The University of Tennessee Health Science Center/Campbell Clinic Pediatric Orthopaedic Fellowship at Le Bonheur Children’s is training the next generation of pediatric orthopaedic surgeons. One fellow is selected each year for the competitive 12-month program. Opportunities to learn in clinic, hospital, surgical and teaching settings are key, said Jeffrey R. Sawyer, MD, director of the fellowship program. The fellow spends portions of his or her time in each setting, learning a wide variety of orthopaedic conditions and treatment methods unique to children.

Past fellows tout the program’s exposure to pediatric trauma, metabolic and genetic conditions, tumors, neuromuscular disorders and conditions that affect the spine, hip, foot/ankle and hand.

“Our fellows have a direct preceptorship with pediatric orthopaedic faculty, allowing for one-on-one instruction,” said Sawyer. “Fellows are viewed as adjuncts to the faculty, not as ‘extra residents.’”

A key goal of the program is to provide fellows with extensive opportunities to improve and develop skills in lecturing, laboratory research, presentations and publications.

“Fellows are provided with an incredible opportunity to learn in a rich collaborative environment. This collaboration has been the starting point for many of our former fellows going on to national and international prominence in the field of pediatric orthopaedics,” said Sawyer.

Jeremy Rush, MD

Pediatric orthopaedics was a clear choice for past fellow Jeremy Rush, MD.

“There is no other specialty in orthopaedics in which you can treat such a wide range of conditions, from traumatic to congenital to developmental to infectious and so on,” said Rush. “And the opportunity to treat and improve the quality of life of children is incredibly rewarding.”

Rush studied at Texas A&M’s College of Medicine and completed a residency in orthopaedics at Brooke Army Medical Center in San Antonio, Texas. The pediatric orthopaedic team at Le Bonheur and Campbell Clinic was one of the reasons Rush chose the fellowship.

“I’ve never met a group of individuals who work so well together and are so dedicated to the care of kids. I felt like they were truly invested in me and my education. I loved coming to work every day, and every day was an opportunity to see something new,” Rush said.

After completing his fellowship, Rush returned to the Brooke Army Medical Center before being assigned to the 14th Combat Support Hospital/Joint Task Force Helmand in Afghanistan.

Nelson Astur, MD

Nelson Astur, MD, came to Le Bonheur and Campbell Clinic for fellowship training after completing medical school, residency and a spinal surgery fellowship at Santa Casa de Sao Paulo, Medical School and Hospitals in Sao Paulo, Brazil. Astur wanted to specialize in pediatric spinal deformities and VEPTR treatment.

“Le Bonheur/Campbell Clinic is one of the authorized centers in the U.S. for VEPTR treatment and has a well-known pediatric spine team that made me choose this fellowship,” said Astur. “Campbell Clinic’s orthopaedic book is the main orthopaedics textbook for all residency programs in Brazil, so it was an honor for me to be a part of it.”

Astor also appreciated the skill of the team’s pediatric orthopaedic surgeons. They treat a wide range of orthopaedic conditions with the most advanced techniques, he said. Like all fellows accepted into the program, Astur had the opportunity to participate in a variety of research projects.

“There were often more than 20 projects going on at a time,” Astur said. “And most of these projects are presented at all the main orthopaedic meetings and finally get published in the main orthopaedic journals.”

Now practicing back in Sao Paulo, Astur enjoyed his time in Memphis, Tenn. “There is some much to do in Memphis and such great food. I’m already missing barbecue and sweet tea.”

Jennifer Brey, MD

Pediatric Orthopaedic Surgeon Jennifer Brey, MD, graduated from the fellowship program in July 2011.

She came to the program after completing medical school at the University of Louisville and a residency at Drexel University College of Medicine in Philadelphia.

“I chose Le Bonheur because I liked the location, the staff and the facilities,” said Brey. “The fellowship offers a large volume and variety of surgical cases as well as a large amount of research opportunities. I like that I did not have to compete with another fellow for access to interesting cases.”

Now, Brey is in private practice in Louisville, Ky. “I learned quite a bit about practice management and office treatment of patients.”

**FELLOWSHIP OVERVIEW**

- Fellows supervise residents and participate in both non-operative and operative cases, including post-injury and post-operative rehabilitation.
- Fellows are required to work on at least one clinical or basic science research study.
- Designated laboratory space and support staff assistance are provided as needed for research projects.
Treatment of pediatric femur fractures with the Pavlik harness: Multi-year results

Orthopaedic surgeons at Le Bonheur and Campbell Clinic recently reviewed long-term clinical and radiographic results of patients younger than 6 months whose femoral fractures were treated with a Pavlik harness. The study presents the longest follow-up of this patient population. Findings showed that any angulation at the time of fracture union greatly remodels over time.

The study reviewed clinical and radiographic records for all children younger than 6 months who were treated with a Pavlik harness for an isolated femoral fracture at a Level 1 pediatric trauma center between December 2003 and December 2009. Ten children fit the inclusion criteria, and the average age at final follow-up was 5.2 years.

Obtained radiographs at final follow-up consisted of anteroposterior (AP) and lateral femur views, as well as a standing full-length AP scanogram. Clinical examinations observed clinical deformity, gait pattern and range of motion.

The average time to final follow-up from injury was five years. Significant results include the following:

- Average angulation at final follow-up was 3 degrees valgus and 5 degrees procurvatum.
- Patients who presented with a higher degree of angulation (20 degrees or greater) showed an average angulation of 5 degrees valgus and 11 degrees procurvatum at final follow-up.
- Sixty percent of patients had no detectable angulation at final follow-up, and only one patient had a measurable leg-length discrepancy (7 mm) at follow-up.
- No patients reported any activity limitations.

Based on these results, Le Bonheur’s orthopaedic surgeons recommend clinical follow-up at one to two years post-injury. Treatment with Pavlik harness in young patients provides excellent clinical outcomes with minimal complication rate.

Le Bonheur/Campbell Clinic Hand Club to open February 2013

Le Bonheur Children’s is opening a new clinic for patients with congenital anomalies of the hand, forearm or elbow. Led by Orthopaedic Surgeon Ben Mauck, MD, the clinic will bring together the expertise of nurses, nurse practitioners, physicans and occupational therapists, social workers and Child Life specialists.

The clinic will open Feb. 5 in Le Bonheur’s Outpatient Center, 51 N. Dunlap St. Appointments can be made now by calling 901-287-6073.

Mauck joined Campbell Clinic in August after completing an orthopaedic hand/upper extremity fellowship at the University of Texas Health Science Center in San Antonio, Texas.
Advanced techniques help orthopaedic patients

Orthopaedic surgeons at Le Bonheur and Campbell Clinic are using the most advanced technology to treat pediatric orthopaedic conditions. Patients from around the region continue to travel to Le Bonheur for high-level care and advanced techniques.

**Jacob McMullen:**
**Fassier-Duval Nail**

At the age of 2, Jacob McMullen of Senatobia, Miss., was diagnosed with the rare, non-inherited genetic disorder McCune-Albright syndrome. The McMullens had been to several doctors throughout the first two years of Jacob’s life to find answers for why their son had a baffling constellation of café-au-lait spots, frontal bossing and poor growth. A liver biopsy at Le Bonheur Children's confirmed the disease.

Though it didn’t show initially in any of his skeletal X-rays, Jacob also had fibrous dysplasia, a classic symptom of McCune-Albright. With weakened bones, especially on his right side, Jacob is susceptible to fractures. He first fractured his right femur at age 2 and was treated with a spica cast by Pediatric Orthopaedic Surgeon James Beaty, MD, of Le Bonheur and Campbell Clinic.

Another femur fracture two years later left Beaty determined to find the best solution for Jacob. He wanted to find a way to stabilize his femur, so it would not continue to fracture.

Jacob underwent surgery at age 5 to receive an expandable Fassier-Duval nail implanted in his right femur.

“The Fassier nail has been a great advance in the treatment of long bone problems in children, specifically multiple fractures as in osteogenesis imperfecta, extensive benign growths in bone as in Jacob’s case and in metabolic bone disorders,” said Beaty. “The Fassier nail allows for continued growth with an intramedullary nail that lengthens as the child grows, hopefully giving better results with fewer surgeries for our kids.”

Now 9, Jacob is doing well and has not had to undergo a second implant. Though he cannot play sports and has to be in a wheelchair during the school day to protect his bones and prevent frequent bone pain, Jacob loves sports, especially football, said mom Ruth.

“He knows all the plays. At 18 months old, Jacob would say ‘ball game.’ He’s loved sports since he could first talk,” she said.

The McMullens are very grateful for Beaty, who researches until he’s sure he is giving you the right answer, says Ruth. In homemade blue scrubs, Jacob even dressed up as Beaty for Career Day at school one year.

Jacob continues to see Beaty once every three months. It is likely that he will have to receive a new Fassier nail in the near future until he reaches his full growth potential. Jacob also sees Le Bonheur Neurosurgeon Rick Boop, MD, regularly for fibrous dysplasia of the skull.

“Jacob has a rare disease, and we want to do everything possible for Jacob to help him reach his young adult years with bones and joints that will last for many years,” Beaty said. “Jacob and his family are wonderful.”

**Sage Downey:**
**Halo Traction, VEPTR**

Six-year-old Sage Downey of Toxey, Ala., was born with arthrogryposis, a congenital neuromuscular-skeletal disorder that affects various joints including her knees, feet and spine. The disorder caused her to develop progressive neuromuscular scoliosis at just 6 months old.

Through the next couple of years, Sage was treated with different braces and body casting techniques to slow the growth of her curve. By age 5, Sage's thoracic and kyphosis curvatures had progressed to more than 100 degrees, which caused the growth of her chest and lung to slow significantly. The Downeys knew it was time to look into more advanced treatment options for Sage. If her curve progressed any further, she could have severe respiratory problems.

“We knew Sage could benefit from halo traction because of her stiffness and high thoracic curve,” said Janet, Sage's mom. A support group for scoliosis families on Facebook led the Downeys to Orthopaedic Surgeon Jeffrey R. Sawyer, MD, at Le Bonheur Children's.

“We were so close to going to a center in San Antonio, Texas. I had already filled out the forms. I was so thrilled to know that there was doctor closer to home who could help Sage,” said Janet.

The Downeys’ excitement grew when they met Sawyer at their first consultation in September 2011.

“My husband and I walked out of the appointment, looked at each other and said ‘It’s settled.’ We had a sense of peace we didn’t have with any of the other specialists we’ve seen for Sage, and we’ve been all over the country,” Janet said.

Sage underwent halo traction at Le Bonheur on Jan. 3, 2012. After almost two months at the hospital, Sage’s curvatures had reduced by 50 percent, as hoped. She underwent VEPTR implantation on Feb. 22 and remained at the hospital for another five days before going home.

Sage is doing well and is much more comfortable, said Janet. Her curve has reduced to around 50 degrees. She and her family made another trip to Le Bonheur in September, eight months after surgery, to have the rods expanded. Rods will be expanded every six to nine months until she reaches skeletal maturity.

“I am fortunate to have been able to meet and take care of Sage and her family. It is a huge stress for a family to essentially live at the hospital, away from home and their support system, like the Downeys did for two months. The people at Le Bonheur embraced Sage and her family during that time. I know that many of the staff at Le Bonheur still keep frequent contact with Sage and her family, based on the number of ‘Sage updates’ I get.”

“Our goal is to be able to provide care for any child with any spinal condition, both surgical and non-surgical, that come to us at Le Bonheur. The fact we can provide the most technologically advanced care for extremely complicated patients like Sage in a patient- and family-friendly environment makes all of us proud.”

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*Images: Sage Downey in halo traction, Jacob McMullen, post-op femur X-ray.*

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Sage and her family went to Disney World over Thanksgiving this year. The trip was planned during their two-month stay at Le Bonheur as a celebration of her recovery.