



Pediatric Orthopaedic Surgery Fellowship Program

Pediatric Orthopaedic Fellowship Program is to provide exceptional training in the identification, management and treatment of pediatric orthopaedic disorders, both operative and non-operative. We are committed to training future pediatric orthopedists through our fellowship program at Children's at Scottish Rite.

The Pediatric Orthopaedic Fellowship Program has been accredited by the [Accreditation Council for Graduate Medical Education](#) (ACGME) since 1992. The program offers broad exposure to all facets of pediatric orthopaedics. Fellows participate in a full range of educational opportunities, including didactic conferences, case presentation conferences, outpatient specialty clinics, outpatient private practice office experience, an abundant volume and array of surgical procedures from all subspecialty areas of pediatric orthopaedics, trauma, inpatient care and teaching.

The Pediatric Orthopaedic Fellowship Program was established at Scottish Rite Hospital for Crippled Children in 1975 by Dr. Wood Lovell. Scottish Rite Hospital for Crippled Children changed their name to Scottish Rite Medical Center in 1989 and in 1998 Scottish Rite Children's Medical Center merged with Egleston Children's Healthcare System to form Children's Healthcare of Atlanta.

Areas of Practice Focus / Expertise	Program Attending(s)
Bone Health	Flanagan
Complex Limb Reconstruction	Devito, Flanagan
Fragile Bone	Flanagan
Hand	Pediatric Hand & Upper Extremity Center of Georgia
Hemophilic Arthropathy	Busch
Hip	Schrader, Willimon
Hip Arthroscopy	Schrader, Willimon
Muscular Dystrophy	Schrader
Myelomeningocele	Axelrod
Spasticity / CP	Fabregas, Schmitz
Spine	Devito, Fabregas, Schmitz, Schrader
Sports	Busch, Willimon
Trauma	All
Tumor	Fabregas

Competency-based Goals and Objectives

Patient care

It is anticipated that the fellow will assume increasing responsibilities in outpatient, inpatient, operative and emergency care of pediatric orthopaedic patients. The fellow will have exposure to outpatient care both during scheduled participation in private practice clinics with attending staff as well as in mandatory participation in the public hospital-based clinics also supervised by attending staff. Fellows are expected to:

- Evaluate all new patients by obtaining a medical history.
- Perform a complete physical examination.
- Assess the radiographic images.
- Propose a treatment and/or workup plan.
- Present a complete clinical picture to the attending physician, who provides further guidance and modification.

Through didactic and clinical educational settings, the fellow, at the end of the fellowship training, is expected to be well versed and skilled including, but not limited to the following:

1. Master and teach evaluation skills necessary for treatment of all pediatric orthopaedic surgery patients including:
 - a) Complete pediatric scoliosis spine examination.
 - b) Conduct a comprehensive specialty examination for patients with cerebral palsy.
 - c) Interpret and describe the basic pathology seen in various childhood diseases in regard to gait analysis, pediatric elbow radiographs, pediatric hip evaluation, and anteroposterior (AP) pelvis X-ray and hip ultrasound.
2. Master the knowledge necessary for thorough understanding of pathophysiology of the following complex pediatric orthopaedic disorders and complex injuries:
 - a) Congenital scoliosis
 - b) Neuromuscular scoliosis
 - c) Neuromuscular diseases such as cerebral palsy, myelomeningocele and muscular dystrophy
 - d) Sprengel deformity
 - e) Femoral hypoplasia, tibia hemimelia, fibula hemimelia, complications of developmental dysplasia of the hip (DDH), Volkmann's ischemic contracture
 - f) Understand the operative options and potential operative complications when treating the following pediatric orthopaedic surgery disease:
 1. Legg-Calvé-Perthes
 2. Slipped capital femoral epiphysis
 3. Supracondylar humerus fractures
 4. Clubfoot
 5. Patella dislocation
 6. DDH
 7. Scoliosis
 8. Pediatric femur fractures
 9. Osteogenesis imperfecta
3. Diagnose and propose treatment for the following pediatric diseases:

- a) Benign childhood bone tumors, such as unicameral bone cyst and aneurysmal bone cyst
 - b) Malignant bone tumors, such as osteosarcoma and Ewing sarcoma
4. Master the clinical and surgical techniques necessary for care of all common pediatric orthopaedic injuries and disease:
- a) Understand the principles and correct application of upper-extremity splints and casts, lower-extremity long-leg and short-leg casts, spica casts and clubfoot casting using the Ponseti technique.
 - b) Understand and be able to perform the common operative approaches used in pediatric orthopaedics—spine, hip, knee, foot, ankle and elbow.
 - c) Understand the preoperative and postoperative medical/pediatric evaluation, postoperative pain management in pediatric patients.
 - d) Interpret and describe the unique radiographs of the pediatric elbow, specifically in regard to the sequence and appearance of the major ossification centers of the elbow along with the timing of the closure of the various ossification centers.
 - e) Describe and label the orthopaedic measurements on the pediatric AP pelvis X-ray, including standard measurements for DDH, including acetabular index, acetabular center edge angle, neck shaft angle, Hilgenreiner lines, Perkins' line, Shenton's line. The fellow should be aware of measurements of Sharp's angle, timing and closure of the triradiate cartilage and the Risser cartilage.

Practice-based Learning and Improvement

With a strong dedication to the practice of evidence-based medicine, we actively encourage the assimilation of scientific evidence and clinical judgment to provide the best possible clinical care. Upon graduation, the fellow will be able to critically analyze available research then formulate and implement a sound evidence-based clinical plan.

The Pediatric Orthopaedic Fellowship Program has research resources. Fellows are expected to develop a research project in conjunction with the attending staff. This project is expected to be reasonably complete by the end of the academic year and ready for submission to meetings such as the American Academy of Orthopaedic Surgeons (AAOS) and the Pediatric Orthopaedic Society of North America (POSNA). In addition, a paper should be submitted to a peer-reviewed journal. Fellows learn formal research skills by receiving extensive exposure to research methodology, study design, and critical data review, so that they may carry out formal research in their future practice setting. Fellows are encouraged to participate in a second project where they work with one of the residents and assist him through the processes for submission and publication.

Interpersonal and Communication Skills

Due to the interdisciplinary nature of the program, fellows gain experience in interpersonal and communication skills by working with patients in a team setting of orthopaedic surgeons, primary care specialists, physiatrists, neurologists, radiologists, and physical therapists and rehabilitation specialists.

Professionalism

As part of the development of academic pediatric orthopaedic physicians, fellows are expected to be actively involved in the teaching of orthopaedic residents and medical students during their fellowship. Teaching occurs in the following settings:

- Weekly service conferences and clinics
- Operating room
- Morning Rounds

Systems-based Practice

Fellows gain competence in systems-based practice by preparing and presenting at the weekly preoperative and postoperative conference. In presenting highlight cases of the week, the fellows are expected to advocate for quality patient care and optimal patient care systems and participate in identifying systems errors and implementing potential systems solutions. This includes discussing specific equipment needs with the operating room nurse who attends preoperative conference and submitting ideas to the attending staff for equipment and procedural system improvements.

The fellow is encouraged to participate in at least two research initiatives while on service and complete and present at least one. Through the Children's Quality Management Program, there are resources available to assist these projects.

Didactic Component

The pediatric orthopaedic service has a comprehensive core curriculum. Fellows are expected to attend and contribute to all components of the program and will be assigned specific lectures and topics to present. All presentations should be carefully researched and presented, including a thorough review of all relevant literature. The service also conducts monthly journal club, pathology, radiology, indications and hand conferences. Fellows are expected to attend and actively participate in all conferences.

The schedule of topics for the educational conferences is designed to provide the Fellows with exposure to both operative and non-operative management of pediatric conditions of orthopaedic concern, and includes lectures from many specialists, including orthopaedic surgery, primary care, endocrinology, neurology, rheumatology and hematology. The curriculum was designed to provide a broad exposure to pediatric orthopaedics while maintaining a focus on core competencies.

Weekly conferences

- Monday – pre-operative conference
- Wednesday – Core Curriculum series (major topics repeat every six months)
- Friday – post-operative conference

Monthly conferences (on a variety of Tuesdays and Thursdays)

- Journal Club
- Tumor and Pathology
- Hand
- Radiology and musculoskeletal imaging
- Open forum with the residency program director, Dr. Fabregas

Expectations

- Take an accurate and thorough history and perform a comprehensive physical examination on all patients seen in the clinic area.
- Develop a differential diagnosis in the clinic based on history, physical examination, and interpretation of radiographic findings, and present this to the attending surgeon.
- Generate an accurate, clear, concise, and comprehensive dictation of the encounter, including chief complaint, history of present illness, medications, allergies, past medical history, past surgical history, assessment of radiographs, and assessment including differential diagnosis and treatment plan.

- Present a concise summary and revisit patients prior to the encounter with the attending surgeon. This will include the date of surgery, the diagnosis, the procedure performed and recent history.
- Generate dictation as outlined above. When not visiting a patient individually, the fellow will be expected to observe the attending during his encounter with the patient and be available for discussion following this regarding patient care, management and instruction.

Delineation of responsibilities for patient care, progressive responsibility for patient management and supervision of residents over the continuum of the program.

Fellows are expected to review the surgery schedule at the end of each week and make assignments for coverage/participation of fellows and residents. Once the assignments are made, the house staff responsible for each case is expected to:

- Review the office of clinic chart.
- Review the pertinent imaging studies and have them available for the Monday pre-op conference.
- Initiate the history and physical exam, consents and discharge summaries as logistically permitted.
- Discuss the relevant cases with the appropriate attending.
- Familiarize themselves with the core information on the relevant topic(s). Perform a literature search and read and be prepared to summarize at least one significant relevant article.

In selecting and dividing cases, the fellows are expected to insure themselves of a broad exposure to all areas of pediatric orthopaedics, not just specific areas of their interest. Similarly, providing the residents with a balance experience is expected. As staffing permits, assigning a resident and a fellow to cases of interest is encouraged.

Fellow Call and Duty Hours

Fellows are expected to comply with all ACGME requirements for duty hours.

Duty hours are defined as all clinical and academic activities related to the program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities, such as conferences. Duty hours do not include reading and preparation time spent away from the duty site.

Duty hours

1. Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.
2. Fellows will be given one full day in seven free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call. One day is defined as one continuous 24-hour period.
3. Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time period provided between all daily duty periods and after in-house call.

On-call activities

In-house call: Fellows do not generally take in-house call. Anticipated exceptions include the night before and day of the annual orthopaedic residents' in-service exam.

1. In-house call must occur no more frequently than every third night, averaged over a four-week period.
2. Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Fellows may remain on duty for up to six additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.
3. No new patients may be accepted after 24 hours of continuous duty.

At-home call

1. Each fellow is expected to take at-home call one night each week (on average for the month). The frequency of at-home call is not subject to the every-third-night, or 24+6 limitation. However, at-home call must not be so frequent as to preclude rest and reasonable personal time for each fellow.
2. Fellows taking at-home call must be provided with one day in seven completely free from all educational and clinical responsibilities, averaged over a four-week period.
3. Each fellow is expected to take at-home call one weekend (Friday night through Monday morning) each month. When fellows are called into the hospital from home, the hours fellows spend in-house are counted toward the 80-hour limit.

On a monthly basis, each fellow shall submit to the fellowship director a review of his duty assignments and hours worked. Any anticipated or actual violation of duty hours are to be immediately brought to the attention of the relevant orthopaedic attending or the fellowship director. In his absence, the chief of orthopaedics should be contacted, and, if unavailable, the orthopaedic attending on call is to be contacted.

Evaluations

Three times per year (every four months), each fellow is required to make an evaluation appointment with two of the attendings with whom he has spent the majority of time. The fellow should review in person his written evaluation, ask all pertinent questions, make written comment if desired and sign the evaluations. At the end of the year, each fellow should complete a faculty evaluation form for each of the team attendings and submit them to the fellowship secretary.

Each month, the fellow should meet informally with the fellowship director to review schedules, project progress, goals and any issues of concern. At the end of the academic year, each fellow should meet with the fellowship director as well.

Any issues of significance pertaining to evaluations should be brought in person to the fellowship director. If the fellow perceives this response to be inadequate, or if the issue pertains to the fellowship director, the chief or orthopaedics should be contacted personally. If an alternative is still necessary, the fellowship coordinator should be contacted.