



Children's  
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**UAB** MEDICINE  
PEDIATRICS

# 2017

## Pediatric Surgery Academic Annual Report

Dear Friends and Colleagues,

2017 was another productive year for Children's of Alabama and the Pediatric Surgical Subspecialties. Significant contributions were made both in the realm of basic scientific discoveries as well as participation in clinical studies. We are pleased to provide the details in this report. Our commitment to discovery and innovation will improve the care we provide for the children in Alabama and beyond.

Sincerely,

A handwritten signature in black ink that reads "Mike Chen, MD, MBA". The signature is written in a cursive, flowing style.

Mike K. Chen, MD, MBA  
Farley Endowed Chair  
Professor of Surgery  
Surgeon-in-Chief, Children's of Alabama  
Director, Division of Pediatric Surgery  
Department of Surgery  
UAB School of Medicine

The Pediatric Surgical Subspecialties at Children's of Alabama are comprised of 10 subspecialty divisions, each with specific interests and focus on education, research and excellent clinical care. The highlights and accomplishments of each division and its faculty in 2016 will be detailed.

### **Pediatric Surgical Subspecialties**

1. Pediatric General Surgery
2. Pediatric Neurosurgery
3. Pediatric Oral/Maxillofacial Surgery
4. Pediatric Orthopedic Surgery
5. Pediatric Plastic Surgery
6. Pediatric Urology

## Pediatric General Surgery



### Featured Research

The Division of Pediatric Surgery continues to be productive in a broad range of research--pediatric oncology, necrotizing enterocolitis, pediatric trauma, and clinical outcomes research. This division has garnered over \$500,000 in grant funding to support the research mission.

Dr. Elizabeth Beierle continues her research efforts focused on novel treatment strategies for pediatric solid tumors and utilizing patient-derived xenograft models of pediatric solid tumors to study these innovative therapies. She continues to evaluate the utility of a novel retinoid therapy, 9-cisUAB30, for the treatment of pediatric neuroblastoma and high-risk pediatric medulloblastoma. In addition to her basic science research, Dr. Beierle has been involved in the utilization of the National Cancer Database to evaluate outcomes and disparities in pediatric cancer outcomes. Her published manuscripts have involved evaluation of outcomes in pediatric head and neck melanoma, thyroid cancer, and testicular/ovarian malignancies.

Obesity continues to be a problem among early adolescents within the United States. Dr. Mike Chen continues his leadership as the local PI for the NIH prospective observational study: Teen-Longitudinal Assessment of Bariatric Surgery (Teen-LABS). This project continues to publish important manuscripts on the outcomes of bariatric surgery on teenage patients.

Necrotizing enterocolitis continues to be a significant source of morbidity and mortality in premature infants. Dr. Colin Martin has established a laboratory and clinical effort, as surgical director of the Children's of Alabama/UAB Center for Advanced (CCAIR) Intestinal Rehabilitation, focused on improving outcomes in pediatric patients with necrotizing enterocolitis and short bowel syndrome. With a multidisciplinary effort, CCAIR has 5 active research protocols. His investigational focus continues to define the role of innate immunity in intestinal diseases of prematurity. Specifically, they are interested in how the environment during pregnancy and shortly after birth, shapes developing neonatal immune function. The overall goal is to develop novel vaccine strategies that can protect neonates at risk for intestinal diseases.

Trauma continues to be the most common cause of mortality and morbidity in the children over one year of age. Dr. Rob Russell continues to investigate the pediatric response to trauma in relation to development of coagulopathy following trauma. His current investigations have begun to characterize the very early changes in the endothelial microenvironment following trauma. He has begun to utilize murine models to evaluate potential early therapies to combat this maladaptive response to severe trauma. In addition, he has continued to publish research characterizing important clinical outcomes surrounding pediatric surgical care with the National Surgical Quality Improvement Project-Pediatrics (NSQIP-P) and multi-institutional collaboration.

### Publications

1. **Martin CA**, Patel M, and Sims B. Erythropoietin-Induced Cytoprotection in Intestinal Epithelial Cells is linked to System Xc. *Experimental Cell Research*. 352(2):202-206, 2017.

2. Richards MK, Czechowicz J, Goldin AB, Gow KW, Doski J, Goldfarb M, Nuchtern J, Langer M, **Beierle EA**, Vasudevan S, Gupta D Parikh SR. Survival and surgical outcomes for pediatric head and neck melanoma: A National Cancer Data Base Review. *JAMA Otolaryngol Head Neck Surg*, 143:34-40, 2017.
3. Richards MK, Goldin AB, **Beierle EA**, Doski J, Goldfarb M, Langer M, Nuchtern J, Vasudevan S, Gow KW, Javid SH. Breast malignancies in children: presentation, management, and survival. *Ann Surg Oncol*, 24:1482-1491, 2017.
4. Maizlin II, Redden DT, **Beierle EA**, **Chen MK**, **Russell, RT**. Utilization of the NSQIP-Pediatric database in development and validation of a new predictive model of pediatric postoperative wound complications. *J Amer Coll Surg*, 224:532-545, 2017.
5. Richards MK, Goldin AB, Savinkina A, Doski J, Goldfarb M, Nuchtern J, Langer M, **Beierle EA**, Vasudevan S, Gow KW, Raval MV. The association between nephroblastoma-specific outcomes and high versus low volume treatment centers. *J Pediatr Surg*, 52:104-108, 2017.
6. Maizlin II, Shroyer M, **Chen MK**, **Beierle EA**, **Russell, RT**. Open versus laparoscopic approach to gastric fundoplication in children with cardiac risk factors. *J Surg Res*, 220:52-58, 2017.
7. Garner EF, Maizlin II, Dellinger MB, Gow K, Goldfarb M, Goldin AB, Doski JJ, Langer M, Nuchtern JG, Vasudevan SA, Raval MV, **Beierle EA**. Effects of socioeconomic status on children with well-differentiated thyroid cancer. *Surgery*, 162:662-669, 2017.
8. Ring EK, Li R, Moore BP, Nan L, Kelly VM, Han X, **Beierle EA**, Markert JM, Leavenworth JW, Gillespie GY, Friedman, GK. Newly characterized murine undifferentiated sarcoma models sensitive to virotherapy with oncolytic HSV-1 M002. *Molec Ther Oncolytics*, 13:27-36, 2017.
9. Bownes LV, Stafman LL, Maizlin II, Dellinger M, Gow KW, Goldin AB, Goldfarb M, Langer M, Raval MV, Doski JJ, Nuchtern JG, Vasudevan SA, **Beierle EA**. Socioeconomic disparities affect survival in malignant ovarian germ cell tumors in AYA population. *J Surg Res*, 2017, Oct 5. pii: S0022-4804(17)30610-8. doi: 10.1016/j.jss.2017.09.013. [Epub ahead of print].
10. Maizlin II, Dellinger M, Gow KW, Goldin AB, Goldfarb M, Nuchtern JG, Langer M, Vasudevan SA, Doski JJ, Raval MV, **Beierle EA**. Testicular tumors in prepubescent patients. *J Pediatr Surg*, 2017 Oct 8. pii: S0022-3468(17)30626-7. doi: 10.1016/j.jpedsurg.2017.09.020. [Epub ahead of print]
11. Stafman LL, Maizlin II, Dellinger M, Gow KW, Goldfarb M, Nuchtern JG, Langer M, Vasudevan SA, Doski JJ, Goldin AB, Raval M, **Beierle EA**. Disparities in fertility-sparing surgery in adolescent/young women with Stage I ovarian dysgerminoma. *J Surg Res*, 2017, in press.
12. Yoon K, Miller A, Garcia P, Pressey J, **Beierle EA**, Kelly D, Crossman D, Council L, Daniel R, Watts R, Cramer S. Whole exome sequencing identified sixty-five coding mutations in four neuroblastoma tumors. *Sci Reports*, 7:17787, 2017. doi: 10.1038/s41598-017-17162-y.
13. Fischer TD, Gaitonde SB, Bandera BC, Raval MV, Vasudevan SA, Gow KW, **Beierle EA**, Doski JJ, Goldin AB, Langer M, Nuchtern JG, Stern S, Foshag LJ, Goldfarb M. Pediatric-protocol of multimodal therapy is associated with improved survival in AYAs and adults with rhabdomyosarcoma. *Surgery*, 2017 Dec 4. pii: S0039-6060(17)30761-4. doi: 10.1016/j.surg.2017.10.027. [Epub ahead of print]
14. Cramer SL, Miller AL, Pressey JG, Gamblin TL, **Beierle EA**, Kulbersh BD, Garcia PL, Coucil LN Radhakrishnan R, Hendrix SV, Kelly DR, Watts RG, Yoon KJ. Pediatric anaplastic embryonal rhabdomyosarcoma: Targeted therapy guided by genetic analysis and a patient-derived xenograft study. *Front Oncol*, 2017, in press.
15. Sarwer DB, Dilks RJ, Spitzer JC, Berkowitz RI, Wadden TA, Moore RH, Chittams JL, Brandt ML, **Chen MK**, Courcoulas AP, Harmon CM, Helmuth MA, Michalsky MP, Xanthakos SA, Zeller MH, Jenkins TM, Inge TH. Changes in dietary intake and eating behavior in adolescents after bariatric surgery: an ancillary study to the Teen-LABS consortium. *Obes Surg*, 2017 Jun 17.
16. Streck CJ, Vogel AM, Zhang J, Mauldin PD, Huang EY, Calder BW, Santore MT, Tsao K, Falcone RA, Dassinger MS,

Haynes JH, Blakely ML, **Russell RT**, Naik-Mathuria BJ, St. Peter SD, Mooney DP, Upperman JS, Zagory JA, Blakely ML. Identifying Children at Very Low Risk of Blunt Intra-abdominal Injury in whom Computed Tomography of the Abdomen can Safely be Avoided. *Journal of the American College of Surgeons* 2017; 224(4): 449-458. PMID: 28130170.

17. **Russell RT**, Maizlin II, Vogel AM. Viscoelastic Monitoring in Pediatric Trauma: A Survey of Pediatric Trauma Society Members. *Journal of Surgical Research* 2017; 214: 216-220. PMID: 28624047.
18. Calder BW, Vogel AM, Zhang J, Mauldin PD, Huang EY, Savoie KB, Santore MT, Tsao K, Ostavar-Kermani TG, Falcone RA, Dassinger MS, Recicar J, Haynes JH, Blakely ML, **Russell RT**, Naik-Mathuria BJ, St. Peter SD, Mooney DP, Onwubiko C, Upperman JS, Zagory JA, Streck CJ. Focused Assessment with Sonography (FAST) in Children following Blunt Abdominal Trauma: A Multi-institutional analysis. *Journal of Trauma and Acute Care Surgery* 2017; 83(2): 218-224. PMID: 28590347.
19. Arbra CA, Vogel AM, Zhang J, Mauldin PD, Huang EY, Savoie KB, Santore MT, Tsao K, Ostavar-Kermani TG, Falcone RA, Dassinger MS, Recicar J, Haynes JH, Blakely ML, **Russell RT**, Naik-Mathuria BJ, St. Peter SD, Mooney DP, Onwubiko C, Upperman JS, Streck CJ. A Prospective Multicenter Evaluation of Acute Procedural Interventions in Pediatric Blunt Abdominal Trauma: Who, What, Where, When, Why, and How? *Journal of Trauma and Acute Care Surgery* 2017; 83(4): 597-602. PMID: 28452875.
20. **Russell RT**, Christiaans SC, Nice T, Banks M, **Mortellaro VP**, Morgan C, Duhachek-Stapelman A, Lisco SJ, Kerby JD, Wagener BM, Chen MK, Pittet JF. Histone-complexed DNA fragment levels are associated with coagulopathy, endothelial cell damage, and increased mortality after severe pediatric trauma. *Shock*, 2017. May 15, epub ahead of print. PMID: 28509684.
21. Naik-Mathuria BJ, Rosenfeld EH, Klinkner DB, Polites S, Escobar M, Pattyn A, Gaines B, Leeper C, Gosain A, Veras LV, **Russell RT**, Maizlin I, Campbell B, Thakar S, Wills H, Smith A, Stallion A, Waddell M, St. Peter S, Juang D, Thakkar R, Drews J, Vogel A, Burke RV, Upperman J, Gilmore J, Behrens B, Jafri M, Mooney D, Armstrong L, Burd R, Fenton S, Falcone RA, Moody S, Beaudin M, Carmant L. Proposed Clinical Pathway for Non-operative management of High-Grade Pediatric Pancreatic Injuries based on Multicenter Analysis: A Pediatric Trauma Society Collaborative. *Journal of Trauma and Acute Care Surgery*, 2017. 83(4): 589-596. PMID: 28590353.
22. Rosenfeld EH, Klinkner DB, Polites S, Escobar M, Pattyn A, Gaines B, Leeper C, Gosain A, Veras LV, **Russell RT**, Maizlin II, Campbell B, Thakar S, Wills H, Smith A, Stallion A, Waddell M, St. Peter SD, Juang D, Thakkar R, Drews J, Vogel AM, Burke RV, Malicote M, Gilmore J, Jafri M, Mooney D, Armstrong L, Burd R, Fenton SJ, Beaudin M, Carmant L, Falcone RA, Moody S, Kreykes N, Velden HV, Prince JM, Abd el-shafy I, Behrens B, Naik-Mathuria BJ. The Utility of ERCP in Pediatric Pancreatic Trauma. *Journal of Pediatric Surgery*, 2017 Oct 13 epub ahead of print.
23. Maizlin II, Shroyer MC, Yu DC, Martin CA, Chen MK, **Russell RT**. Survey on Robot-Assisted Surgical Techniques Utilization in US Pediatric Surgery Fellowships. *Journal of Laparoendoscopic & Advanced Surgical Techniques* 2017; 27(2): 186-190. PMID: 27797645.
24. Shroyer MC, Griffin RL, Mortellaro VE, **Russell RT**. Massive Transfusion in Pediatric Trauma: Analysis of the National Trauma Databank. *Journal of Surgical Research* 2017; 208: 166-172. PMID: 27993204.

#### Pediatric General Surgery Grant/Awards/Recognition/Leadership

**Dr. Mike Chen** was elected to the American Pediatric Surgical Board of Governors as Treasurer.

**Dr. Elizabeth Beierle** was named the vice chair for faculty development for the Department of Surgery at UAB and was awarded grants from the Kaul Pediatric Research Institute, the Dixon Pediatric Fellowship, the Cannonball Cancer Kids' Foundation and the Hyundai Hope on Wheels to continue her research in pediatric solid tumors.

**Dr. Colin Martin** was awarded grants by the American Surgical Association, Kaul Pediatric Research Institute, the UAB Faculty Development Grant, and the Society for Surgery of the Alimentary Tract to pursue his research.

**Dr. Rob Russell** was awarded the C. James Carrico, MD, Faculty Research Fellowship for the Study of Trauma and Critical Care by the American College of Surgeons to continue research on coagulopathy following pediatric trauma.

## Pediatric Neurosurgery



The Division of Pediatric Neurosurgery performed a variety of clinical research and has published in a variety of topics resulting in 24 peer-reviewed publications in 2017.

### Publications

1. Kuhn EN, Hopson B, Conklin MJ, **Blount JP**. Intradural spine surgery may not carry an increased risk of shunt revision compared with extradural spine surgery in pediatric patients with myelomeningocele. *J Neurosurg Pediatr*. 2017 Oct 20:1-5. doi: 10.3171/2017. [Epub ahead of print]
2. Davis MC, Hopson BD, **Blount JP**, Carroll R, Wilson TS, Powell DK, Jackson McLain AB, **Rocque BG**. Predictors of permanent disability among adults with spinal dysraphism. *J Neurosurg Spine*. 2017 Aug;27(2):169-177. doi: 10.3171/2017. Epub 2017 May 26.
3. Expert Panel on Pediatric Imaging; Wootton-Gorges SL, Soares BP, Alazraki AL, Anupindi SA, **Blount JP**, Booth TN, Dempsey ME, Falcone RA Jr, Hayes LL, Kulkarni AV, Partap S, Rigsby CK, Ryan ME, Safdar NM, Trout AT, Widmann RF, Karmazyn BK, Palasis S. ACR Appropriateness Criteria® Suspected Physical Abuse-Child. *J Am Coll Radiol*. 2017 May;14(5S) S338-S349. doi: 10.1016/j.jacr.2017.01.036.
4. **Blount JP**. Extratemporal resections in pediatric epilepsy surgery-an overview. *Epilepsia*. 2017 Apr;58 Suppl 1:19-27. doi: 10.1111/epi.13680. Review.
5. Baumgartner JE, **Blount JP**, Blauwblomme T, Chandra PS. Technical descriptions of four hemispherectomy approaches: From the Pediatric Epilepsy Surgery Meeting at Gothenburg 2014. *Epilepsia*. 2017 Apr;58 Suppl 1:46-55. doi: 10.1111/epi.13679. Review.
6. Kulkarni AV, Riva-Cambrin J, **Rozzelle CJ**, Naftel RP, Alvey JS, Reeder RW, Holubkov R, Browd SR, Cochrane DD, Limbrick DD Jr, Simon TD, Tamber M, Wellons JC 3rd, Whitehead WE, Kestle JRW. Endoscopic third ventriculostomy and choroid plexus cauterization in infant hydrocephalus: a prospective study by the Hydrocephalus Clinical Research Network. *J Neurosurg Pediatr*. 2017 Dec 15:1-10. doi: 10.3171/2017. [Epub ahead of print]
7. **Rozzelle CJ**, Madura C, Reeder RW. Reliability of CSF turbulence and choroid plexus visualization on fast-sequence MRI in pediatric hydrocephalus. *J Neurosurg Pediatr*. 2017 Oct 27:1-4. doi: 10.3171/2017. [Epub ahead of print]
8. Hadley MN, Shank CD, **Rozzelle CJ**, Walters BC. Guidelines for the Use of Electrophysiological Monitoring for Surgery of the Human Spinal Column and Spinal Cord. *Neurosurgery*. 2017 Nov 1;81(5):713-732. doi: 10.1093/neuros/nyx466.
9. Pindrik J, Hoang N, Tubbs RS, **Rocque BG**, **Rozzelle CJ**. Trans-falcine and contralateral sub-frontal electrode placement in pediatric epilepsy surgery: technical note. *Childs Nerv Syst*. 2017 Aug;33(8):1379-1388. doi:

10.1007/s00381-017-3469-z. Epub 2017 Jun 3.

10. Wellons JC 3rd, Shannon CN, Holubkov R, Riva-Cambrin J, Kulkarni AV, Limbrick DD Jr, Whitehead W, Browd S, **Rozzelle CJ**, Simon TD, Tamber MS, **Oakes WJ**, Drake J, Luerssen TG, Kestle J; Hydrocephalus Clinical Research Network. Shunting outcomes in posthemorrhagic hydrocephalus: results of a Hydrocephalus Clinical Research Network prospective cohort study. *J Neurosurg Pediatr.* 2017 Jul;20(1):19-29. doi: 10.3171/2017. Epub 2017 Apr 28.
11. Whitehead WE, Riva-Cambrin J, Kulkarni AV, Wellons JC 3rd, **Rozzelle CJ**, Tamber MS, Limbrick DD Jr, Browd SR, Naftel RP, Shannon CN, Simon TD, Holubkov R, Illner A, Cochrane DD, Drake JM, Luerssen TG, **Oakes WJ**, Kestle JR; for the Hydrocephalus Clinical Research Network. Ventricular catheter entry site and not catheter tip location predicts shunt survival: a secondary analysis of 3 large pediatric hydrocephalus studies. *J Neurosurg Pediatr.* 2017 Feb;19(2):157-167. doi: 10.3171/2016. Epub 2016 Nov 4.
12. Donson AM, Apps J, Griesinger AM, Amani V, Witt DA, Anderson RCE, Niazi TN, Grant G, Souweidane M, **Johnston JM**, Jackson EM, Kleinschmidt-DeMasters BK, Handler MH, Tan AC, Gore L, Virasami A, Gonzalez-Meljem JM, Jacques TS, Martinez-Barbera JP, Foreman NK, Hankinson TC; Advancing Treatment for Pediatric Craniopharyngioma Consortium. Molecular Analyses Reveal Inflammatory Mediators in the Solid Component and Cyst Fluid of Human Adamantinomatous Craniopharyngioma. *J Neuropathol Exp Neurol.* 2017 Sep 1;76(9):779-788. doi: 10.1093/jnen/nlx061.
13. O'Neill JA, Cox MK, Clay OJ, **Johnston JM**, Novack TA, Schwebel DC, Dreer LE. A review of the literature on pediatric concussions and return-to-learn (RTL): Implications for RTL policy, research, and practice. *Rehabil Psychol.* 2017 Aug;62(3):300-323. doi: 10.1037/rep0000155.
14. Sanders FH, Edwards BA, Fusco M, Oskouian RJ, Tubbs RS, **Johnston JM**. Extremely large sinus pericranii with involvement of the torcular and associated with Crouzon's syndrome. *Childs Nerv Syst.* 2017 Sep;33(9):1445-1449. doi: 10.1007/s00381-017-3507-x. Epub 2017 Jul 6.
15. Waters AM, **Johnston JM**, Reddy AT, Fiveash J, Madan-Swain A, Kachurak K, Bag AK, Gillespie GY, Markert JM, Friedman GK. Rationale and Design of a Phase 1 Clinical Trial to Evaluate HSV G207 Alone or with a Single Radiation Dose in Children with Progressive or Recurrent Malignant Supratentorial Brain Tumors. *Hum Gene Ther Clin Dev.* 2017 Mar;28(1):7-16. doi: 10.1089/humc.2017.002
16. Madura CJ, **Johnston JM** Jr. Classification and Management of Pediatric Subaxial Cervical Spine Injuries. *Neurosurg Clin N Am.* 2017 Jan;28(1):91-102. doi: 10.1016/j.nec.2016.07.004. Review.
17. Koueik J, **Rocque BG**, Henry J, Bragg T, Paul J, Iskandar BJ. Modification of the BioMedicus centrifugal pump to provide continuous irrigation for neuroendoscopy: technical note. *J Neurosurg Pediatr.* 2017 Dec 8:1-7. doi: 10.3171/2017. [Epub ahead of print]
18. Lupo PJ, Agopian AJ, Castillo H, Castillo J, Clayton GH, Dosa NP, Hopson B, Joseph DB, **Rocque BG**, Walker WO, Wiener JS, Mitchell LE. Genetic epidemiology of neural tube defects. *J Pediatr Rehabil Med.* 2017 Dec 11;10(3-4):189-194. doi: 10.3233/PRM-170456.
19. Davis MC, **Rocque BG**, Singhal A, Ridder T, Pattisapu JV, **Johnston JM Jr**. State of global pediatric neurosurgery outreach: survey by the International Education Subcommittee. *J Neurosurg Pediatr.* 2017 Aug;20(2):204-210. doi: 10.3171/2017. Epub 2017 May 19.
20. Dupépe EB, Patel DM, **Rocque BG**, Hopson B, Arynchyna AA, Bishop ER, **Blount JP**. Surveillance survey of family history in children with neural tube defects. *J Neurosurg Pediatr.* 2017 Jun;19(6):690-695. doi: 10.3171/2016. Epub 2017 Mar 31.
21. Sherrod BA, Arynchyna AA, **Johnston JM**, **Rozzelle CJ**, **Blount JP**, **Oakes WJ**, **Rocque BG**. Risk factors for surgical site infection following nonshunt pediatric neurosurgery: a review of 9296 procedures from a national database and comparison with a single-center experience. *J Neurosurg Pediatr.* 2017 Apr;19(4):407-420. doi: 10.3171/2016. Epub 2017 Feb 10.
22. Sherrod BA, **Rocque BG**. Morbidity associated with 30-day surgical site infection following nonshunt pediatric



neurosurgery. J Neurosurg Pediatr. 2017 Apr;19(4):421-427. doi: 10.3171/2016. Epub 2017 Feb 10.

23. Laskay NMB, Arynchyna AA, McClugage SG 3rd, Hopson B, Shannon C, Ditty B, Wellons JC 3rd, **Blount JP, Rocque BG**. A comparison of the MOMS trial results to a contemporaneous, single-institution, postnatal closure cohort. Childs Nerv Syst. 2017 Apr;33(4):639-646. doi: 10.1007/s00381-016-3328-3. Epub 2016 Dec 27.
24. Demerdash A, **Rocque BG, Johnston J, Rozzelle CJ**, Yalcin B, Oskouian R, Delashaw J, Tubbs RS. Endoscopic third ventriculostomy: A historical review. Br J Neurosurg. 2017 Feb;31(1):28-32. doi: 10.1080/02688697.2016.1245848. Epub 2016 Oct 22. Review.

## External Funding

1. Ongoing support from CDC Grant supporting National Spina Bifida Patient Registry (NSBPR). \$300,000 over multiple years.
2. Ongoing support from collaborative prospective clinical trials:
  - Hydrocephalus Research Network
  - Park-Reeves Endowment for the Study of Chiari Malformations
  - Shunt Site Entry Trial (RCT)
  - Chiari Bone Only Decompression Trial (RCT)

### Pediatric Neurosurgery Research/Awards/Recognition/Leadership

**Dr. Jeffrey Blount** was the visiting Professor and Inaugural Keynote Speaker at Surgery Research Day at Riley Children's Hospital in Indianapolis in May 2017. He was also an invited speaker to the 10th International Conference on Mechanisms of Neural Tube Defects in Austin in September 2017. Finally, he is on the Editorial Board of Journal of Neurosurgery-Pediatrics and Neurosurgery.

**Dr. Curtis Rozzelle** is the Site PI for the Hydrocephalus Research Network and the Site PI for the Shunt Insertion Trial

**Dr. James Johnston** was appointed as the Surgical Site PI for the phase I trial of oncolytic herpes virus in pediatric brain tumors and the Site PI for Bone Only Randomized Trial. He is currently the Medical Director for the UAB Concussion Research Program and co-founded the complement fixation research program/corporation at UAB.

**Dr. Brandon Roque** was appointed to the Scientific Education and Advisory Board of the Chiari/Syringomyelia Foundation and the CURE Hydrocephalus International Advisory Board. He has recently submitted applications for NIH R21 and DOD grants.

**Dr. Jerry Oakes** received the Frank Ingraham Award in Pediatric Neurosurgery at the Pediatric Section Meeting in Houston, TX in December 2017. This is the highest award offered for academic, career long excellence in Pediatric Neurosurgery. It is not awarded every year but only for those candidates in the opinion of the Executive Committee of the Section exhibit exemplary academic accomplishment, technical excellence, and character.

## Pediatric Oral/Maxillofacial Surgery



The Department of Oral and Maxillofacial Surgery has \$1.3M in direct grant funding and \$373K in Indirect funding for a combined total of \$1.7M. The majority of this funding is attributable to support from NIHA. Number of investigators within the division have interest in temporomandibular joint disease (TMJ) and are studying different elements of the disease process. Dr. Mohammad Hassan is studying biomarkers to improve early detection by isolating RNA from TMJ fluid. Dr. Patrick Louis is evaluating treatments for TMJ dysfunction in several clinical projects: A comparison of arthroscopy versus modified condylectomy, an evaluation of the Biomet TMJ Replacement System and outcomes of TMJ arthroplasty using prosthetic devices.

Dr. Amjad Javed is interested in the Runx2 gene and its effects over the molecular regulation/synthesis and degeneration of TMJ and growth plate cartilage. This is being studied with inducible tissue-specific models to delete Runx2 gene in proliferative and differentiated chondrocytes. In addition, he is evaluating the osteoblast role in homing and progression of cancer metastasis to bone. They are testing if suppression of Runx2 in osteoblasts alters the bone microenvironment to actively promote and support tumor cell homing, survival and growth at new bone sites. Finally, he is studying the role of Runx2 controlled osteoblast signals in regulating marrow adipogenesis and energy homeostasis.

Dr. Anthony Morlandt is evaluating aggressive odontogenic tumors with optical imaging. He plans to eventually develop a mouse model of odontogenic tumors for further study. In addition, he is evaluating the role of increased expression of certain matrix metalloproteinases (MMPs) in these gingival squamous cell cancers. By measuring these, he hopes to create a risk model to guide surgical decision-making for patients with this disease.

Dr. Dobrawa Napierala is evaluating animal models of genetic disorders affecting craniofacial development. Specifically, the results of this study will provide greater understanding of molecular pathology underlying syndromes associated with palatal clefting and lay the foundation for development of molecular therapeutic approaches. Also, Dr. Napierala is interested in the mechanisms of bone-regeneration failure in periodontal disease. This project intends to address the molecular mechanisms underlying the loss of bone regenerative potential of mesenchymal stem cells exposed to periodontal disease.

Dr. Peter Waite has a particular interest in TMJ arthritis in juvenile rheumatoid arthritis (JRA). He is currently studying the incidence of this disease and performing microassay analysis of TMJ fluid in patients with JRA. He hopes to improve the understanding of this disease in a specific group of patients and improve their outcomes. In addition, he is evaluating the epidemiology of orthognathic surgery by comparing private and academic oral/maxillofacial surgeons.

Finally, Dr. Somak Sittivornwong is performing clinical studies evaluating outcomes of facial trauma, specifically mid-facial trauma, at UAB. He is also studying specific anatomical facial landmarks and specific operative approaches for oral/maxillofacial surgery.

## Pediatric Orthopedic Surgery

Faculty in Pediatric Orthopaedic surgery are involved in a wide range of research activities from basic science of fracture healing and growth plate development to clinical studies that include retrospective studies, clinical trials, including multicenter trials, and studies utilizing large national databanks. Broad areas of research interest include education, orthopaedic trauma, sports medicine and myelodysplasia.

### Publications

1. Karalius VP, Stanfield J, **Ashley P**, Lewallen LW, DeDeugd CM, Walker J, Larson AN, Milbrandt TA. The Utility of Routine Postoperative Radiographs After Pinning of Pediatric Supracondylar Humerus Fractures. *J Pediatr Orthop*. 2017 Jul/Aug;37(5):e309-e312. PMID: 28441278.
2. Kuhn EN, Hopson B, **Conklin MJ**, Blount JP. Intradural spine surgery may not carry an increased risk of shunt revision compared with extradural spine surgery in pediatric patients with myelomeningocele. *J Neurosurg Pediatr*. 2018 Jan;21(1):11-15. Epub 2017 Oct 20. PubMed PMID:29053056.
3. Momaya A, Read C, Estes R. When celebrations go wrong: a case series of injuries after celebrating in sports. *J Sports Med Phys Fitness*. 2017 Mar;57(3):267-271. PubMed PMID: 26564273.
4. **Momaya AM**, Read C, Steirer M, **Estes R**. Outcomes after arthroscopic fixation of tibial eminence fractures with bioabsorbable nails in skeletally immature patients. *J Pediatr Orthop B*. 2018 Jan;27(1):8-12. PubMed PMID: 28368929.
5. **Momaya AM**, Stavrinou D, McManus B, Wittig SM, Emblom B, Estes R. Return to Driving After Hip Arthroscopy. *Clin J Sport Med*. 2017 Jul 11. PubMed PMID: 28708706.
6. Morris AC, Yu JC, **Gilbert SR**. Arthroscopic Treatment of Traumatic Hip Dislocations in Children and Adolescents: A Preliminary Study. *J Pediatr Orthop*. 2017 Oct/Nov;37(7):435-439. PubMed PMID:26523704.
7. Read CR, Watson SL, Perez JL, **Estes AR**. Competitive bass anglers: a new concern in sports medicine. *Phys Sportsmed*. 2017 Sep;45(3):309-315. PubMed PMID: 28423974.
8. Saker E, Oskouian RJ, Loukas M, Johnston JM, Tubbs RS, **Conklin M**. A never before reported variant of the sacrum. *Surg Radiol Anat*. 2017 Jul;39(7):807-809. PubMed PMID: 27826717.
9. Walters BK, Read CR, **Estes AR**. Effects of resistance training, overtraining, and early specialization on youth athletes. *J Sports Med Phys Fitness*. 2017 Jun 8. PubMed PMID:28597618.
10. Williams JF, Watson SL, Baker DK, Ponce BA, McGwin G, **Gilbert SR**, Khoury JG. Psychomotor Testing for Orthopedic Residency Applicants: A Pilot Study. *J Surg Educ*. 2017 Sep - Oct;74(5):820-827. PubMed PMID: 28283375.

### Pediatric Orthopaedic Surgery Grant/Awards/Recognition/Leadership

**Dr. Michael Conklin** has been selected to serve on a CDC advisory board regarding determining best practices for care of Myelodysplasia.

**Dr. Shawn Gilbert** serves on the leadership committee for the International Perthes Study Group. He has chaired the American Academy of Orthopaedic Surgery Basic Science Evaluation committee for the past three years. He was asked to serve on a committee to develop a sub-specialty specific recertification exam by the American Board of Orthopaedic Surgery

## Pediatric Plastic Surgery



The division of pediatric plastic surgery has a wide breadth of focus on specific clinical problems, global education, and research involving wound healing. Dr. John Grant continues to host, mentor, and educate international fellows at Children's of Alabama. Dr. Grant has participated in several international workshops in Egypt and India by giving lectures and performing live surgery to educate on topics including cleft lip/palate and craniofacial surgery. He continues to cultivate relationships with local surgeons in Kumasi, Ghana, Egypt, and Vietnam—this is a commitment to teaching local surgeons better surgical techniques and developing international clinical research initiatives.

Dr. Tim King continues research including cutaneous wound healing, regenerative therapies, tissue engineering, and 3-D printing. His NIH K08 grant focuses on the role of Notch2 and Notch3 in cutaneous wound healing.

### Publications

1. Total Palatal Mobilization and Multilamellar Suturing Technique Improves Outcome for Palatal Fistula Repair. Elsherbiny A1, **Grant JH**. Ann Plast Surg. 2017 Oct 19. doi: 10.1097/SAP.0000000000001216. [Epub ahead of print]
2. Evolution of a safe and effective management protocol for velopharyngeal incompetence: Seeking good speech without airway compromise. **Grant JH**, Amerson M, Sconyers L and Elsherbiny A. Journal of Cleft Lip Palate and Craniofacial Anomalies. 2017 Oct.
3. Outcome of palate re-repair with radical repositioning of the levator muscle sling as a first line strategy for post-palatoplasty VPI. Elsherbiny A, Amerson M, Sconyers L and **Grant JH**. Plast. and Reconstructive Surgery. 2017, in press.
4. The significance of the uvula after palatoplasty: A new technique to improve the esthetic outcome. Elsherbiny, A. and **Grant JH**. Cleft Palate-Craniofacial Journal. Accepted for publication (#16-323).

### Pediatric Plastic Surgery Awards/Recognition/Leadership

**Dr. Tim King** was elected to the UAB School of Medicine Faculty Council Committee.

**Dr. John Grant** was invited faculty at a live surgical workshop in both Egypt and India where he taught cleft and complex craniofacial surgical procedures and gave educational lectures.

## Pediatric Urology

The Section of Pediatric Urology has a wide variety of research interests ranging from spina bifida outcomes, renal stone disease in pediatric patients, and advances and application of robotic surgery. Dr. David Joseph has more than \$500,000 in grant funding to specifically study improving care and outcomes in the spina bifida population, and to evaluate the efficacy of BOTOX® in urinary incontinence and neurogenic detrusor overactivity.

Dr. David Kitchens is exploring outcomes in surgical management of hypospadias and open extravesical approaches in the treatment of vesicoureteral reflux. He is also exploring innovative interactive computer assisted learning for the enhancement of resident education.

Dr. Pankaj Dangle, is directing the cooperative Urologic Robotic program of UAB and COA.

## Publications

1. Ellison JS, Hollingsworth JM, Langman CB, Asplin JR, Schwaderer AL, Yan P, Bierlein M, Barazza MA, Defoor WR, Figueroa TE, Jackson EC, Venkata R., Jayanthi YP, Johnson EK, **Joseph DB**, Shnorhavorian M: Variation in Consecutive 24-Hour Urine Collections in Children with Nephrolithiasis J Pediatr Urol S1477-5131(17)30284-X. doi: 10.1016/j.jpuro.2017.06.014 2017 Jul 12 PMID: 28739373.
2. Routh JC, **Joseph DB**, Liu T, Schechter MS, Thibadeau JK, Wallis MC, Ward EA,6, Wiener JS: Variation in Surgical Management of Neurogenic Bowel among Centers Participating in National Spina Bifida Patient Registry J Pediatr Rehabil Med 2017 Oct 20.
3. Routh JC, **Joseph DB**, Liu T, Schechter MS, Thibadeau JK, Wallis MC, Ward EA,6, Wiener JS: Bladder Reconstruction Rates Are Significantly Different Among Centers Participating in National Spina Bifida Patient Registry J Urol. 2017 Aug 19. PMID: 28830753.
4. J Lupo P, Agopian AJ, Castillo H, Castillo J, Clayton GH, Dosa NP5, Hopson B, **Joseph DB**, Rocque BG, Walker WO, Wiener JS, Mitchell LE: Genetic epidemiology of neural tube defects J Pediatr Rehabil Med. 2017 Oct 20. doi: 10.3233/PRM-170456.
5. Wiener JS, Suson KD, Castillo J, Routh JC, Tanaka S, Liu T, Ward E, Thibadeau J, **Joseph DB**, Registry NSBP: Bowel management and continence in adults with spina bifida: Results from the National Spina Bifida Patient Registry 2009-15. J Pediatr Rehabil Med. 2017 Oct 20. doi: 10.3233/PRM-170466.

## Pediatric Urology Awards/Recognition/Leadership

Dr. David Joseph received the inaugural Bruskewitz Distinguished Alumni Award from the University of Wisconsin Department of Urology. He is currently the Chair of the Section on Urology of the American Academy of Pediatrics. He is a trustee and Secretary-Treasurer of the American Board of Urology. He is a member of the ACGME Urology RRC.