Neurosurgery

Division Details

Division Data Summary

Research and Training Details

Number of Faculty	**4**
Number of Joint Appointment Faculty	**2**
Number of Research Fellows	**1**
Direct Annual Grant Support	**$369,849**
Peer Reviewed Publications	**17**

Clinical Activities and Training

Number of Clinical Staff	**8**

Division Photo

Left to Right: E Air, K Crone, K Bierbrauer, C Stevenson, K Campbell, F Mangano

Significant Accomplishments

During the past year, the surgical epilepsy program, led by Francesco Mangano, DO, has grown and published peer reviewed articles on improved pre-surgical evaluations and outcomes. Additional research, funded by the National Institute of Neurological Disorders and Stroke, focuses on advanced MR imaging in the field of hydrocephalus, for which Mangano and Weihong Yuan, PhD, Division of Radiology, are co-investigators.

Charles Stevenson, MD, leads our brain tumor program, which offers state-of-the-art surgical and medical treatment as well as several innovative clinical trials. The multi-disciplinary neuro-oncology program at continues to grow in size and patient volume. This past year, Cincinnati Children's was selected as a member institution of the Pediatric Brain Tumor Consortium, a national research organization committed to the rapid development of novel therapies for children with brain tumors. Stevenson and colleagues in the Fetal Care Program also continue to perform *in utero* repair of myelomeningocele defects, with good success rates. Multiple fetal myelomeningocele repairs have been performed at Cincinnati Children's, making it one of the few children's hospitals in the country capable of offering this advanced surgical treatment to families.

Karin Bierbrauer, MD, is continuing to collaborate with other institutions to further our understanding of complex injuries and diseases that affect children in unique ways. Bierbrauer was co-principal investigator for the national, multi-site, NIH-sponsored Cool Kids trial to determine whether cooling body temperature after severe head injury would improve outcomes. She is now the site principal investigator for a national registry to study children with Chiari malformations and syringomyelia, an accumulation of fluid in the spinal cord. Bierbrauer continues research in the area of the tethered spinal cord, and has published and presented at national

meetings. Her recently published paper looks at the outcomes, benefits and risks of the surgery most often performed for this condition.

Ellen Air, MD, has teamed up with the palliative care team to offer additional options for the treatment of chronic cancer pain. Air is also leading the way to understand cortical spreading depressions in childhood trauma. Cortical spreading depressions are waves of low frequency electrical activity that can occur in the brain after injury, and have been shown in adults to correlate with poor outcome. Understanding this phenomenon is key to targeting therapies to improve outcome following traumatic brain injury in children.

Kenneth Campbell, PhD, Division of Developmental Biology, has recently joined us as the Robert and Sarah McLaurin Chair of Pediatric Neurosurgery Research. Campbell's work focuses on the molecular genetic mechanisms that control normal brain development and thus has relevance to congenital birth defects in the CNS. His role will be to help foster basic and translational research in the division as well as to provide research opportunities for neurosurgical residents and fellows. Recruitment of basic scientists to collaborate and synergize with the clinical faculty is currently underway to achieve this goal.

Division Publications

1. Air EL, Ostrem JL, Sanger TD, Starr PA. **Deep brain stimulation in children: experience and technical pearls**. *J Neurosurg Pediatr*. 2011; 8:566-74.
2. Buckley RT, Yuan W, Mangano FT, Phillips JM, Powell S, McKinstry RC, Rajagopal A, Jones BV, Holland S, Limbrick DD, Jr.. **Longitudinal comparison of diffusion tensor imaging parameters and neuropsychological measures following endoscopic third ventriculostomy for hydrocephalus**. *J Neurosurg Pediatr*. 2012; 9:630-5.
3. Dixit R, Zimmer C, Waclaw RR, Mattar P, Shaker T, Kovach C, Logan C, Campbell K, Guillemot F, Schuurmans C. **Ascl1 participates in Cajal-Retzius cell development in the neocortex**. *Cereb Cortex*. 2011; 21:2599-611.
4. Fujiwara H, Greiner HM, Hemasilpin N, Lee KH, Holland-Bouley K, Arthur T, Morita D, Jain SV, Mangano FT, Degrauw T, Rose DF. **Ictal MEG onset source localization compared to intracranial EEG and outcome: Improved epilepsy presurgical evaluation in pediatrics**. *Epilepsy Res*. 2012; 99:214-24.
5. Goldberg J, McClaine RJ, Cook B, Garcia VF, Brown RL, Crone K, Falcone RA, Jr.. **Use of a mild traumatic brain injury guideline to reduce inpatient hospital imaging and charges**. *J Pediatr Surg*. 2011; 46:1777-83.
6. Greiner HM, Park YD, Holland K, Horn PS, Byars AW, Mangano FT, Smith JR, Lee MR, Lee KH. **Scalp EEG does not predict hemispherectomy outcome**. *Seizure*. 2011; 20:758-63.
7. Kasasbeh AS, Yarbrough CK, Limbrick DD, Steger-May K, Leach JL, Mangano FT, Smyth MD. **Characterization of the supplementary motor area syndrome and seizure outcome after medial frontal lobe resections in pediatric epilepsy surgery**. *Neurosurgery*. 2012; 70:1152-68; discussion 1168.
8. Maugans TA, Farley C, Altaye M, Leach J, Cecil KM. **Pediatric sports-related concussion produces cerebral blood flow alterations**. *Pediatrics*. 2012; 129:28-37.
9. Maugans TA, Martin D, Taylor J, Salisbury S, Istaphanous G. **Comparative analysis of tranexamic acid use in minimally invasive versus open craniosynostosis procedures**. *J Craniofac Surg*. 2011; 22:1772-8.
10. Ostling LR, Bierbrauer KS, Kuntz Ct. **Outcome, reoperation, and complications in 99 consecutive children operated for tight or fatty filum**. *World Neurosurg*. 2012; 77:187-91.
11. Phillips CL, Miles L, Jones BV, Sutton M, Crone K, Fouladi M. **Medulloblastoma with melanotic differentiation: case report and review of the literature**. *J Neurooncol*. 2011; 103:759-64.

12. Pokharel S, Parker JR, Parker JC, Jr., Coventry S, Stevenson CB, Moeller KK. **Angiocentric glioma with high proliferative index: case report and review of the literature**. *Ann Clin Lab Sci*. 2011; 41:257-61.
13. Singh S, Kline-Fath B, Bierbrauer K, Racadio JM, Salisbury S, Macaluso M, Jackson EC, Egelhoff JC. **Comparison of standard, prone and cine MRI in the evaluation of tethered cord**. *Pediatr Radiol*. 2012; 42:685-91.
14. Sun M, Yuan W, Hertzler DA, Cancelliere A, Altaye M, Mangano FT. **Diffusion tensor imaging findings in young children with benign external hydrocephalus differ from the normal population**. *Childs Nerv Syst*. 2012; 28:199-208.
15. Taylor JA, Maugans TA. **Comparison of spring-mediated cranioplasty to minimally invasive strip craniectomy and barrel staving for early treatment of sagittal craniosynostosis**. *J Craniofac Surg*. 2011; 22:1225-9.
16. Teissier A, Waclaw RR, Griveau A, Campbell K, Pierani A. **Tangentially migrating transient glutamatergic neurons control neurogenesis and maintenance of cerebral cortical progenitor pools**. *Cereb Cortex*. 2012; 22:403-16.
17. Yuan W, McAllister JP, 2nd, Lindquist DM, Gill N, Holland SK, Henkel D, Rajagopal A, Mangano FT. **Diffusion tensor imaging of white matter injury in a rat model of infantile hydrocephalus**. *Childs Nerv Syst*. 2012; 28:47-54.

Faculty, Staff, and Trainees

Faculty Members

Kerry R. Crone, MD, Professor

Karin S. Bierbrauer, MD, Associate Professor

Francesco T. Mangano, DO, Associate Professor

Leadership Acting Director Pediatric Neurosurgery

Charles Stevenson, MD, Assistant Professor

Joint Appointment Faculty Members

Ellen Air, MD, Assistant Professor (Neurosurgery)

Kennth Campbell, PhD, Professor (Developmental Biology and Neurosurgery)

Clinical Staff Members

- **Diane Baudendistel, MSN, RN, CFNP**
- **Brian Crowley, MSN, RN, CFNP**
- **Grace Deyo, MSN, RN, CPNP**
- **Cristina Carone, PA-C, MSPA**
- **Lynn Olberding, MSN, RN, CPNP**
- **Michelle Haimowitz, MSN, RN, CPNP**
- **Candace Sturm, MSN,RN.CPNP**

Trainees

- **Artur Szmczak, MD, Fellow**, 2011, University of Western Ontario,Canada PGY6
- **Scott Phillips, MD, Resident**, 2011, Henry Ford Hospital PGY6
- **Victor Chang, MD, Resident**, 2011, Henry Ford Hospital PGY6
- **Abbas Bahari, MD, Resident**, 2012, Henry ford Hospital PGY6
- **Carlos Casas, MD, Resident**, 2012, Henry Ford Hospital PGY6

- **Sanjay Patra, MD, Resident**, 2012, Henry ford Hospital Pgy6
- **Cyrus King, MD, Resident**, 2012, University of Cincinnati, PGY5
- **Mark Magner, MD, Resident**, 2011, University of Cincinnati, PGY5
- **Ben Bixenmann, MD Resident**, 2011, University Of Cincinnati PGY5
- **Katie Myers, MD Resident**, 2012, University of Cincinnati PGY1
- **Yair Gozel, MD Resident**, 2012, University of Cincinnati PGY1
- **Steven Gogela, MD Resident**, 2012, University of Cincinnat PGY1

Grants, Contracts, and Industry Agreements

Grant and Contract Awards			Annual Direct
MANGANO, F			
Longitudinal DTI Study in Children Treated for Congenital Hydrocephalus			
National Institutes of Health			
R01 NS 066932	09/30/09-06/30/13		$369,849
		Current Year Direct	**$369,849**
		Total	**$369,849**