical setting. He/she is involved in clinical decision making for in-patient consults, out-patient evaluations and surgical decisions in tandem with his assigned preceptor. In the surgical setting, the fellow participates at a level deemed appropriate by his preceptor and in accordance with the hospital’s rules and regulations. In the clinical setting, the resident evaluates and treats patients under the direct supervision of the preceptor. In all settings, the Sr. residents are expected to teach and mentor rotating orthopedic residents, emergency medicine rotators, medical students and allied staff.

**ALL RESIDENTS**

1. First obligation is to their assigned preceptor. It is the residents duty to arrange coverage for their assigned service if unavailable for vacationing residents, post call, etc.
2. During the day the resident on call or one of the rotating ER residents or Orthopaedic interns on call will be the first primary call to the Emergency Room and the floor.

**ROTATING RESIDENT DUTIES**

During most months there will be an emergency medicine rotator on the service. They are to participate in all aspects of patient care. They are required to take primary call and assist in performing reductions in the emergency department. This will be under the direct supervision of the orthopaedic resident on call with them. They should be encouraged to scrub in on procedures if they are interested and if they are applicable to their specialty. Their first priority is clinic coverage.
Residents will be responsible to manage assigned patients during their hospital course. Patients are assigned according to the following:

1.) those patients for which the individual resident is present or assisted in the operation.
2.) those patients of the resident’s assigned preceptor which are uncovered in the OR by another resident (it is the staff’s responsibility to contact the resident on service).

Residents are asked to present their assigned patients on rounds with knowledge of vitals, appropriate labs and postoperative or daily treatment plan. The NP’s will still provide help with order and computer entry, progress notes, dressing changes and discharge planning, etc. It is the resident’s duty, however, to collect needed information and evaluation prior to rounds in order to have a daily plan.

All consults are to be evaluated by the on-call resident that day.

**GENERAL RULES**

1. You will be expected to come to work on the first day of your rotation and work on the last day of your rotation
2. No vacations on the first or last week of the rotation unless approved
3. Vacation schedules are to be worked out with your fellow residents and approved by Dr. Klingele. You must complete a vacation request form and get it signed by Dr. Klingele
4. Do not leave the hospital in the evening without first checking out with the resident on call
5. If multiple operative cases are running after 6:00pm residents are requested to stay and provide services
6. When you are the senior resident covering the PGY-1 or 2 residents there is to be no moonlighting by the senior resident
7. All residents are expected to attend Pediatric Orthopedic Grand Rounds monthly, weekly Reading Conference and X-Ray Conference
8. At completion of your rotation you must do Attending evaluations and the Overall Program Evaluation. Upon completion, your personal evaluation will be forwarded to your program Director when your final month’s duty hours have been received

**CALL DUTIES**

Residents will have 9 - 11 calls per month. The intern or ER rotator will not take primary ER call without direct supervision. The PGY1 or PGY2 Orthopaedic residents will have in-house back up overnight. If the sr. resident does not come in the hospital; time on call does not count against their duty hours.
1. A note should be dictated for each patient, make sure that you send notes to the referring physicians.

**ER PATIENTS**

ER patients should be followed-up according to which staff is on call.

**GRAND ROUNDS**

Grand Rounds at Children’s is held on the 3rd Friday of each month except in the summer months of July and August. Every orthopedic resident should do at least one grand rounds presentation while completing their pediatric education. Audio visual requirements can be arranged through the resident coordinator or the AV team at x24945. Please do this at least two weeks in advance. Disclosure forms must be completed and given to the coordinator so CME credits can be arranged.

**CONFERENCE SCHEDULE**

Cases presented at x-ray conference are interesting cases from the clinic or surgery. Residents are encouraged to present at least one case each week. Wednesday morning Reading Conference is held at 6:00am – 7:00am with x-ray conference following immediately after from 7:00am – 8:00am. M/M conference is held every 8 weeks. Residents should submit their OR cases for the week prior at least two days before conference to the Academic Coordinator.

**EMERGENCY DEPARTMENT**

If you are called to see a patient in the ED and you believe the patient will need conscious sedation; it is necessary to speak with the nurse to coordinate ED care with regards to medications, supplies and x-rays.

The traction equipment is stored in 4A West in the Orthopaedic equipment room, which is locked. The nurses on the floor can unlock the room for you.

When you need a traction bed there should be one available on 4A West. Ask the charge nurse to have Transportation bring the bed to the ED. The nursing supervisor can be paged at 637-3759.

**COMPARTMENT SYNDROME**

On 4A West in the medication room is the Stryker apparatus for measuring compartment syndrome, it is locked in the narcotic cabinet. If you need help obtaining tools or equipment for casting in the ED, contact the cast technicians. Most supplies and tools are in the closet attached to rooms #33 and #34. Spica pantaloons are in the PYXIS. There is also a portable cast cart available in the ED if you need to work in rooms other than #32 and #33.
The portable C-arm machine is available in the ED. You will have an orientation on this equipment at the beginning of your rotation. The hospital safety officer mandates that we keep logs on the use of this machine. If not, the consequences could result in restricted use.

**AMMENITIES**

The call room is on the second floor of the resident area. It is marked on the door.

A gym membership is available for a small fee. The department secretary can put you in touch with the right people to sign up for membership.

There are two libraries at your disposal. Located on the third floor by the Academic offices is the Paul R. Miller library. It has most of the orthopaedic texts that you will need. The key to the library is located in the diskette tray on the secretary’s desk. The hospital library is on the second floor of the Education building. After hours your security badge should gain you entrance.

**PHONE NUMBER**

The call schedule will have the staff physician’s phone numbers as well as your fellow resident’s pager numbers.

<table>
<thead>
<tr>
<th></th>
<th>Ext.</th>
<th></th>
<th>Ext.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>x24100</td>
<td>Emergency Room</td>
<td>x24333</td>
</tr>
<tr>
<td>Outpatient Surgery Center</td>
<td>x25200</td>
<td>Resident Coordinator</td>
<td>x23393</td>
</tr>
<tr>
<td>4A West</td>
<td>x24290</td>
<td>Orthopaedic Clinic</td>
<td>x25175</td>
</tr>
<tr>
<td>Admitting</td>
<td>x22210</td>
<td>Main Lab</td>
<td>x25350</td>
</tr>
<tr>
<td>Main Radiology</td>
<td>x22350</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EVALUATIONS**

Residents are evaluated via a 360° evaluation, Faculty evaluation and Monthly Service evaluation process that is used to measure core competencies set forth by the ACGME. An Interim evaluation is performed at 3 months for residents completing a consecutive 6 month rotation.

Additionally, residents will complete an “Overall Rotation” evaluation that encompasses their feedback/input on the rotation as a whole as well as faculty evaluations for each faculty member.

Revised 09/02/10tr
Delineation of Resident Responsibilities:
Pediatric Orthopaedics – PGY1

I. Resident Responsibilities for Patient Care

Resident will take 1st call with immediate supervision by Sr. Residents

Inpatient duties include ER assessment and management, admissions, daily notes
Clinic/outpatient responsibility

Resident is assigned to a staff preceptor to whom they will shadow in
outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning,
biomechanics, placement and technique of the surgical reconstructions/repair and
implants used is expected.

Questions related to any case should be discussed with the attending prior to the
case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to
have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one
relationship with attendings. The level of responsibility given by the attending to
the resident is determined by that attending, depending on the attendings’
assessment of the resident’s knowledge and skills, and the complexity of the
procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic
and the operating room, as well as in on-call situations. Attending physicians are
available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the
supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of
the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
I. Resident Responsibilities for Patient Care

Resident will take 1st call with backup from PGY 3/4 resident available
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
I. Resident Responsibilities for Patient Care

Resident will take primary call and/or back up call to PGY1/2
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR
Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.

Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be
available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Delineation of Resident Responsibilities:
Pediatric Orthopaedics – PGY4

I. Resident Responsibilities for Patient Care

    Resident will take primary call and/or back up call to PGY1/2
    Inpatient and outpatient duties: includes care of post-op patient and those which
    have been admitted to Ortho Service, Inpatient consults

    Resident will serve as a Mentor to PGY1,2 and 3 level residents while on ER
    Call, in the OR and in the clinic setting

    Resident is assigned to a staff preceptor to whom they will shadow in
    outpatient/inpatient and operating room locations

    Residents will be expected to be prepared for clinic and OR

    Thorough knowledge of the surgery, surgical approach and the reasoning,
    biomechanics, placement and technique of the surgical reconstructions/repair and
    implants used is expected.

    Questions related to any case should be discussed with the attending prior to the
    case (preferably the day before)

    Residents should see and exam the patient prior to surgery and are EXPECTED to
    have reviewed all the patient office notes and radiographic studies.

    Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one
relationship with attendings. The level of responsibility given by the attending to
the resident is determined by that attending, depending on the attendings’
assessment of the resident’s knowledge and skills, and the complexity of the
procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic
and the operating room, as well as in on-call situations. Attending physicians are
available for consultation at all times.
Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Delineation of Resident Responsibilities:
Pediatric Orthopaedics – PGY5

I. Resident Responsibilities for Patient Care

Resident will take primary call and/or back up call to PGY1/2
Inpatient and outpatient duties: includes care of post-op patient and those which have been admitted to Ortho Service, Inpatient consults

Resident will serve as a Mentor to PGY1, 2, 3 and 4 level residents while on ER Call, in the OR and in the clinic setting

Resident is assigned to a staff preceptor to whom they will shadow in outpatient/inpatient and operating room locations

Residents will be expected to be prepared for clinic and OR

Thorough knowledge of the surgery, surgical approach and the reasoning, biomechanics, placement and technique of the surgical reconstructions/repair and implants used is expected.

Questions related to any case should be discussed with the attending prior to the case (preferably the day before)

Residents should see and exam the patient prior to surgery and are EXPECTED to have reviewed all the patient office notes and radiographic studies.

Lack of preparation will prevent participation

Resident Level of Responsibility for Patient Care

Resident rotations are structured so that the residents have a one-on-one relationship with attendings. The level of responsibility given by the attending to the resident is determined by that attending, depending on the attendings’ assessment of the resident’s knowledge and skills, and the complexity of the procedure.

Resident Supervision

Attendings are responsible for the direct supervision of residents in both the clinic and the operating room, as well as in on-call situations. Attending physicians are available for consultation at all times.
Senior residents (PGY4 and above) are also directly responsible for the supervision of junior residents (PGY1, PGY2, and PGY3). This applies to all of the above situations (i.e. on-call, in clinic, in the OR). Senior residents must be available for consultation at all times. Ultimately, chief residents (all PGY5’s) are responsible for the supervision of all residents, regardless of PGY year.

**Performance Feedback**

Both attending staff members are available at any time if questions or concerns arise. At the end of each rotation, each attending on the service will evaluate each resident assigned to the service. A meeting should be scheduled at the conclusion of the rotation to discuss performance and provide written feedback on the rotation.
Clinical Rotation Summary
Pediatric Orthopedic Surgery
Nationwide Children's Hospital

I. Goals and Objectives

A. Be proficient in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, aseptic necrosis, arthritis, osteomyelitis, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot and congenital vertical talus, length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.

B. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.

C. Be proficient in describing fractures, especially Salter-Harris type.

D. Learn the use of diagnostic imaging modalities available for the evaluation of orthopedic disorders.

E. Develop skill in the evaluation and management of musculoskeletal trauma.

II. Skill Development

A. Be proficient in techniques and understanding the indications for splinting and casting, reduction of fractures and dislocations, arthrocentesis, and compartment pressure monitoring.

B. Demonstrate the ability to correctly order and interpret x-rays on pediatric patients with orthopedic injuries.

C. Demonstrate the understanding of anatomy, the mechanism of injury, presentations, complications, management and prognosis of common musculoskeletal injuries in the pediatric age group.

D. Demonstrate knowledge of the differences in pediatric and adult skeletal anatomy and indicate how these differences are manifested in clinical and radiographic presentations.

E. Demonstrate the ability to provide regional anesthesia including hematoma blocks and nerve blocks.

III. Educational Resources

Residents have the opportunity to use textbooks in the Paul R. Miller orthopedic library, the Main Hospital library, Attendings offices and at the Orthopedic Center. Computers are provided in the orthopedic library and the resident call room with a generic sign on to access the internet for journals online. A dedicated server with a shared folder serves as a resource for articles, DVD’s, resident and attending lectures, etc.

IV. Clinical Experience

The rotation involves the care of pediatric orthopedic patients with a variety of conditions. The care of these patients will include an extensive clinic experience seeing a variety of orthopedic patients with conditions including, but not limited to hand injuries, sports medicine, Cerebral Palsy to general orthopedics. The residents will also take call and be the initial physician to see ED consultations. Residents will perform the initial evaluation and will then stabilize and treat the patients under the supervision of a senior orthopedic resident, orthopedic fellow or attending physician. The resident will perform a large number of fracture reductions and splint and cast applications.
V. **Didactic Experience**

The residents will attend 2 conferences per week. This includes a Reading Conference and X-ray Conference on Wednesday mornings from 6am - 8am (residents and attending physicians attend this conference) and Orthopedic Grand Rounds conference from 8 to 9 am on Fridays at OSU, Riverside or Children’s in the department of orthopedics. Pediatric lecture series is conducted the third Friday of the month 10 months per year. Pediatric fracture conference follows each Orthopedic Grand Rounds at Childrens.

VI. **Evaluation Process**

Residents are evaluated via a 360° evaluation, Faculty evaluation and Monthly Service evaluation process that is used to measure core competencies set forth by the ACGME. An Interim evaluation is performed at 3 months for residents completing a consecutive 6 month rotation.

Additionally, residents will complete an “Overall Rotation” evaluation that encompasses their feedback/input on the rotation as a whole as well as faculty evaluations for each faculty member.

________________________________________________
Kevin E. Klingele, MD  
Director, Orthopedic Education and Clinical Research

________________________________________________
Resident signature

Rev.04/05/09
Goals and Objectives
Pediatric Orthopaedics Rotation – PGY2

I. Core Competency Areas

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care

1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge

1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning

1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills

1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism

1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II Standard Objectives

1. Demonstrate proficiency in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, osteomyelitis, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot, leg length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.
2. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.
3. Proficiency in describing fractures, especially Salter-Harris type.
4. Learn the use of diagnostic imaging modalities available for the evaluation of pediatric orthopedic disorders.
5. Develop skill in the evaluation and management of musculoskeletal trauma.

III. Specialty Specific Knowledge

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should:

1. Know the appropriate local anesthesia or conscious sedation for the safety and comfort of the pediatric patient during office orthopaedic procedures and emergency room procedures.
2. Understand the special elements of the initial and follow-up examination of the pediatric orthopaedic patient in the office or clinic setting, including working with families, the non-verbal child, the child with developmental disabilities, and adolescents.
3. Understand normal and abnormal growth and development, including embryology, osseous growth, muscular growth, growth rate, developmental milestones, and timing, especially secondary sexual characteristics.
4. Introduction of skeletal dysplasias including defects of tubular bone (achondroplasia, MED, SED), disorganized cartilage and/or fibrous components (Ollier’s), and local or regional malformations of bone.
5. Understand the characteristics, pathogenesis, diagnostic features, and management of constitutional diseases with bone pathology (rickets, mucopolysaccah, Ca/Phosphorous disorders), metabolic (rickets, osetomal, renal osteodysplasia, hypophosphatasia, parathyroid, thyroid, heavy metal, juvenile osteoporosis, hypervitamin, scurvy, infectious hyperostos), connective tissues (Ehlers Danlos, Marfan’s, Down’s), and short stature.
6. Understand the etiology, diagnosis, and treatment of hematologic disorders (Gaucher’s hemoglobinopathies, hemophilia) neoplasia (cysts, fibrous cortex, EG), chondroblastoma, giant cell tumor, Ewing’s, osteosarcoma, fibrous dysplasia, soft tissue sarcoma.
7. Understand the characteristics, pathogenesis, diagnostic features, and management of muscular dystrophies (Duchenne, Becker, limb Girdle, FSH, cong dyst, hypotonic, myotonic, cong myopath), inflammatory myopathies (polio, SMA, HMSNs), myelodysplasia, spondyloarthropathies, cervical spine (cong malform, hypermobility), and spinal deformities (scoliosis, kyphosis, spondylosis, and spondyloolisthesis.)
8. Understand underlying processes with upper limb (deficiencies and malformations), hip (DDH, coxa vara, SCFE, synovitis, Legg Perthes, chondrolysis), leg length discrepancies, lower limb (congenital deficiencies, cong pseudoarth, posteromedial bow, congenital disi/sub, clubfoot, cong vert talus, postural deformations, polydactyly)
10. Assess and understand various causes, physical exam findings, prescribe medication, and natural history of rotational and angular deformities in the pediatric patient.
11. Comfortable in assessment and treatment of pediatric trauma patient including: appropriate management of pediatric fractures including splinting, casting, and reduction techniques.
IV. Specialty Specific Psychomotor Skills

By the end of the PGY2 rotation in Pediatric Orthopaedics, the resident should be able to:

1. Interpret and synthesize patient history, clinical exam, and diagnostic tests into a differential diagnosis for the conditions listed above.
2. Interpretation of various laboratory, radiologic, and other diagnostic tests for the conditions listed above.
3. Plan appropriate surgery based upon the diagnosis and clinical findings.
4. Perform or assist in surgical procedures required to address the conditions listed above (i.e. scoliosis surgery, limb length problems, tumors, fracture care, neuromuscular disease, cerebral palsy, myelomeningocele, developmental deformities, DDH, Legg Perthes disease, congenital anomalies.)
Goals and Objectives
Pediatric Orthopaedics Rotation – PGY4 and PGY5

I. Core Competency Areas

By the end of the PGY4 rotation in Pediatric Orthopaedics, the resident should demonstrate progress towards obtaining excellence in each of the following core competency areas.

Patient Care
1. Demonstration of caring and respectful behaviors when interacting with patients and families
2. Procurement of thorough, logical, and concise patient histories with an emphasis on the musculoskeletal system
3. Responsiveness to the individual needs of patients and their families
4. Performance of physical examinations that are accurate, comprehensive, and directed to patient’s problems. This applies to the clinic, emergency department, and in-patient settings.
5. Integration of medical facts and clinical data as the basis for diagnosis
6. Evaluation of risks, benefits, and alternative treatments
7. Formulation and carry out of a complete and effective treatment plan (operative and non-operative)
8. Counsel of patient and family in treatment procedure, options, and potential outcomes
9. Dissemination of education and services to the patient which are aimed at preventing treatment complications and maintaining health
10. Understanding of and performance of medical procedures related to treatment plan
11. Ability to work well with entire team of health care professionals and be involved in care of the patient

Medical Knowledge
1. Exhibition of a fund of medical knowledge that is up-to-date and ability to cite literature appropriately
2. Investigation of topics as needed for clinical assignments
3. Understanding and use of basic science principles as related to medical practice

Practice-Based Learning
1. Assessment of ones own patient management skills and ability to make appropriate changes in practice
2. Integration of evidence from scientific studies in the care of patient’s problems
3. Demonstration of knowledge of study designs and statistical methods in order to evaluate scientific studies
4. Usage of available information technology to obtain and manage information
5. Willingness to take time to educate students and other health care professionals

Interpersonal Skills
1. Fostering of a compassionate, therapeutic relationship with patients and their families
2. Ability to listen to patients and include them in treatment decisions
3. Ability to listen to information provided by other members of the health care team

Professionalism
1. Respectfulness of patient wishes and ability to provide adequate counseling, education, and informed consent instructions to patients
2. Demonstration of an ethically sound practice of medicine
3. Demonstration of sensitivity to cultural, age, gender, and disability issues among patients
Systems-Based Practice

1. Knowledge of how to provide cost-effective care
2. Willingness to advocate for patients within the health care system
3. Referral of patient to appropriate practitioners and agencies within the health care system
4. Accessing of consultants appropriately and use of their assistance in the management of ongoing care

II. Standard Goals

1. Demonstrate proficiency in the evaluation and management of acute and chronic pediatric orthopedic problems such as fractures/dislocations and accompanying neurovascular injuries, osteomyelitis, septic arthritis, neoplasia, scoliosis/kyphosis, cerebral palsy, myelomeningocele and various neuromuscular disorders, dysplasias, pediatric hip conditions, foot deformities including clubfoot, leg length discrepancy, growth abnormalities, upper and lower limb deficiencies and deformity, pediatric and adolescent sports medicine, rotational and angular limb deformities.
2. Understand the pathophysiology, mechanisms of injury, and course and complications of the above disorders.
3. Proficiency in describing fractures, especially Salter-Harris type.
4. Learn the use of diagnostic imaging modalities available for the evaluation of pediatric orthopedic disorders.
5. Develop skill in the evaluation and management of musculoskeletal trauma.

III. Specialty Specific Knowledge

By the end of the PGY4 and PGY5 rotation in Pediatric Orthopaedics and building upon the experiences from the PGY2 rotation, the resident should:

1. Understand, recognize, and manage complex skeletal dysplasias and spinal disorders
2. Understand the etiology, diagnosis and treatment of complex hematologic disorders
3. Understand the characteristics, pathogenesis, diagnostic features, and management of complex neuromuscular disorders.
4. Recognize and treat, in conjunction with a multidisciplinary team, cerebral palsy, juveniles rheumatoid arthritis, and complex spinal deformities
5. Understand, recognize, and non-operatively and operatively manage complex upper limb, leg length, hip, and lower limb deformities and disorders
6. Understand the clinical manifestations, treatment, and long-term prognosis of complex gait disorder and fractures
7. Have the ability to assess various pediatric and adolescent sports related injuries, acute injury and overuse injury.

III. Specialty Specific Psychomotor Skills

At the end of the PGY4 and PGY5 rotation, the resident should assume progressively more responsibility for care of increasingly complex patients under the supervision of the attending physician, for teaching residents, and for ongoing follow-up and communication with patients and their families and should be able to:

1. Interpret and synthesize patient history, clinical exam, and diagnostic tests into a differential diagnosis for the conditions listed above
2. Know the indications for an interpretation of various laboratory, radiologic, and other diagnostic tests for the conditions listed above.
3. Plan appropriate surgery based upon the diagnosis and clinical findings
4. Perform or assist in surgical procedures required to address the conditions listed above (i.e. scoliosis surgery, limb length problems, tumors, fracture care, neuromuscular disease, cerebral palsy, myelomeningocele, developmental deformities, DDH, Legg Perthes disease, congenital anomalies
Physical Exam Competencies
Pediatric Orthopaedics Rotation

By the end of the PGY2 rotation on the Pediatric Orthopaedic service, the resident should be able to demonstrate proficiency in the key physical exam tests. The PGY3,4 and 5 rotation is an opportunity to polish these physical examination skills.

Developmental Assessment:
- Major developmental milestones and the ages they are reached

Primitive reflexes: significance and the age when they typically disappear
- Moro
- Asymmetric tonic neck (fencing position)
- Extensor thrust
- Neck righting reflex

Postural/Protective reflexes:
- Parachute
- Foot placement reaction

Infant hip examination:
- Ortolani maneuver
- Barlow maneuver
- Hip abdution/adduction
- Telescoping (increased/asymmetrical thigh folds)
- Galeazzi sign

Rotational profile:
- Foot progression angle
- Hip internal/external rotation
  - “W” position
  - “squinting” patellas
- Thigh-foot angle
- Bimalleolar angle
- Foot examination:
  - Metatarsus adductus
  - Clubfoot/rocker bottom foot/cavovarus foot
  - Pes planus/peroneal spastic flatfoot
  - Skew foot
  - Heel-bisector line

Coronal limb assessment:
Genu varum:
- Intercondylar distance
- Lateral thrust

Genu valgum:
- Intermalleolar distance

Range of motion assessment/contracture testing:
- Thomas test
- Staheli test
- Ely test (prone rectus stretch test)
- Anterior popliteal angle:
  - Hamstings tightness vs. posterior capsular contracture of the knee
- Silverskiold test
- Ober test

Scoliosis:
- Adam’s forward-bending test
- Romberg sign
- Abdominal reflexes
- Plumb line
- Limb length discrepancy/pelvic obliquity:
  - Block assessment
  - ASIS-to-medial malleolus distance

Cavovarus foot:
- Coleman block testing

Adolescent knee injuries:
- Measurement of Q angle
- Patellar tilt and apprehension tests
- J-sign
- Wilson test
- Lachman’s test
- Anterior and posterior drawer tests
- Pivot shift test/Reverse pivot shift test
- McMurray’s test
- Varus/valgus stress testing
- Posterior sag/Quadriceps active test
- Discoid meniscus

Other tests:
- Lead-pipe vs. cogwheel rigidity
- Flexible vs. rigid flatfeet: toe-raise test
Assessment of generalized ligamentous laxity
Hip impingement test
SCFE findings: obligatory external rotation with hip flexion
Snapping hip assessment: IT band vs. iliopsoas
Trendelenberg sign/lurch
The Ohio State University
Department of Orthopaedics
Orthopaedic Residency Program

Surgical Competencies:
Pediatric Orthopaedics – PGY 1, 2, 5, 5

Identification and understanding of various surgical approaches to upper extremity/lower extremity, spine, hip and pelvis

Understanding of physeal locations and avoidance of physeal injury

General and basic arthroscopy skills within knee and shoulder

Understanding of various surgical implants unique to growing, pediatric patients

Proficient in techniques for reductions of fracture/dislocations, arthrocentesis and compartment pressure monitoring

Independent (for PGY 2+) skin closure and suturing

Demonstrate ability to provide regional anesthesia including hematoma blocks and nerve blocks

Adequate preoperative planning and preparation

Adequate postoperative management
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Subject</th>
<th>References</th>
</tr>
</thead>
</table>
| July 14, 2010 | SAMORA  | Lower Extremity                                | 1.) Disorders of the Femur, Tachdjians, Vol. 1, Chapter 20, pp 913-915  
|            |          | 2.) Disorders of the Leg, Tachdjians, Vol. 2, Chapter 22, pp 973-1006 |
|            |          | The Lateral Pillar Classification of Legg-Calve Perthes Disease JPO, 1992, Vol. 12 #2, pp 143-150 |
| Aug 11, 2010 | SAMORA  | SCFE – Monogram Series, AAOS, (39)              | 1.) SCFE – Monogram Series, AAOS, (39)  
|            |          | Subcapital Realignment in SCFE: Surgical hip dislocation andTrimming of the Stable Trochanter to Protect the Perfusion of the Epiphysis. (40) |
|            |          | Current Issues: Chondrolysis An Update (Carl L Stanitski MD Editor) JPO, Vol. 25 Number 5, Sept/Oct. 2005, |
|            |          | 2) Developmental Hip Dysplasia and Dislocation: Part II, pp. 53-64 |
|            |          | AAOS Instructional Course Lectures, Volume 50, 2001 (57), pp. 547-553 |
| Sept 8, 2010 | KLINGELE | Adolescent Idiopathic Scoliosis, Etiology, Anatomy, Natural History and Bracing AAOS, ICL – Pediatrics, Chapter 13, pp. 159-166  
<p>|            |          | Lenke Classification System of Adolescent Idiopathic Scoliosis Treatment Recommendations AAOS ICL Pediatrics, Chapter 14 pp. 167-172. |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Author</th>
<th>Reading List</th>
</tr>
</thead>
</table>
| Sept 29, 2010 | WILLITS | 1) Scheuermann’s Kyphosis in Adolescents and Adults Diagnosis and Mgmt. JAAOS, Vol. 6, #1 Jan/Feb 98, pp. 36-43  
2) Kyphosis, Chapter 19, William C. Warner (tree – NEEDS REPLACED) |
| Oct 20, 2010  | KEAN  | Muscular Dystrophies - Tachdjians – Chapter 29, pp. 1621-1656 and 1900-1902 |
| Oct 27, 2010  | ALL STAFF | CURRENT LITERATURE |
| Nov 10, 2010  | CLARK  | Skeletal Dysplasias - Tachdjians – Chapter 30, pp. 1677-1699, pp. 1702-1718 |
| Nov 17, 2010  | SAMORA | Metabolic and Endocrine Bone Disease, Tachdjians – Vol. 3, Chapter 32 |
| Nov 24, 2010  | Cancelled for Thanksgiving Holiday |
2) Congenital Clubfoot, JBJS Vol. 84A, #2, Feb 2002, pp. 290-308 |
| Dec 8, 2010   | BEEBE  | 1) Early Results of a New Method of Treatment for Idiopathic Congenital Vertical Talus Surgical Technique, JBJS 2007 pp. 111-121  
3) Kohler’s Disease, Osteochondroses, Tachdjian’s, pp. 1044-1069 |
| Dec 15, 2010  | VON STEIN | 1) Limb Length Discrepancy, Tachdjian’s – Chapter 24, pp. 1191-1247  
2) Growth Prediction Chart, Figure 7-260 |
| Dec 22, 2010  | ALL STAFF | CURRENT LITERATURE |
| Dec 29, 2010  | | |