

# Division of Pediatric Neurosurgery

## DIVISION PROFILE

Number of Faculty	3
Number of Support Personnel	11
Number of Peer Reviewed Publications	4
Patient Encounters	
Outpatient	2,510

## FACULTY LISTING

Kerry R. Crone, MD, Associate Professor of Neurosurgery, Director, Pediatric Neurosurgery  
Karin S. Bierbrauer, MD, Associate Professor of Neurosurgery  
Francesco T. Mangano, DO, Assistant Professor of Neurosurgery

## OVERVIEW

The division's principle focus continues to be high quality delivery of expert surgical care for all phases of pediatric neurological disease. The division is staffed by three full time, pediatric fellowship trained neurosurgeons. Kerry Crone, MD, division director, completed his 20th year at Cincinnati Children's. Dr. Crone continued providing clinical, academic and administrative leadership with a special interest in developmental conditions including treatment for hydrocephalus, craniofacial anomalies, and chiari malformations. As a leader in the development of endoscopy in neurosurgery, Dr. Crone is also further establishing the



*Left to Right: K. Bierbrauer, K. Crone, F. Mangano*

minimally invasive and neuro-endoscopy program. Karin S. Bierbrauer, MD arrived in Cincinnati in January of 2005, after 13 years in practice in Philadelphia. Dr. Bierbrauer is a board certified pediatric neurological surgeon with special interests including hydrocephalus, spina bifida, and fetal therapy. Francesco T. Mangano, DO joined the faculty in August 2005. Dr. Mangano recently completed a pediatric neurological surgery fellowship at Washington University School of Medicine-St. Louis Children's Hospital. Dr. Mangano's clinical interests include epilepsy surgery, cranio-reconstructive surgery, neuroendoscopy, spinal surgery, and neuro-oncology.

A research program in collaboration with the CCHMC Imaging Research Center within the division is currently underway. The division is working collaboratively with the Imaging Research Center to establish research projects in pediatric brain imaging and functional neurosurgery.

As faculty members of the Department of Neurosurgery at the University of Cincinnati College of Medicine the division continued to provide pediatric training to neurosurgery residents. The residents are provided with a full range of pediatric experience during their rotation at CCHMC. The division also continues its dedication to education with the ongoing success of the clinical fellowship program. Our current fellow is Dr. Gary Tye from the Medical College of Virginia.

## HIGHLIGHTS

The division solidified and expanded clinical programs in FY06. The addition of Dr. Mangano added significant capacity to faculty resources to pursue expanded program development, academic endeavors and research. Dr. Mangano brings a special interest in spine surgery and has developed a collaborative relationship with the CCHMC Spine Center. Dr. Biebrauer leads the neurosurgical effort in key CCHMC programs in fetal therapy and the Spina Bifida program. Dr. Crone continued providing clinical, academic and administrative leadership with a special interest in developmental conditions including treatment for hydrocephalus, craniofacial anomalies, and chiari malformations. He has also led a project to bring intra-operative MRI capability to Cincinnati Children's. Cincinnati Children's and BrainLab have developed a new operating suite that integrates magnetic resonance imaging (MRI), stereotactic (3D computer targeting) guidance, and state-of the art neurosurgical tools in a single setting. With this project, Cincinnati Children's will become the first pediatric center in the country to offer the most sophisticated neurosurgical environment, and result in better outcomes for patients. Children with previously incurable epilepsy will have greater chance at more normal lives, previously inoperable brain tumors will become operable, and repairs of a significant number of neurologic defects will become more precise and safer. In addition, post-operative stays will be shorter and children will return to normal activities more quickly. This project has been in development for over three years and will be functional in October of 2006.

The burgeoning research effort of the division is another highlight of a productive year. Scott Holland, PhD, McLaurin Scholar and Director of the Pediatric Brain Imaging Research Program in collaboration with the Neurosurgery faculty and Weihong Yuan, PhD have developed multiple projects in Diffusion Tensor Imaging and fMRI applications. The projects include a DTI study of anisotropic properties in pediatric supratentorial tumors, a DTI study of white matter injury in pediatric hydrocephalus patients, and an fMRI study on the impact of spina bifida on motor and cognitive functions.

## PUBLICATIONS

1. Franz DN, Leonard J, Tudor C, Chuck G, Care M, Sethuraman G, Dinopoulos A, Thomas G, Crone KR. Rapamycin causes regression of astrocytomas in tuberous sclerosis complex. *Ann Neurol* 2006;59(3):490-8.
2. Tinkle BT, Schorry EK, Franz DN, Crone KR, Saal HM. Epidemiology of hemimegalencephaly: a case series and review. *Am J Med Genet A* 2005;139(3):204-11.
3. Mangano FT, Limbrick DD, Jr., Leonard JR, Park TS, Smyth MD. Simultaneous image-guided and endoscopic navigation without rigid cranial fixation: application in infants: technical case report. *Neurosurgery* 2006;58(4 Suppl 2):ONS-E377; discussion ONS-E377.
4. Mangano FT, Menendez JA, Habrock T, Narayan P, Leonard JR, Park TS, Smyth MD. Early programmable valve malfunctions in pediatric hydrocephalus. *J Neurosurg* 2005;103(6 Suppl):501-7.
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