## Significant Accomplishments

### Diverse, Collaborative Clinical and Research Activities

The surgical treatment of intractable epilepsy in children, and finding new ways to improve outcomes, remains our division’s primary focus. **Division Chief Francesco Mangano, DO**, is co-principal investigator with **Weihong Yuan, PhD**, Department of Radiology, on a study of advanced MR imaging techniques in the field of hydrocephalus. Work from this multi-institutional study was published internationally.

Collaborating with physicians in medical neuro-oncology and radiation oncology, **Charles Stevenson, MD**, leads the division’s brain tumor program. As a member institution of the Pediatric Brain Tumor Consortium (PBTC), Cincinnati Children’s continues to innovate in clinical trials related to brain cancer. In one recent trial sponsored by the National Cancer Institute and PBTC, a special virus designed to kill tumor cells but not affect normal cells was injected into malignant brain tumors that defy chemotherapy and radiation therapy. Cincinnati Children’s is the only pediatric hospital in the US approved for this treatment.

Stevenson, with colleagues in Physical Medicine/Rehabilitation and Physical Therapy launched a multidisciplinary surgical spasticity clinic which focuses on early identification of patients with cerebral palsy and spinal cord injury. As part of the Fetal Care Center, Stevenson continues to perform *in utero* repair of myelomeningocele defects. Surgeons are investigating more minimally invasive procedures for both mother and child.

**Karin Bierbrauer, MD**, collaborates with other institutions to further our understanding of complex injuries and diseases, and is the site principal investigator for a national registry of children with Chiari I malformations and syringomyelia. She performs clinical research on spina bifida and neurologic conditions detected in utero.
and in 2014 co-authored a chapter about monitoring for dorsal rhizotomy and ablative spinal procedures in a textbook on intraoperative monitoring.

**Dr. Sudhakar Vadivelu, DO**, focuses on the surgical and endovascular treatment of children with vascular disorders of the brain and spine, complex craniofacial anomalies, and neurostimulation for children with movement disorders.

**Focus on Hydrocephalus**

**Timothy Vogel, DO**, heads a developmental neuroscience laboratory that studies primary and motile ciliary signaling related to hydrocephalus, a common neurological condition occurring in one in 1,000 children. The lab, along with collaborators **Kenneth Campbell, PhD**, and **Masato Nakafuku, MD, PhD**, is studying signaling pathways related to ciliary signaling.

Instructor **June Goto, PhD**, collaborating in Mangano’s lab, facilitates basic and translational research in hydrocephalus, cooperating with Yuan and Campbell they are studying the molecular and cellular basis of hydrocephalus. In the past year, she performed brain surgeries, immunohistochemistry, and CRISPR-mediated gene targeting using rodent models of hydrocephalus.

**Studying Neural Circuits**

The laboratory of **Steven Crone, PhD**, studies motor circuits in the brainstem and spinal cord and how they are affected by disease or injury. In the past year he has developed several new mouse models in which specific populations of interneurons in the spinal cord are genetically targeted in order to determine their impact on disease. He has expanded his work on locomotor circuits to include therapies to prevent ventilator dependence in patients with neurodegenerative disease or spinal cord injury.

**Division Publications**


25. Yuan W, McAllister JP, Mangano FT. Neuroimaging of white matter abnormalities in pediatric
Faculty, Staff, and Trainees

Faculty Members

Francesco T. Mangano, DO, Associate Professor

Leadership Director Pediatric Neurosurgery

Karin S. Bierbrauer, MD, Associate Professor

Kerry Crone, MD, Professor

Charles Stevenson, MD, Assistant Professor

Sudhakar Vadivelu, DO, Assistant Professor

Timothy Vogel, MD, Assistant Professor

Joint Appointment Faculty Members

Ellen Air, MD, PhD, Assistant Professor (Neurosurgery)

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

Steven Crone, PhD, Assistant Professor (Neurosurgery)

June Goto, PhD, Instructor (Neurosurgery)

Clinical Staff Members

- Brian Crowley, MSN, RN, CFNP
- Cristina Carone, PA-C, MSPA
- Kelly Clapp, MSN, RN, CPNP
- Michelle Haimowitz, MSN, RN, CPNP
- Candace Sturm, MSN, RN, CPNP
- Mary Miller, MSN, RN, CPN
- Rodolfo Canos, MSN, RN, CPN
- Rachel Griffiths, MSN, RN, CPN
- Allie Mains, MSN, RN, CPN
- Vicky Minning, MSN, RN, CPN

Trainees

- Kaveh Asadi-Moghaddam, MD, Fellow, 2012, Ohio State University PGY6
- Mohan S., MD, Resident, 2012, Henry Ford Hospital PGY5
- Paul Mazaris, MD, Resident, 2012, Henry Ford Hospital PGY5
- Michael Sawvel, DO Resident, 2013, West Virginia University PGY4
- Daniel Harwell, MD, Resident, 2012, University of Cincinnati PGY3
- Ryan Tackla, MD, Resident, 2012, University of Cincinnati PGY3
- Jennifer Kosty, MD, Resident, 2013, University of Cincinnati, PGY1
- Mohammed Alsaidi, MD, Resident, 2013, Henry Ford Hospital PGY5
- Jonathan York, MD Resident, 2013, University Of Cincinnati PGY3
- Christopher Carroll, MD Resident, 2013, University of Cincinnati PGY1
- Shawn Vuong, MD Resident, 2013, University of Cincinnati PGY1
### Grants, Contracts, and Industry Agreements

#### Grant and Contract Awards

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<td>Role of Neural Progenitor Cells in the Development of Neonatal Hydrocephalus</td>
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