

change the outcome®



# 3<sup>rd</sup> Annual Advanced Practice Provider Pediatric Neurosurgery Conference

April 1<sup>st</sup>-2<sup>nd</sup>, 2016  
Cincinnati Children's Hospital  
Sabin Auditorium



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## Dear Participant,

Welcome to the 3rd Annual Advanced Practice Provider Pediatric Neurosurgery Conference. We are very excited to host you as we highlight our Neurosurgery Program and the contributions of our Advanced Practice Provider to the division. The conference planning committee has dedicated many hours to the development of this program in hopes that you will come away with a renewed sense of excitement for neurosurgery as well as new knowledge to be incorporated into your practice.

The topics for the various sessions intend to provide a general overview of neurosurgical procedures, guidance for the perioperative management of patients with neurosurgical disorders and insights into the role and evolution of the neurosurgical APP. We hope that the simulation experiences offer you a chance for hands on experience with the skills and procedures that the APP performs in his/her daily practice.

The case studies are designed to provide you the opportunity to test your critical thinking skills in a safe, fun environment.

We look forward to the reception at Via Vite Italian Bistro this evening. This premier restaurant is located on Fountain Square in Downtown Cincinnati. It is a wonderful location for networking while relaxing after a long day of learning.

It takes many people to organize such an event as this. I want to thank all of the members of the planning committee, the presenters and the vendors for their contributions. Without each of you, this conference could not be a success.

Finally, I would like to thank all of you for attending our annual event. We appreciate your confidence that we will provide you with information and education commensurate with the investment of your time and treasure. We are looking forward to continuing this annual event and in seeing you at future conferences.

Enjoy your day!  
Teresa Schleimer

## 3<sup>rd</sup> Annual Advanced Practice Provider Pediatric Neurosurgery Conference Planning Committee

Francesco T. Mangano, DO, FACS, FACOS  
CCHMC

Teresa J. Schleimer, MSN, CNP, CCRN  
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Heidi Adkins, MSN, CNP  
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Assistant, Division of Pediatric  
Neurosurgery  
CCHMC

Candace Sturm, MSN, CNP  
CCHMC

Caitlin Davenport, MSPAS, PA-C  
CCHMC

## Welcome to Cincinnati Children's Hospital and Medical Center

### Change the Outcome

Cincinnati Children's Hospital Medical Center takes pride in its Neurology and Neurosurgery program for its quality and innovative patient care as well as its excellent patient outcomes. In fact, the program has been ranked by U.S. News and World Report to be the number six program in the country and is the largest and most comprehensive pediatric neurosurgery program in the region.



Our multispecialty teams evaluate and treat nearly every neurologic disease and disorder of childhood, including:

- Neuro-Oncology Conditions
- Craniofacial Abnormalities
- Epilepsy
- Chiari Malformations
- Hydrocephalus and other congenital cysts or lesions of the brain or spine
- Spasticity
- Spina Bifida
- Spinal Disorders
- Traumatic and post-traumatic disorders of the brain and spine
- Blood vessel lesions such as aneurysms and arteriovascular malformations

### Learning Objectives

- Discuss current topics including surgical interventions for a wide range of neurological disorders.
- Discuss current research and its role in generating innovations and in improving outcomes for the patient with a neurosurgical disorder.
- Describe the diagnosis, imaging review, and management of patients with a traumatic neurologic injury.
- Improve critical thinking in the management of acute increased intracranial pressure through a group stimulation activity and improve technique in a suturing skills lab.

### Teaching Methods

Course content will be presented through presentations, case studies, panel discussions and simulations requiring the learner to take an active role in knowledge acquisition.

### Target Audience

This conference is intended for Advanced Practice Registered Nurses and Physician Assistants caring for patients with neurosurgical disorders. Physicians and nurses who are part of the healthcare team involved in the management of these patients would also benefit from the program.

**Advanced Practice Provider Pediatric Neurosurgery Conference  
Presented by Cincinnati Children's Hospital and Medical Center  
Cincinnati Children's Hospital Sabin Auditorium**

**Friday, April 1st, 2016**

<b>7:30 – 8:00 am</b>	<b>Registration/Continental Breakfast</b>
<b>8:00 – 8:15 am</b>	<b>Welcome</b> Teresa Schleimer, MSN, CNP
<b>8:15 – 9:00 am</b>	<b>KEYNOTE: Accidents Will Happen: Practical Neurosurgery for the Acute Care Practitioner</b> Thomas M. Moriarty, M.D., Ph.D. Director, Pediatric Neurosurgery at Kosair Children's Hospital
<b>9:00 – 9:45 am</b>	<b>Abusive Head Injury</b> Robert Shapiro, MD
<b>9:45 – 10:00 am</b>	<b>Break / Networking / Vendor Visits</b>
<b>10:00 – 10:45 am</b>	<b>Shunt Infection Prevention Update</b> Joshua Schaffzin, MD
<b>10:45 – 11:30 am</b>	<b>Imaging Approach to Pediatric Head and Neck Trauma</b> Luke L. Linscott, MD
<b>11:30 – 11:45 am</b>	<b>Patient-Centric Shunt Tracking with the HydroAssist Smartphone Application</b> Jesse Skoch, MD
<b>11:45 – 12:30 pm</b>	<b>Lunch / Networking / Vendor Visits</b>
<b>12:30 – 1:15 pm</b>	<b>Care Priorities for the Multiply Injured Child</b> Rebecca Sue Cook, MSN, CNP

**Friday, April 1st, 2016**

**1:15 – 2:00 pm**

**ICP Management**

Rachel Griffiths, MSN, CNP;  
Candace Sturm, MSN, CNP

**2:00 – 3:45 pm**

**Breakout Sessions**

**A. Suturing and Surgical Knots**

Katy Carroll, MSPA, PA-C

**B. Emergent Management of an ICP Crisis**

Caitlin Davenport, MSPAS, PA-C

**3:45 – 4:00 pm**

**Closing Evaluation**

**5:00 – 8:00 pm**

**Wine and Hors D'oeuvres Reception**

Via Vite, Fountain Square  
Downtown Cincinnati



**Saturday, April 2nd, 2016**

**7:30 – 8:00 am**

**Registration/Full Breakfast Buffet**

**8:00 – 8:15 am**

**Welcome**

Teresa Schleimer, MSN, CNP

**8:15 – 9:00 am**

**Rehabilitation Treatment of Pediatric Patients with Traumatic Brain Injury**

Nathan K. Evanson, MD, PhD

**9:00 – 9:45 am**

**KEYNOTE: Neurosurgery of Non Accidental Trauma: Lessons from the Front Lines**

Thomas Moriarty, MD, PhD

**9:45 – 10:00 am**

**Break / Networking / Vendor Visits**

**10:00 – 10:45 am**

**Moyamoya: Research, Pathophysiology, and Treatment**

Cristina Carone, MSPA, PA-C

**10:45 – 11:30 am**

**Clinical Utility of Acute Imaging in Pediatric Craniocervical Injury**

Sudakhar Vadivelu, DO

**11:30 – 12:30 pm**

**Lunch / Networking / Vendor Visits**

**12:30 – 1:15 pm**

**Considerations in Pediatric Spine Trauma**

Jesse Skoch, MD

**1:30 – 2:00 pm**

**Perioperative Management of the Pediatric Neurosurgery Patient**

Talitha Hunt, PA-C

Saturday, April 2nd, 2016

2:00 – 2:45 pm

**Posterior Fossa Syndrome**

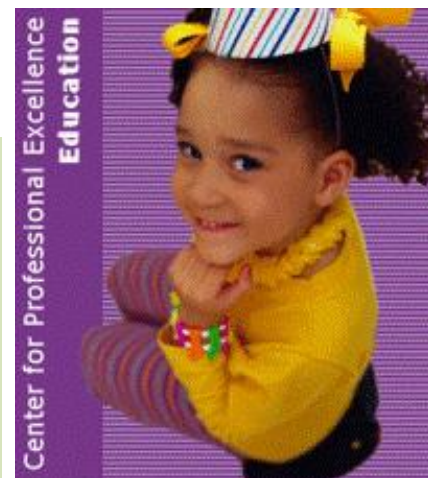
Caitlin Davenport, MSPAS, PA-C

3:30 – 3:45 pm

**Wrap Up and Closing Evaluation**

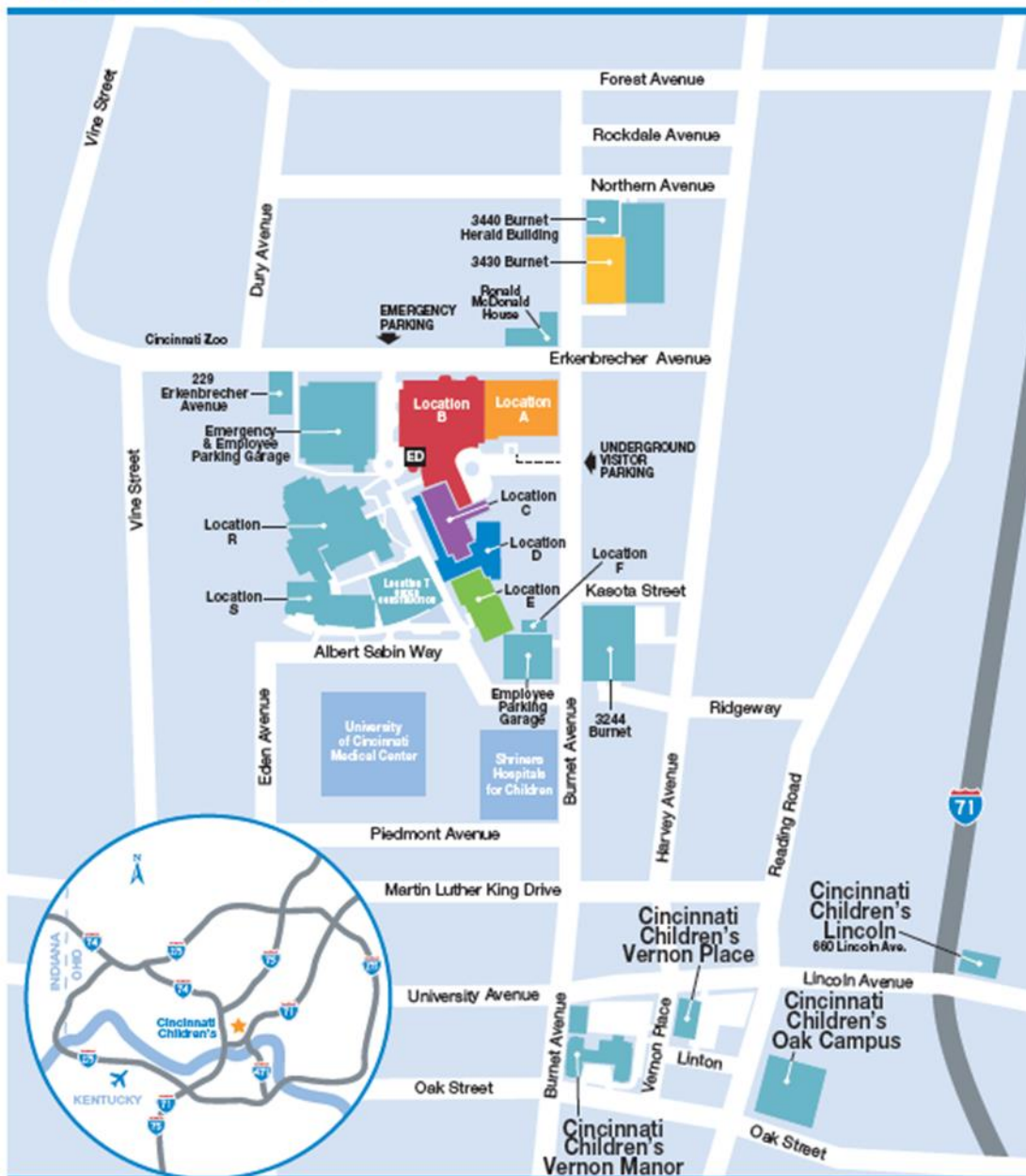
## Special Thanks

- Special thanks to our vendors, Codman, Evokes, and Biomet.
- Special thanks to the CCHMC Department of Neurosurgery and CCHMC Center of Professional Excellence for their financial support of this event.



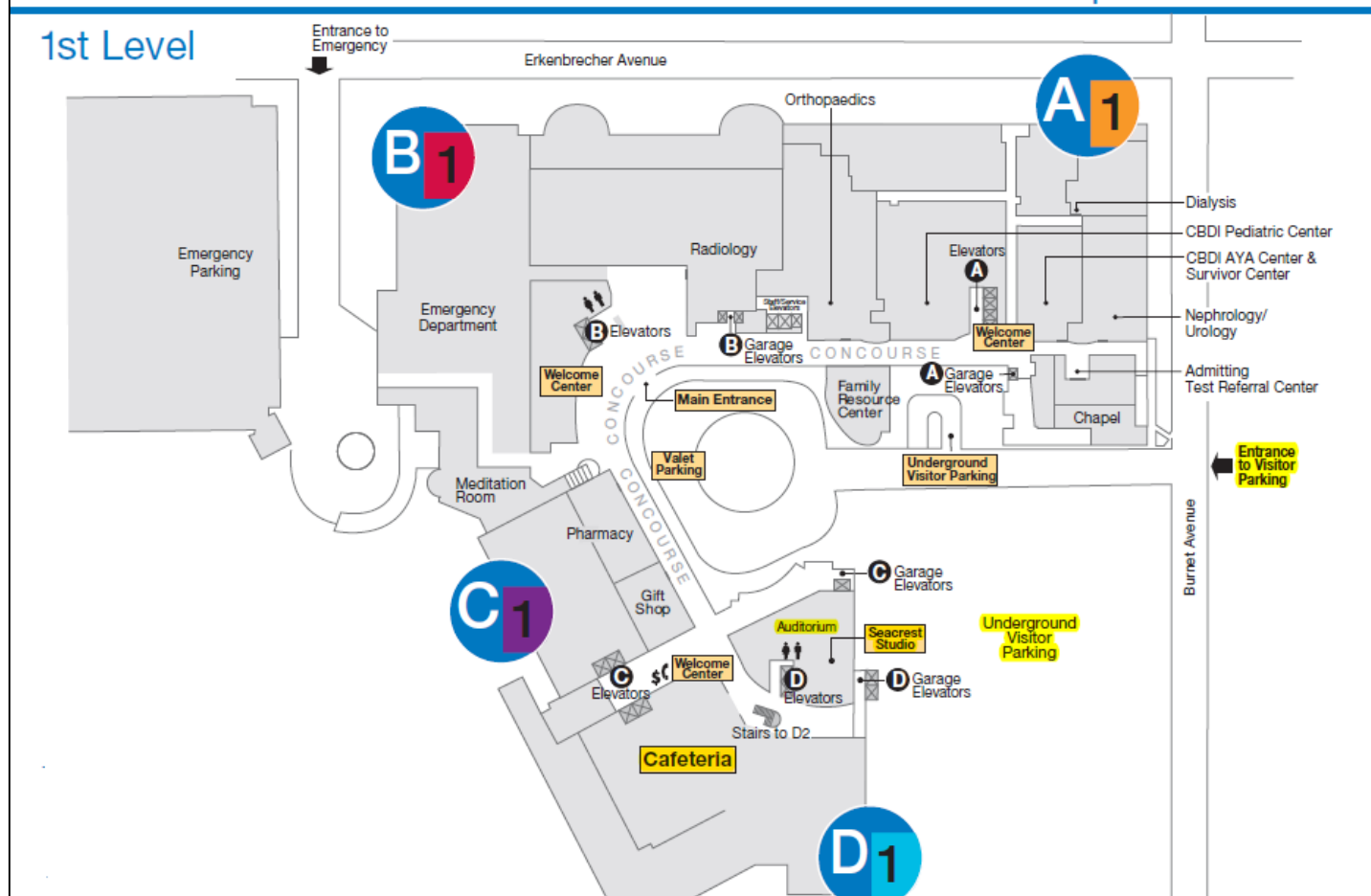


## CAMPUS MAP



## Main Concourse at Cincinnati Children's Burnet Campus

### 1st Level



\*Please note that visitors parking as well as the Sabin Auditorium are highlighted in yellow.

**For free parking, stop by the Welcome Center (just inside of the D entrance) to validate your parking receipt.**

## Continuing Education

### Accreditation

Cincinnati Children's Hospital Medical Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CCHMC designates the live activity for a maximum of 12.75 AMA PRA Category 1 Credit(s)<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### Disclosures

The Planners & Presenters have no conflict of interest related to this program.

Sponsors for this program have not been involved in the planning, implementation or evaluation of this activity.

CCHMC does not endorse any commercial support/sponsorship for this program.

## Information for Those Obtaining Certificates of Attendance/Continuing Education Credits

**DO NOT DISCARD THIS SHEET UNTIL YOU HAVE CLAIMED CREDIT/PRINTED A CERTIFICATE**

### ➔ Credit/Evaluations:

In order to receive continuing education credits and/or a certificate of attendance, a participant **MUST**:

- Sign in both days
- Complete an online electronic evaluation

Even if you do not need credit, we still ask you to complete an evaluation to help make program improvements!

### ➔ To complete the electronic evaluation/receive a certificate:

Within 10 days of the meeting you will receive an email with instructions to complete the evaluation claim credit/print a certificate

The evaluation period will close May 25, 2015. Credit/certificates will not be available after this date.

➔ If you do not receive the directions within 10 days, contact [cme@cchmc.org](mailto:cme@cchmc.org) immediately. ←

**Disclosure:** The following committee members /faculty have indicated commercial support relationship(s):

**Jeff Ojemann, MD: Ownership Interest – Therma Neurosciences**

*All planning committee members'/faculty identified conflicts of interest pertaining to this activity were resolved prior to the activity. Remaining committee members/faculty identified no pertinent conflicts*

**Commercial Support:** None

**Educational Gap:** The American Association of Neurological Surgeons foresees a shortage of an adequate neurosurgical workforce in the 21st century. The eminence of the mid-level practitioner in the neurosurgical fields is a very recent development as many institutions, such as CCHMC, are turning to the mid-level practitioner to provide pediatric and neurosurgical care to ensure on call coverage, OR assistance and inpatient and outpatient care. As with any emerging field, these practitioners require additional subspecialty training beyond that of the PNP, CNP or FNP certification.

### **Accreditation:**

#### **Physicians:**

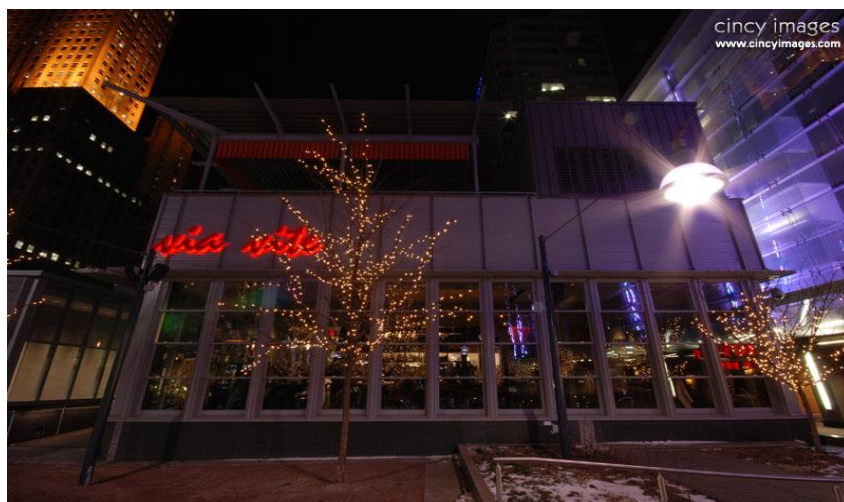
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## Wine and Hors d'oeuvres Reception at Via Vite Italian Bistro

**Please join us in celebration of our Annual Advanced Practice Provider Pediatric Neurosurgery Conference at the after-hours reception from 5:00 – 8:00pm at Via Vite Italian Bistro.**

We hope you can take a moment to wind down with us and enjoy an evening of rest, fun and networking. Beverages as well as assorted hors d'oeuvres will be served.



We will gather the beautiful Via Vite Bistro for our after-hours reception. Please find directions and map on following pages.

Via Vite Italian Bistro on Fountain Square in Downtown Cincinnati offers the most authentic Italian food. They opened their doors on October 11, 2007 and were founded by one of the most prominent and successful restaurateurs in Cincinnati. Chef Cristian and Amanda Pietoso became the sole owner/operators of the restaurant in 2012. Chef Cristian and his culinary team source the finest imported and local ingredients and hand make each dish in our scratch kitchen. They are located on Fountain Square in the heart of the Central Business District of Downtown Cincinnati.

Photos courtesy of [www.cincyimages.com](http://www.cincyimages.com)  
Information courtesy of [www.viaviterestaurant.com](http://www.viaviterestaurant.com)

## Location of Via Vitte Italian Bistro

**Via Vite Italian Bistro on Fountain Square Central Business District**  
520 Vine St, Cincinnati, OH 45202

### From Cincinnati Children's Hospital & Medical Center:

- Depart Burnet Ave toward Hearne Avenue
- Bear right onto US-42/Reading Rd.
- Keep left onto US-42 N/Reading Rd.
- Take ramp right and follow signs for I-71 South
- Take ramp left for Third St toward Downtown/Riverfront
- Turn right onto Berning Pl
- Turn left onto 4<sup>th</sup> St E
- Turn right onto Vine St

### From I-75 South:

- I-75 S, follow signs for Cincinnati
- At exit 1C, take ramp left for OH-264E/W 5<sup>th</sup> St toward 5<sup>th</sup> St/Downtown
- Keep straight onto US-27 S/ US-42 S/ US-52E/ US-127 S/ OH-264 E/ 5<sup>th</sup> St W
- Keep straight onto OH-264 E/5<sup>th</sup> St W
- Keep straight onto 5<sup>th</sup> St W
- Turn left onto Vine St, Via Vite will be on the right

### From I-75/I-71 North:

- I-75 N, follow signs for Cincinnati
- At exit 1C, take ramp left for OH-264E/W 5<sup>th</sup> St toward 5<sup>th</sup> St/Downtown
- Keep straight onto US-27 S/ US-42 S/ US-52E/ US-127 S/ OH-264 E/ 5<sup>th</sup> St W
- Keep straight onto OH-264 E/5<sup>th</sup> St W
- Keep straight onto 5<sup>th</sup> St W
- Turn left onto Vine St, Via Vite will be on the right

## Conference Vendors

**Zimmer-Biomet**  
56 E Bell Drive  
Warsaw, IN 46582  
Phone: (574) 267-6639  
<http://www.zimmerbiomet.com/>

**Codman & Shurtleff, Inc.**  
325 Paramount Drive  
Raynham, MA 02767  
Phone: (508) 880-8100  
[www.depuy.com](http://www.depuy.com)

**Evokes, Inc.**  
8118 Corporate Way  
Mason, OH 45040  
Phone: 1(877) 938-6537  
<http://www.evokesinc.com/>

**Vendors listed above include those that had registered at date of publication.**

The Planners & Presenters have no conflict of interest related to this program.  
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## Speaker Biographies and Backgrounds



Thomas Moriarty, M.D., Ph.D., is chief of pediatric Neurosurgery at Kosair Children's Hospital. Dr. Moriarty received his medical degree from Mount Sinai School of Medicine in New York City. He completed an internship at Brigham and Women's Hospital and the Children's Hospital, Harvard Medical School, Boston, and his residency in the Harvard Medical School Neurosurgical Training Program.

Dr. Moriarty is certified by the American Board of Pediatric Neurosurgery. He is a member of the American Association of Neurological Surgeons/CNS Joint Section on Pediatrics, the American Society of Pediatric Neurosurgery and the International Society of Pediatric Neurosurgery.

### Cristina Carone, PA-C



Cristina Carone, PA-C, joined the Division of Pediatric Neurosurgery at Cincinnati Children's Medical Center in 2008 after completing her Masters of Science in Physician Assistant Studies at Marietta College. After her didactic year, she spent the remainder of her clinical year devoting time toward pediatrics and more specifically spent time doing rotations in pediatric as well as adult neurosurgery. Cristina's interest in pediatric neurosurgery stemmed from her undergraduate background with her neuroscience minor as well as being a researcher at Kettering Hospital and Cincinnati Children's Hospital working with volumetric analysis, DTI, and immunohistochemistry with patients with neurological diseases.

### Katy Carroll, PA-C



Katy Carroll, PA-C, joined the Division of Pediatric Neurosurgery at Cincinnati Children's Hospital Medical Center in February 2014. She received her Master of Science in Physician Assistant Studies from the University of Kentucky. Katy has been a Neurosurgical Physician Assistant since 2008 and has a special interest in first assisting in the operating room.

### Rachel Griffiths, MSN, CNP



Rachel Griffiths, CNP, joined Cincinnati Children's Hospital Medical Center in 2008. Shortly after joining she completed her BSN from Indiana Wesleyan University. After working in research for 2 years at CCHMC, Rachel decided to obtain her Acute Care Pediatric Nurse Practitioner degree from the University of Cincinnati. At that time she also decided to obtain critical care experience in the Cardiac Intensive Care Unit at CCHMC. Rachel has worked as a Nurse Practitioner for the Division of Neurosurgery for 2 years.

## Candace Sturm, MSN, CNP



Candace Sturm, CNP, joined Cincinnati Children's Medical Center in 2006 after obtaining her BSN from the University of Kentucky. After working as a NICU nurse for five years, Candace decided to further her education by obtaining her MSN from the University of Cincinnati. Candace has worked as a Nurse Practitioner for the Division of Neurosurgery for 4 years. She is certified as a Pediatric Nurse Practitioner.

## Robert A. Shapiro, M.D.



Robert Shapiro, MD, is director of the Child Abuse Team at Children's Hospital Medical Center and director of the Child Abuse and Forensic Pediatrics Fellowship. Dr. Shapiro's role on the team includes inpatient and outpatient consultations and evaluations for suspected child physical or sexual abuse. These consultations and evaluations are completed in collaboration with a social worker on the team. He also teaches child abuse diagnosis to students, residents and post-graduate fellows.

Dr. Shapiro's research interests include sexually transmitted infections and fractures caused by abuse. The Child Abuse and Forensic Pediatrics Fellowship he directs is a one-year training program for pediatricians. The fellowship program emphasizes child abuse clinical, research, educational and administrative expertise and advocacy.

## Sudhakar Vadivelu, DO



Sudhakar Vadivelu, DO, joined the Division of Pediatric Neurosurgery at Cincinnati Children's Hospital Medical Center after completing his fellowship in pediatric neurosurgery at Texas Children's Hospital and neurosurgical residency at Hofstra North Shore-LIJ School of Medicine. While at Hofstra North Shore-LIJ, he acquired additional training in endovascular surgery in the care of vascular disorders of the brain and spine. Dr. Vadivelu's interest, specialized training and research background in the role of inflammation in neurogenesis and stem cells, make him uniquely qualified to lead our division in its collaborative efforts with the division of interventional neuroradiology for the treatment of children with vascular disorders of the brain and spine. In addition, Dr. Vadivelu brings expertise in spinal diseases, brain and spinal cord tumors, neuroendoscopy and neurostimulation.

## Joshua K. Schaffzin, M.D., Ph.D., FAAP

Joshua K. Schaffzin, MD, PhD, completed his training in medicine, molecular genetics, biochemistry, and

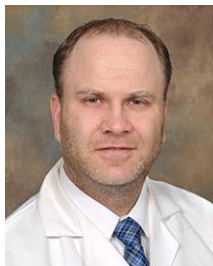


microbiology as a member of the University of Cincinnati College of Medicine Physician Scientist Training Program, followed by a pediatric residency at Cincinnati Children's Hospital Medical Center. He then was accepted to the Centers for Disease Control and Prevention's Epidemic Intelligence Service, serving in Albany, NY at the New York State Department of Health. He stayed on at the NYSDOH for three additional years before coming back to Cincinnati Children's as a surgical hospitalist.

During his time in Public Health, Dr. Schaffzin received a number of awards and recognitions for work on significant outbreaks, including one of the largest US recreational water outbreaks of cryptosporidiosis, a fungal infection associated with contact lens solution, transmission of hepatitis B and C virus in healthcare, and he lead the infection control response to the 2009 H1N1 pandemic in all NYS healthcare

facilities. He currently serves as SSI co-leader for subject matter in the Ohio Children's Hospitals Solutions for Patient Safety.

### **Nathan K. Evanson, M.D., Ph.D.**



Nathan K. Evanson, MD PhD, is originally from Southern Alberta, Canada. He obtained his bachelor's degree in biochemistry and nutritional science from Brigham Young University and went on to train in the physician scientist training program at the University of Cincinnati College of Medicine. He completed a combined residency program in pediatrics and physical medicine and rehabilitation, then joined the Division of Pediatric Physical Medicine and Rehabilitation at Cincinnati Children's. He runs the Brain Recovery After Injury (BRAIN) clinic in the division, as well as doing basic research into recovery from traumatic brain injury. Dr. Evanson's research interests include environmental effects on neuroplasticity and recovery from brain injury, the effects of stress on recovery from brain injury, and neuroendocrine dysregulation after traumatic brain injury.

### **Rebecca Sue Cook, MSN, CNP**

Becky Cook, DNP, APRN, CPNP, is a trauma nurse practitioner at Cincinnati Children's Hospital Medical Center. Prior to this position, Becky worked as a nurse practitioner in Same Day Surgery for one year and case manager for Pediatric Rehabilitation.

Becky's responsibilities include coordinating and managing the care for traumatically injured children and providing education services for patients and families. She assists in monitoring the PI system for trauma services, including outcomes and system / process issues. Becky also provides and coordinates educational opportunities for staff nurses, surgical residents, social workers and child life specialists with regards to trauma.

Becky participates in multiple trauma-related committees, such as Trauma Resuscitation and Trauma Psychosocial Team. She is also a member of the Magnet Steering Committee and co-chairs the Society of Trauma Nurses Advance Practice Special Interest Group.

### **Luke L. Linscott, M.D.**



Since July, 2014, Luke Linscott, MD has been an Assistant Professor of Radiology and Pediatrics at the University of Cincinnati and a pediatric neuroradiologist at Cincinnati Children's Hospital. Prior to his employment, Dr. Linscott completed 2 years of fellowship, 2012-2013 in Pediatric Radiology and 2013-2014 in Pediatric Neuroradiology, at Cincinnati Children's Hospital, completed his Diagnostic Radiology Residency at the Mallinckrodt Institute of Radiology in St. Louis in 2012 and received his Doctor of Medicine from the University of Utah School of Medicine. Dr. Linscott has authored more than 13 peer reviewed articles, written several book chapters as well as presented multiple presentations at national Society meetings.

### **Jesse Skoch, M.D.**

Jesse Skoch is a graduate of the University of Colorado School of Medicine. He completed his neurosurgical residency at the University of Arizona and is the current pediatric neurosurgery fellow at Cincinnati Children's Hospital Medical Center. His interests in research include hydrocephalus and epilepsy.

### **Caitlin Davenport, MSPAS, PA-C**

Caitlin Davenport graduated from Marywood University in 2011 with her Bachelor's degree in Health Sciences and in 2012 with her Master's of Physician Assistant Studies. She was inducted into Pi Alpha, the national honor society for physician assistants, in 2012 and was awarded the Clinical Excellence medal. She began her career in neurosurgery at Geisinger Medical Center treating both adult and pediatric patients across sub-specialties. She joined the neurosurgery team at Cincinnati Children's last year.

### **Talitha Hunt, PA-C**

Tali Hunt graduated from Vanguard University in Southern California with a Bachelors in Chemistry, earned her Master's degree in Physician Assistant Studies from the University of Kentucky in 2011. Since then she has been working in adult neurosurgery and recently joined the Advanced Practice staff at Cincinnati Children's Hospital.

## Presentation Objectives and Notes

<b>KEYNOTE: Accidents Will Happen: Practical Neurosurgery for the Acute Care Practitioner</b> Thomas Moriarty, MD, PhD	Pages 20-21
<b>Abusive Head Injury</b> Robert Shapiro, MD	Pages 22-23
<b>Shunt Infection Prevention Update</b> Joshua Schaffzin, MD	Pages 24-25
<b>Imaging Approach to Pediatric Head and Neck Trauma</b> Luke L. Linscott, MD	Pages 26-27
<b>Patient-Centric Shunt Tracking with the HydroAssist Smartphone Application</b> Jesse Skoch, MD	Pages 28-29
<b>Care Priorities for the Multiply Injured Child</b> Rebecca Sue Cook, MSN, CNP	Pages 30-31
<b>ICP Management</b> Rachel Griffiths, MSN, CNP – Candace Sturm, MSN, CNP	Pages 32-33
<b>Break-out Session: Suturing and Surgical Knots</b> Katy Carroll, MSPA, PA-C	Pages 34-35
<b>Break-out Session: Emergent Management of an ICP Crisis</b> Caitlin Davenport, MSPAS, PA-C	Pages 36-37
<b>Rehabilitation Treatment of Pediatric Patients with Traumatic Brain Injury</b> Nathan K. Evanson, MD, PhD	Pages 38-39
<b>KEYNOTE: Neurosurgery of Non Accidental Trauma: Lessons from the Front Lines</b> Thomas Moriarty, MD, PhD	Pages 40-41
<b>Moyamoya: Research, Pathophysiology, and Treatment</b> Cristina Carone, MSPA, PA-C	Pages 42-43
<b>Clinical Utility of Acute Imaging in Pediatric Craniocervical Injury</b> Sudakhar Vadivelu, DO	Pages 44-45
<b>Considerations in Pediatric Spine Trauma</b> Jesse Skoch, MD	Pages 46-47
<b>Perioperative Management of the Pediatric Neurosurgery Patient</b> Talitha Hunt, PA-C	Pages 48-49
<b>Posterior Fossa Syndrome</b> Caitlin Davenport, MSPAS, PA-C	Pages 50-51

**Thomas Moriarty, MD, PhD**

- 1) Increase awareness of sign and symptoms of acute brain injury.
- 2) Increase understanding of diagnostic tools for brain trauma.
- 3) Increase understanding of indications and options for surgery in brain trauma.

This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the paper.

[illegible]





[illegible]

### Learning objectives:

- 
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[illegible]

### Learning objectives:

- 1) Participant will be able to identify various types of intracranial hemorrhage.
- 2) Participant will be able to identify imaging signs of a non-accidental trauma.
- 3) Participant will be able to understand the imaging algorithm for cervical spine injuries in children.

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[illegible]

## Learning objectives:

- 1) Participant will be able to identify indications for the use of the HydroAssist Application.
- 2) Participant will be able to master and educate others on proper use of the application for shunt tracking.
- 3) Participant will be able to describe the role of patient-centric medical information management.

[illegible]



[illegible]

### Learning objectives:

- 
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[illegible]

**Rachel Griffiths, MSN, CNP – Candace Sturm, MSN, CNP**

- 1) Participant will be able to identify normal and abnormal ICP's.
- 2) Participant will be able to identify indications for ICP monitoring (traumatic and non-traumatic)
- 3) Participant will have the ability to develop/formulate a treatment plan for the management of elevated ICP's.

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[illegible]



### Learning objectives:

- 1) Participant will be able to demonstrate proper technique with suturing instruments.
- 2) Participant will be able to recognize and perform interrupted, running, and subcuticular stitches.
- 3) Participant will be able to discuss different types of suture material and their ideal utilization.

[illegible]



[illegible]

### Learning objectives:

- 
- This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

**Nathan K. Evanson, MD, PhD**

- 1) Provide an overview of principles of inpatient and outpatient neurorehabilitation care of pediatric TBI patients.
- 2) Introduce the main team members in a neurorehabilitation team and the roles they play in patient care.
- 3) Provide a general idea of long-term prognosis/outcomes after a traumatic brain injury with appropriate rehabilitation care.

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[illegible]

**Thomas Moriarty, MD, PhD**

- 1) Increase awareness of signs and symptoms of NAT.
- 2) Increase understanding of diagnostic tools for NAT.
- 3) Increase understanding of indications and options for surgery in NAT.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

### Learning objectives:

- 1) Participant will be able to understand current research in the field of intracranial arteriostenosis and moyamoya and how to correlate this with the pathophysiology of the process.
- 2) Participant can define of moyamoya and can differentiate between moyamoya disease vs. syndrome.
- 3) Participant will be able to explain patient selection process for medical versus surgical treatment.
- 4) Participant will be able to describe current diagnostic and therapeutic strategies for management of moyamoya.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.







[illegible]



### Learning objectives:

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- This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

### Learning objectives:

- 1) Participant will be able to identify the most common neurosurgery procedures.
- 2) Participant will be able to identify common potential perioperative complications/concerns in the pediatric neurosurgery population.
- 3) Participant will discuss how to increase patient safety by helping neurosurgery providers anticipate complications to prevent or provide early treatment for adverse events.

[illegible]

[illegible]





### Learning objectives:

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- This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

[illegible]