



Children's
of Alabama®

UAB MEDICINE
PEDIATRICS

2017

Department of Pediatrics Academic Annual Report

Dear Friends and Colleagues,

This has been a year of growth and discovery for Children's of Alabama and the UAB Department of Pediatrics. Our research report details our accomplishments by division.

In the Department of Pediatrics, we seek to discover new knowledge in order to improve the health of the children of Alabama, the region and the world. The clinical advances and research discoveries we describe here have a direct impact on children's lives. That impact will be our legacy. We present in this report evidence of this impact as measured by major research accomplishments, grants, publications, and awards. In FY 2017, the Department of Pediatrics faculty had 243 publications, research funding from the National Institutes of Health totaling \$15 million and total research funding of \$29 million. In addition, we recruited 29 new faculty members, including nine who are expected to develop independent research careers based on their start-up support and goals.

In addition to our research accomplishments, our focus on safety and quality is always paramount. And we are using simulation and quality improvement science to improve our patient safety experience as well. This year, we reduced the number of serious safety events at Children's and were recognized twice by the national learning collaborative, Solutions for Patient Safety, as the Children's Hospital of the Month. For the eighth consecutive year, U.S. News & World Report ranked Children's pediatric specialty services among the top 50 in the nation. Seven specialties were ranked: Cancer, Diabetes and Endocrinology, Gastroenterology and GI Surgery, Nephrology, Neurology and Neurosurgery, Orthopedics and Pulmonology.

We aim to build on these successes, expand the size and, importantly, the impact of our research in the coming years. We anticipate growth not only in our core areas of significant accomplishment – virology, therapeutic drug development, cancer, neonatal and rheumatology outcomes – but also in newer areas where the recruitment of talented young researchers will ensure continued and expanded success. In its second year of full operation, the Pediatric Research Office (PRO), led by David Kimberlin, M.D., seeks to dramatically assist pediatric investigators in the design, conduct and analysis of research. This in turn allows our physician scientists to focus on the science of the research while relying on the highly skilled PRO staff to assist with the regulatory, biostatistical and data management, and other components key to the successful conduct of pediatric investigation. The Kaul Pediatric Research Institute (KPRI) has continued to support investigators at Children's and remains an important edge in helping our faculty achieve extramural funding through initial pilot and feasibility funding. In addition, this past year, Children's established two new Research Funds that will further support and bolster our research efforts in the Pediatric Enterprise. And we opened the new Children's Hospital Research Unit (CHRU) at Children's to provide an outstanding and functional space to see children who are participating in clinical and translational research.

Children's is a very special place. It is the only medical center in Alabama dedicated solely to the care and treatment of children. It is a private, not-for-profit medical center that serves as the primary site of the UAB pediatric medicine, surgery, psychiatry, clinical, research and residency programs. Together, Children's and the UAB Department of Pediatrics will continue to build the world-class programs that will improve the future for the children of Alabama, the Southeast and the world.

Sincerely,



Mitchell B. Cohen, MD
Katharine Reynolds Ireland Chair of Pediatrics
University of Alabama at Birmingham
Physician in Chief, Children's of Alabama

The UAB Department of Pediatrics at Children's of Alabama is comprised of 19 Subspecialty Divisions each with a research, educational, and clinical focus. To find research initiatives, areas of clinical excellence, educational efforts and learn more about the faculty, click on the division of interest below.

PEDIATRIC DIVISIONS:

1. Academic General Pediatrics
2. Adolescent Medicine
3. Pediatric Allergy & Immunology
4. Pediatric Cardiology
5. Child Abuse Pediatrics
6. Pediatric Critical Care
7. Developmental and Behavioral Pediatrics
8. Pediatric Emergency Medicine
9. Pediatric Endocrinology
10. Pediatric Gastroenterology, Hepatology & Nutrition
11. Pediatric Hematology and Oncology
12. Pediatric Hospital Medicine
13. Pediatric Infectious Diseases
14. Neonatology
15. Pediatric Nephrology
16. Pediatric Neurology
17. Pediatric Pulmonology and Sleep Medicine
18. Pediatric Rehabilitation Medicine
19. Pediatric Rheumatology

CONTENT PER DIVISION INCLUDES:

Pediatric Faculty
Featured Research
Significant Publications
Division Awards & Recognition
Participation in National Research, Quality Improvement and Learning Networks

ADDITIONAL CONTENT:

Pediatric Education Programs

ACADEMIC GENERAL PEDIATRICS



Pediatric Faculty

Dr. Terry Wall

Dr. Jennie Andresen
Dr. Heather Relyea Ashley
Dr. Cason Benton
Dr. Courtney Campbell
Dr. Jennifer Chambers
Dr. Candice Dye
Dr. Crayton Fargason
Dr. Jason Hartig
Dr. DeeAnne Jackson
Dr. Carin Richard Kiser
Dr. Morissa Ladinsky
Dr. Jaime McKinney
Dr. Annie Moroski

Director | Professor

Associate Professor
Instructor
Associate Professor
Instructor
Assistant Professor
Assistant Professor
Professor
Associate Professor
Associate Professor
Associate Professor
Associate Professor
Assistant Professor
Instructor

Featured Research

The Division of Academic General Pediatrics work focuses largely on advocacy and on quality improvement.

- Elizabeth Cason Benton, MD, director of the Alabama Child Health Improvement Alliance (ACHIA), leads this quality improvement through partnerships with practitioners, payers, families and organizations that deliver care to improve health outcomes of children in the state. In 2017 participating practices improved reliable screening for developmental delay and autism from 72% to 97%.
- Morissa Ladinsky, MD, is working with Dr. Shawn Galin and others to develop a programmatic expansion of the UAB SOM Standardized Patient Program around LGBTQ curricular metrics. This will make UAB School of Medicine one of only two US medical schools to utilize transgender individuals as standardized patients to enhance medical students' abilities to communicate with this growing underrepresented population.
- Dr. Ladinsky is a member of the Governor's Opioid Council/Alabama Opioid Overdose and Addiction Council. This group is developing data driven priorities and strategic objectives to guide our state's coordinated response to the opioid crisis.
- Jaime McKinney, MD, worked with the Alabama Chapter American Academy of Pediatrics (AAP) to create The Baby Box Co Educational video/syllabus to improve safe sleep for infants in the state.
- Dr. McKinney is a member of the City of Birmingham Education and Workforce Development Taskforce, a group charged with providing three generational targeted strategies to enhance our early childhood education to career development pipeline.
- Dr. McKinney is a board member for the Jefferson County Family Resource Center. The purpose of this organization is to construct a free-standing "one stop shop" building where families and community members can easily access meaningful social services.

Significant Publications

Hosp Pediatr. 2017 Jul 10. pii: hpeds.2016-0206. doi: 10.1542/hpeds.2016-0206. *Current Scope of Practice for Newborn Care in Non-Intensive Hospital Settings.* Chung EK, Gable EK, Golden WC, Hudson JA, Hackman NM, Andrews JP, **Jackson DS**, Beavers JB, Mirchandani DR, Kellams A, Krevitsky ME, Monroe K, Madlon-Kay DJ, Stratbucker W, Campbell D, Collins J, Rauch D.

J Gen Intern Med. 2017 Jun;32(6):706-710. PMID: 28070771. *The Importance of Framing.* Stuart S, **Hartig JR**, Willett L.

Pediatric Quality and Safety (2017) 2:5:e041 *Improving Inpatient Asthma Management: The Implementation and Evaluation of a Pediatric Asthma Clinical Pathway.* **Magruder TG**, Narayanan S, **Walley S**, Powers T, RRT†, Whitlock H, Harrington K, **Wall T**.

Qual Manag Health Care. 2017 Jan/Mar;26(1):33-39. doi: 10.1097/QMH.0000000000000124. *Promoting Continuous Quality Improvement in the Alabama Child Health Improvement Alliance Through Q-Sort Methodology and Learning Collaboratives.* Fifolt M, Preskitt J, Rucks A, Corvey K, **Benton EC**.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Jaime McKinney, MD, is a Question Writer for General Pediatric Certifying Examination with the American Board of Pediatrics.

Elizabeth Cason Benton, MD, is a member of the Alabama Delegation of the Collaborative for Improvement and Innovation Network to Advance Care for Children with Medical Complexity aka "CoIIN to Advance Care for CMC." The purpose of this CoIIN is to improve the quality of life for children with medical complexity (CMC), the wellbeing of their families, and the cost-effectiveness of their care, through development and implementation of innovative care and payment models using a Collaborative Improvement and Innovation Network (CoIIN) approach. Alabama is one of ten states participating 2017-2021. Dr. Benton is also a member of the AAP Maintenance of Certification Review Panel. Under the purview of the Quality Cabinet, review panel members will provide ongoing review and critique of Part 4 MOC applications, bi-annual project reports, and final reports for projects submitted through the AAP MOC Portfolio.

ADOLESCENT MEDICINE



Pediatric Faculty

Dr. Terry Wall

Dr. Heather Austin
Dr. Krista Casazza
Dr. Nefertiti Durant
Dr. Tina Simpson
Dr. Stephenie Wallace

Interim Director | Professor

Assistant Professor
Associate Professor
Associate Professor
Professor
Associate Professor

Featured Research

The UAB Division of Adolescent Medicine performs an array of investigations that include behavioral science and outcomes research, as well as assessments of physiologic changes during growth and development. Specific highlights include:

SHINE Clinic started enrolling patients in the POWER Study in 2017. Pediatric Obesity Weight Evaluation Registry (POWER) is a national collaborative involving 32 clinical sites. The goal is to better understand and improve the health outcomes of children and adolescents with overweight and obesity who are participating in multi-component weight management programs. During the last nine months of our participation, we have enrolled over 100 participants

Tina Simpson, MD, MPH examined individual and peer risk factors and their relationship with family attachment for African American adolescent males. These data will guide the implementation of an evidence-based youth prevention school-based program.

Significant Publications

Journal of Pediatric Psychology. *Peer Victimization in Adolescents with Severe Obesity: The Roles of Self-Worth and Social Support in Associations with Psychosocial Adjustment*. Reiter-Purtill, J, **Gowey M, Austin H**, Smith KC, Rofey DL, Jenkins TM, Garland BH, and Zeller MH, for the TeenView Study Group and in cooperation with Teen-LABS Consortium (2017).

Pediatr Rev. 2017 Jan;38(1):35-43. doi: 10.1542/pir.2016-0066. *Overcoming Challenges to Care in the Juvenile Justice System: A Case Study and Commentary*. **Savage RJ**, Reese JM, **Wallace S, Wang T, Jester T**, Lowe R, Hyndman L, **Durant N**.

EC Pediatrics. (2017) *Nutrition as Medicine to Improve Outcomes in Adolescents Sustaining a Sports-Related Concussion*. **Casazza K**, Swanson E

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

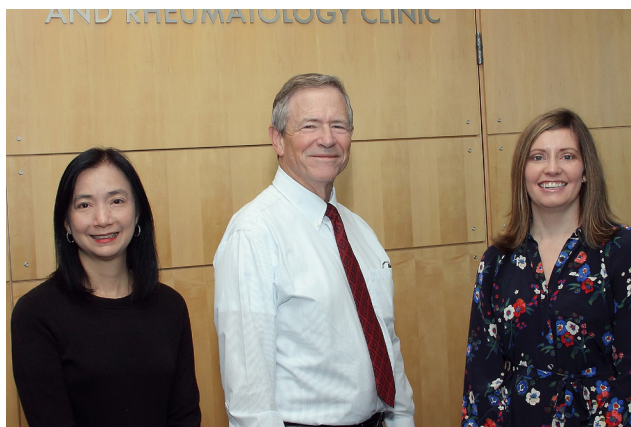
Krista Casazza, PhD, RD, LD, received the 2017 Marie O. Weil Best Paper Award for the publication, *"Surrounding community residents' expectations of HOPE VI for their community, health and physical activity."* This award recognizes outstanding scholarship published in the Journal of Community Practice. Articles published within a volume year are reviewed and selected by an awards committee comprised of ACOSA scholars.

Tina Simpson, MD, MPH Adolescent Medicine, received the American Medical Women's Association (AMWA) 2017 Exceptional Mentor Award. This award celebrates those who have made an impact on the lives of medical students and physicians in training, going above and beyond what is required, and actively reaching out to those around them to help guide students in their career paths. In addition, Dr. Simpson led the eight-team Division of Maternal and Child Health Workforce Development Diversity and Health Equity Peer Learning Collaborative (DHEC). Participating institutions included the University of Washington, Indiana University, Tulane University, University of Minnesota, University of Missouri/St. Louis University, University of New Hampshire/University of Maine and University of Wisconsin. Each of the DHEC teams was asked to identify a policy or practice change to address through the Learning Collaborative related to recruiting and retaining racially, and ethnically diverse faculty and trainees or creating a culturally diverse and representative health care workforce. Dr. Simpson was also selected to the American Pediatric Society. The American Pediatric Society is dedicated to the advancement of child health through promotion of pediatric research, recognition of achievement, and cultivation of excellence in pediatrics through advocacy, scholarship, education and leadership development. Lastly, Dr. Simpson participated in the Subspecialty Investigator Research Network (SPIN) and served as a collaborator on the following publication:

Mink RB, Schwartz A, Herman BE, Turner DA, Curran ML, Myers A, Hsu DC, Kesselheim JC, Carraccio CL and the Steering Committee of the Subspecialty Pediatrics Investigator Network (SPIN). *Validity of Level of Supervision Scales for Assessing Pediatric Fellows on the Common Pediatric Subspecialty Entrustable Professional Activities*. Acad Med. 2017 Jul 11. doi: 10.1097/ACM.0000000000001820.

Stephenie B. Wallace, MD, FAAP, Adolescent Medicine, has been selected to serve as Vice President a.k.a. President Elect for the Southeast Regional Chapter of the Society for Adolescent Health and Medicine (SAHM). The Southeast Regional Chapter includes members from six states: Alabama, Louisiana, Mississippi, Tennessee, Georgia and Florida.

PEDIATRIC ALLERGY AND IMMUNOLOGY



Dr. Prescott Atkinson
Dr. Amy CaJacob
Dr. Suthida Kankirawatana

Director | Professor
Assistant Professor
Assistant Professor

Featured Research

The Division of Pediatric, Allergy and Immunology engages in a broad range of research in disease-specific pathogens, primary immune deficiencies and autoimmunity. This year's research in the division:

- Continued to define the role and pathophysiology of *M. pneumoniae*, an increasingly recognized cause of upper and lower respiratory illness
- Defined the role of *Ureaplasma* spp., an organism related to *M. pneumoniae*, as a novel cause of premature delivery
- Investigated the genetic causes of immunodeficiency and autoimmunity

Significant Publications

Clin Microbiol Rev. 2017 Jul;30(3):747-809. doi: 10.1128/CMR.00114-16. *Mycoplasma pneumoniae* from the Respiratory Tract and Beyond. Waites KB, Xiao L, Liu Y, Balish MF, **Atkinson TP**.

Future Microbiol. 2017 Feb;12:119-129. doi: 10.2217/fmb-2016-0111. PubMed PMID: 27728978; PubMed Central PMCID: PMC5551932. *Inter- and intra-strain variability of tandem repeats in Mycoplasma pneumoniae based on next-generation sequencing data.* Zhang J, Song X, Ma MJ, Xiao L, Kenri T, Sun H, Ptacek T, Li S, Waites KB, **Atkinson TP**, Shibayama K, Dybvig K, Feng Y.

J Microbiol Methods. 2017 Jan;132:56-62. doi: 10.1016/j.mimet.2016.11.011. PubMed PMID: 27865739. *Shaken or stirred?: Comparison of methods for dispersion of Mycoplasma pneumoniae aggregates for persistence in vivo.* Totten AH, Xiao L, Crabb DM, Ratliff AE, Dybvig K, Waites KB, **Atkinson TP**.

PLoS One 2017 Accepted. *Analysis of the tonsillar microbiome in young adults with sore throat reveals a high relative abundance of Fusobacterium necrophorum with low diversity.* **Atkinson TP**, Centor RM, Xiao L, Wang F, Cui X, Van Der Pol W, Morrow CD, Ratliff AE, Crabb DM, Totten AH, Estrada CA, Faircloth MB, Waites KB.

Pediatr Res. 2017 Jan;81(1-1):75-79. doi: 10.1038/pr.2016.176. PubMed PMID: 27632777; PubMed Central PMCID: PMC5235960. *Ureaplasma infection-mediated release of matrix metalloproteinase-9 and PGP: a novel mechanism of preterm rupture of membranes and chorioamnionitis.* **Lal CV**, Xu X, Jackson P, **Atkinson TP**, Faye-Petersen OM, Kandasamy J, Waites K, Biggio JR, Gaggar A, Ambalavanan N.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Prescott Atkinson, MD, PhD, Pediatric Allergy & Immunology, currently serves as a member of the Allergy and Immunology ACGME Review Committee. In addition, he serves as the Chair of the Allergy and Immunology Fellowship Program Directors Assembly Executive Committee. Lastly, this year Dr. Atkinson coordinated the 4th Biennial Conference of the U.S. Organization for Mycoplasma, which met at UAB in Birmingham, Alabama in July 2017.

PEDIATRIC CARDIOLOGY & CARDIAC CRITICAL CARE



Pediatric Faculty

CARDIOLOGY

Dr. Yung R. Lau

Dr. Wally F. Carlo
Dr. Edward Colvin
Dr. Camden Hebson
Dr. Walter Johnson
Dr. Mark Law
Dr. William McMahon
Dr. Bennett Pearce
Dr. Robb Romp

Director | Professor

Associate Professor
Professor
Assistant Professor
Professor
Associate Professor
Professor
Professor
Associate Professor

CARDIAC CRITICAL CARE

Dr. Santiago Borasino
Dr. Erika Mendoza
Dr. Leslie Rhodes
Dr. Hayden Zaccangi

Associate Professor
Assistant Professor
Assistant Professor
Assistant Professor

Featured Research

In 2017, the division saw the evolution of Neonatal Cardiac Surgery Induced Acute Kidney Injury (CS-AKI) Consortium, now called NEPHRON (Neonatal and Pediatric Heart and Renal Outcomes Network). UAB is leading this 21-center collaborative, with a total enrolment of more than 1,000 patients, the largest multicenter collaboration to date. UAB continued its work with Cincinnati Children's Hospital Medical Center and Children's National Medical Center in a multicenter quality improvement collaborative aimed at reducing cardiac arrest in the CICU, currently in the center enrollment stage. We hope that our cardiac arrest prevention will begin to be implemented in at least 20 centers in 2018-19. This would be the first multicenter quality improvement collaborative to be performed exclusively in pediatric CICUs.

Important innovations/novel findings from our research in 2017:

- Publication of the largest Pediatric In-hospital Cardiac Arrest trial using hypothermia to decrease the deleterious effects of hypoxic ischemic encephalopathy
- Publication of the first multicenter reports on the epidemiology of Cardiac Arrest, Noninvasive Ventilation Use and Hospital Acquired infection in the CVICU population using the PC4 Data.
- Publication of the association between arterio-venous Co2 difference as a marker of low cardiac output and outcomes after cardiopulmonary bypass in children
- Publication of the effects of intraoperative adrenal insufficiency among neonates undergoing Cardiopulmonary Bypass surgery.
- Publication of the first report of the potential effects of contrast use for CT scans on kidney function prior to neonatal cardiac surgery

- Publication of a report showing trends in the management of infants with hypoplastic left heart syndrome using the National Pediatric Cardiology Quality Improvement Collaborative
- Reported our experience using Sildenafil to improve outcomes after the Fontan Operation
- Continue to enroll patients in a prospective study of intraoperative adrenal insufficiency undergoing cardiopulmonary bypass surgery with and without preoperative steroids.
- Completed enrollment of patients in a phase 4 trial using pooled plasma during cardiopulmonary bypass surgery in children.
- We are now ready to enroll patients in phase 3 trial into the use of L-citrulline to prevent pulmonary injury after cardiopulmonary bypass surgery.
- Continue to collect specimens for our biorepository, now with more than 500 individual patient samples.
- Our division had three poster research presentations at scientific conferences in 2017,

Significant Publications

Cardiol Young. 2017 Mar 6;1-3. doi: 10.1017/S1047951116002705. *Extracorporeal membrane oxygenation support for hypertrophic cardiomyopathy in an infant of a diabetic mother*. **Udine ML, Romp RL, Jackson KW**.

Cardiol Young. 2017 Mar;27(2):236-242. doi: 10.1017/S104795111600038X. *Current attitudes and clinical practice towards the care of pregnant women with underlying CHD: a paediatric cardiology perspective*. **Cribbs MG**, Briston DA, Zaidi AN.

Cardiol Young. 2017 May 29;1-8. doi: 10.1017/S104795111700097X. *Clinical epidemiology and centre variation in chylothorax rates after cardiac surgery in children: a report from the Pediatric Cardiac Critical Care Consortium*. Buckley JR, Graham EM, Gaies M, Alten JA, Cooper DS, Costello JM, Domnina Y, Klugman D, Pasquali SK, Donohue JE, Zhang W, Scheurer MA.

Catheter Cardiovasc Interv. 2017 Mar 17. doi: 10.1002/ccd.27022. *Anchor balloon, buddy wire, and wire and sheath techniques to deploy percutaneous pulmonary valves in tetralogy of fallot patients*. Shah RR, Poommipanit P, **Law MA**, Amin Z.

Congenit Heart Dis. 2017 May 30. doi: 10.1111/chd.12482. *Impact of contrast exposure from computed tomography angiography on acute kidney injury after neonatal cardiopulmonary bypass surgery*. **Carlo WF**, Clark ST, **Borasino S**, **Alten JA**.

Congenit Heart Dis. 2017 May;12(3):315-321. doi: 10.1111/chd.12442. *Practice trends over time in the care of infants with hypoplastic left heart syndrome: A report from the National Pediatric Cardiology Quality Improvement Collaborative*. **Carlo WF**, Cnota JF, **Dabal RJ**, Anderson JB.

Europace. 2017 Jan 31. doi: 10.1093/europace/euw389. *The clinical and genetic spectrum of catecholaminergic polymorphic ventricular tachycardia: findings from an international multicentre registry*. Roston TM, Yuchi Z, Kannankeril PJ, Hathaway J, Vinocur JM, Etheridge SP, Potts JE, Maginot KR, Salerno JC, Cohen MI, Hamilton RM, Pflaumer A, Mohammed S, Kimlicka L, Kanter RJ, LaPage MJ, Collins KK, Gebauer RA, Temple JD, Batra AS, Erickson C, Miszczak-Knecht M, Kubuš P, Bar-Cohen Y, Kantoch M, Thomas VC, Hessling G, Anderson C, Young ML, Choi SH, Cabrera Ortega M, **Lau YR**, Johnsrude CL, Fournier A, Van Petegem F, Sanatani S.

N Engl J Med. 2017 Jan 26. doi: 10.1056/NEJMoa1610493. *Therapeutic Hypothermia after In-Hospital Cardiac Arrest in Children*. Moler FW, Silverstein FS, Holubkov R, Slomine BS, Christensen JR, Nadkarni VM, Meert KL, Browning B, Pemberton VL, Page K, Gildea MR, Scholefield BR, Shankaran S, Hutchison JS, Berger JT, Ofori-Amanfo G, Newth CJ, Topjian A, Bennett KS, Koch JD, Pham N, Chanani NK, Pineda JA, Harrison R, Dalton HJ, **Alten J**, Schleien CL, Goodzan DM, Zimmerman JJ, Bhalala US, Schwarz AJ, Porter MB, Shah S, Fink EL, McQuillen P, Wu T, Skellett S, Thomas NJ, Nowak JE, Baines PB, Pappachan J, Mathur M, Lloyd E, van der Jagt EW, Dobyns EL, Meyer MT, Sanders RC Jr, Clark AE, Dean JM; THAPCA Trial Investigators.

Paediatr Anaesth. 2017 Jan;27(1):77-84. doi: 10.1111/pan.13013. *Adrenal insufficiency in neonates after cardiac surgery with cardiopulmonary bypass*. Crawford JH, Hull MS, **Borasino S**, Steenwyk BL, Hock KM, Wall K, **Alten JA**.

Pediatr Cardiol. 2017 Sep 7. doi: 10.1007/s00246-017-1716-4. *Routine Sildenafil Does Not Improve Clinical Outcomes After Fontan Operation*. Collins JLG, **Law MA**, **Borasino S**, Erwin WC, Cleveland DC, **Alten JA**.

Pediatr Crit Care Med. 2017 Mar;18(3):228-233. doi: 10.1097/PCC.0000000000001085. *Central Venous to Arterial CO2 Difference After Cardiac Surgery in Infants and Neonates*. **Rhodes LA**, Erwin WC, **Borasino S**, Cleveland DC, **Alten JA**.

Pediatr Crit Care Med. 2017 Jan;18(1):85-87. doi: 10.1097/PCC.0000000000000989. *Defining Low Cardiac Output Syndrome: An Ode to Justice Potter Stewart.* **Alten JA**, Gaies M.

Pediatr Crit Care Med. 2017 Jul 21. doi: 10.1097/PCC.0000000000001273. *Epidemiology and Outcomes of Cardiac Arrest in Pediatric Cardiac ICUs.* **Alten JA**, Klugman D, Raymond TT, Cooper DS, Donohue JE, Zhang W, Pasquali SK, Gaies MG.

Pediatr Infect Dis J. 2017 Dec 26. doi: 10.1097/INF.0000000000001884. *The Epidemiology of Health-Care Associated Infections in Pediatric Cardiac Intensive Care Units.* Alten JA, Rahman AF, Zaccagni HJ, Shin A, Cooper DS, Blinder JJ, Retzlaff L, Aban IB, Graham EM, Zampi J, Domnina Y, Gaies MG.

Pediatr Nephrol. 2017 Apr 5. doi: 10.1007/s00467-017-3655-y. *Kinetics of the cell cycle arrest biomarkers (TIMP-2*IGFBP-7) for prediction of acute kidney injury in infants after cardiac surgery.* Gist KM, Goldstein SL, Wrona J, **Alten JA**, Basu RK, Cooper DS, Soranno DE, Duplantis J, Altmann C, Gao Z, Faubel S.

Pediatr Transplant. 2017 Sep 15. doi: 10.1111/petr.13031. *Ventricular assist device use in single ventricle congenital heart disease.* **Carlo WF**, Villa CR, Lal AK, Morales DL.

World J Pediatr Congenit Heart Surg. 2017 Jul;8(4):480-486. doi: 10.1177/2150135117714460. *Challenges of Cardiac Transplantation Following the Fontan Procedure.* **Kirklin JK, Pearce FB, Dabal RJ, Carlo WF Jr, Mauchley DC.**

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

The Division of Cardiology and Cardiac Critical Care participates in the following Quality Improvement Networks:

- PC4- Cardiac Intensive Care Unit Data on outcomes
- STS- Pediatric and Adult Congenital Heart Disease surgery outcomes
- ACC-Impact- Pediatric and Adult Heart Catheterization outcomes
- PediMac- Extracorporeal Ventricular Device outcomes
- InterMac- Adult Ventricular Assist Device outcomes in patients with congenital heart disease
- ELSO- ECMO outcomes
- NPC-QIC- Complex congenital heart disease outcomes
- Pediatric Heart Transplant Study
- UNOS- Organ Transplantation Outcomes

CHILD ABUSE PEDIATRICS



Pediatric Faculty

Dr. Michael Taylor
Dr. David Bernard
Dr. Melissa Peters

Director | Professor
Professor
Associate Professor

Featured Research

The Division of Child Abuse Pediatrics leads the West Alabama Child Medical Evaluation Program - a clinic for medico-legal evaluation of potentially abused children. This is an extensive analysis of the findings of 574 children examined for sexual abuse from 1991-2004. Michael Taylor, MD, is the principal investigator. John C. Higginbotham, PhD, MPH, from the University of Alabama is co-principal investigator. This is the first study of medical findings on children being assessed for potential sexual abuse from Alabama.

Problem: Although sexual abuse of children is a common problem, it is very difficult for healthcare providers to recognize, evaluate, and diagnose. In 2015, there were 683,487 children determined to be victims of child abuse in the United States, of which 8.4% were sexually abused. Most of the published literature on medical examination of sexually abused children has come from large urban centers across the United States and other countries. Little has been published from more rural areas and nothing has come from Alabama.

What do we intend to learn from this study?

What is the overall incidence of significant medical findings in children examined for possible sexual abuse in Alabama? Is the incidence of significant findings similar to previously published studies? Do certain historical findings increase the likelihood of having significant medical findings? What is the incidence of sexually transmitted infections (STI) in our service population in Alabama? Is this incidence similar to other published studies? Are there any historical or examination findings that will increase the likelihood of finding a STI in children?

This is a retrospective chart review of all children examined for suspected sexual abuse in the West Alabama Child Medical Evaluation Program (WACMEP) over a 13-year period. All patients were under 18 years of age and were referred by the Alabama Department of Human Resources (DHR), Law Enforcement (LE) (Police, District Attorneys, Judges), or jointly through the local child advocacy center (CAC). All cases were under investigation for potential child maltreatment that involved concerns for sexual abuse by the agencies at the time of their examinations.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

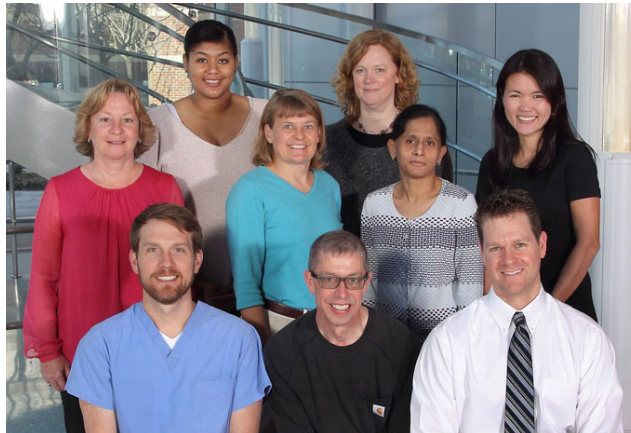
The Division of Child Abuse Pediatrics faculty were invited speakers to the following statewide, regional, and national conferences:

- Cahaba Family Medicine Training Symposium, Centreville, Alabama
- Alabama Human Trafficking Summit, Montgomery, Alabama
- 25th Annual Breaking the Cycle Conference, Hamilton, Alabama
- The Nord Center 2017 Conference on Child Abuse Awareness and Prevention, Lorain, Ohio
- 2017 Domestic Violence Training, Alabama District Attorneys' Association Office of Prosecution Services, Huntsville, Montgomery, Pelham, and Baldwin County, Alabama
- Association of Prosecuting Attorneys Northwest Regional Conference on Child Abuse and Neglect, Boise, Idaho

The Division of Child Abuse Pediatrics hosts Child Abuse Web Based Quarterly Review Network, which is a quarterly quality improvement and CME Program. Participants include medical providers across Alabama and Mississippi who are performing medical exams on potentially maltreated children in these states.

In addition, Melissa Peters, MD, and Michael Taylor, MD, are both members of the Alabama Child Death Review System State Child Death Review Team (ACDRS). The ACDRS's mission is to understand how and why children die in Alabama, in order to prevent other child deaths.

PEDIATRIC CRITICAL CARE



Pediatric Faculty

Dr. Nancy Tofil

Dr. Mark Buckmaster
Dr. Leslie Hayes
Dr. Michele Kong
Dr. Priya Prabhakaran
Dr. Robby Richter
Dr. Chrystal Rutledge
Dr. Will Sasser
Dr. Margaret Winkler

Director | Professor

Associate Professor
Associate Professor
Associate Professor
Professor
Assistant Professor
Assistant Professor
Assistant Professor
Professor

Featured Research

The Pediatric Critical Care Division has many important research endeavors. Michele Kong, MD, is leading basic and translational science research focusing on inflammatory lung markers and RSV infection. Leslie Hayes, MD, leads our Pediatric Critical Care improvement efforts with two major projects this year being early mobility and delirium screening. Will Sasser, MD, and Priya Prabhakaran, MD, are heavily involved with important education projects focusing on medical students/residents and PICU fellows, respectively. Chrystal Rutledge, MD, and Kristen Waddell, CRNP have developed an important simulation outreach program, COACHES (Children's of Alabama Community Healthcare Education Simulation Program), to assist hospitals throughout the state with pediatric emergency preparedness. Robert Richter, MD, is evaluating vascular permeability proteins and the abnormalities of these in sepsis. Mark Buckmaster, MD, collaborates with pediatric sedation researchers in a sedation network focusing on best practices in children. Margaret Winkler, MD, plays an important role in the PALISI (Pediatric Acute Lung Injury and Sepsis Investigators) network with numerous pediatric critical care trials. Nancy Tofil, MD, works along with Crystal Rutledge, MD, with many simulation education studies and best practices of cardiopulmonary resuscitation within the INSPIRE (International Network for Simulation-based Pediatric Innovation, Research, Education) Network.

Significant Publications

Ann Allergy Asthma Immunol. 2017 Mar 7. pii: S1081-1206(17)30059-5. doi: 10.1016/j.anai.2017.01.024. *Survey of pediatric trainee knowledge: dose, concentration, and route of epinephrine.* Scherzer DJ, Chime NO, **Tofil NM**, Hamilton MF, Singh K, Stanley RM, Kline J, McNamara LM, Rosen MA, Hunt EA; INSPIRE Epinephrine Research Investigators.

CJEM. 2017 Apr 3:1-9. doi: 10.1017/cem.2017.12. *The effect of step stool use and provider height on CPR quality during pediatric cardiac arrest: A simulation-based multicentre study.* Cheng A, Lin Y, Nadkarni V, Wan B, Duff J, Brown L, Bhanji F, Kessler D, **Tofil N**, Hecker K, Hunt EA.

Front Pediatr. 2017 Jul 28;5:164. doi: 10.3389/fped.2017.00164. eCollection 2017. *A Call to the Senses: The Community Approach.* **Kong MYF.**

Front Pediatr. 2017 Sep 15;5:193. doi: 10.3389/fped.2017.00193. *A Community-based Sensory Training Program Leads to Improved Experience at a Local Zoo for Children with Sensory Challenges.* **Kong M**, Pritchard M, Dean L, Talley M, Torbert R and Maha J.

Health Communication 2017; 32(7): 903-909. PMID: 27436067. *A Qualitative Examination of Physician Gender and Parental Status in Pediatric End-of-Life Communication.* Bateman LB, White ML, **Tofil NM**, Clair JM, Needham BL.

J Crit Care. 2017 Feb 16. pii: S0883-9441(17)30216-2. doi: 10.1016/j.jcrc.2017.02.023. *Fluid overload and outcomes in critically ill children: A single center prospective cohort study.* Diaz F, Benfield M, Brown L, **Hayes L**.

J Infect Dis. 2017 Jul 1;216(1):14-21. doi: 10.1093/infdis/jix242. *Evaluation of IFITM3 rs12252 Association With Severe Pediatric Influenza Infection.* Randolph AG, Yip WK, Allen EK, Rosenberger CM, Agan AA, Ash SA, Zhang Y, Bhangale TR, Finkelstein D, Cvijanovich NZ, Mourani PM, Hall MW, Su HC, Thomas PG; Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) Network Pediatric Influenza (PICFLU) Investigators; Pediatric Acute Lung Injury and Sepsis Investigators (PALISI) Network Pediatric Influenza (PICFLU) Investigators. **Kong M**, Sewell K, Sanders RC, Hefley G, Tellez D, Bliss C, Labell A, Liss D, Ortiz AL, Typpo K, Deschenes J, Markovitz B, Terry J, Morzov RSP, Graciano AL, Baldwin M, Flori H, Cvijanovich N, Brumfield B, Simon J, Anas N, Schwarz A, Onwunye C, Osborne S, Patterson T, Vargas-Shiraishi O, Sapru A, Convery M, Lo V, Czaja A, Mourani P, Aymami VB, Burr S, Brocato M, Huston S, Jewett E, Lindahl SB, Loyola D, Sierra Y, Carroll C, Sala KA, Thornton-Thompson S, Giuliano JS Jr, Tala J, McLaughlin G, Paden M, Manghram CC, Meisner S, Stone CL, Toney R, Coates BM, Shukla A, Wardenburg JB, DeDent A, Montgomery V, Evans T, Richardson K, Randolph AG, Agan AA, Smith EM, Sullivan RM, Yoon G, Kiers M, Keisling SM, Bembea M, White ED, Kurachek SC, Doucette AA, Zielinski E, Doctor A, Hartman M, Jacobs R, Shetty S, Truemper E, Dawson M, Levin DL, Jarvis JD, Katyal C, Ackerman K, Daugherty LE, Baglia L, Nofziger R, Anthony H, Shein S, Adams R, Bergant S, Lemon E, Petersen L, Hall MW, Greathouse K, Steele L, Thomas N, Raymond J, Spear D, Fitzgerald J, Helfaer M, Weiss SL, Bush JL, Diliberto MA, Egan J, Park BB, Sisko M, Carell M Jr, Barr FE, Arnold J, Higginson R, Christie L, Thompson M, Loftis LL, Jaimon N, Kyle U, Willson DF, Traul C, Kelly RL, Gedeit R, Horn BE, Luther K, Murkowski K, Jouvett PA, Fontaine AM, Dugas MA.

JAMA Pediatr 2017; 1:171(2):109. *Goodbyes Are Not Forever.* **Kong M**.

Med Teach. 2017 Mar 10;1-8. doi: 10.1080/0142159X.2017.1297527. *Defining leadership competencies for pediatric critical care fellows: Results of a national needs assessment.* Green ML, **Winkler M**, Mink R, Brannen ML, Bone M, Maa T, Arteaga GM, McCabe ME, Marcdante K, Schneider J, Turner DA.

Pediatr Crit Care Med. 2017 Jun 24. doi: 10.1097/PCC.0000000000001258. *Workload of Team Leaders and Team Members During a Simulated Sepsis Scenario.* **Tofil NM**, Lin Y, Zhong J, Peterson DT, **White ML**, Grant V, Grant DJ, Gottesman R, Sudikoff SN, Adler M, Marohn K, Davidson J, Cheng A; International Network for Simulation-Based Pediatric Innovation, Research and Education Cardiopulmonary Resuscitation (INSPRIRE CPR) Investigators.

Pediatric Anesthesia 2017 Feb;27(2):205-210. *Anaphylaxis in the Operating Room a Simulation Study.* Johnston E, Sloane P, King C, Cox J, Youngblood AQ, Zinkan LZ, Peterson DT, **Tofil NM**

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Leslie W. Hayes, MD, Pediatric Critical Care, represented the UAB School of Medicine in an invitation to lead the Nelson Mandela Academic Hospital, Mthatha, South Africa, on their quality improvement journey. The goal was to equip that organization's medical leadership with the tools and skills needed to improve clinical outcomes and efficiency. Dr. Hayes was also invited to lead a workshop featuring practical quality improvement tools for the healthcare provider at the Cancer Community Network 2017 Fall Associate Conference. The title of the workshop was: *"Managing Complexity and Variation in Cancer Patients."*

Michele Kong, MD, Pediatric Critical Care, is among the list of 30 strong women in Alabama making differences in their communities. This year, *This is Alabama* presents the third annual Women Who Shape the State awards, which are listed on AL.com. Dr. Kong's recognition is due to being the co-founder and Chief Medical Officer of KultureCity, which is changing the state and beyond for the betterment of members of the special needs community. In addition, Dr. Kong was the Basic/Translational Research Critical Care Oral Session Moderator, of the Pediatric Academic Society. She also received the Vulcan Spear Newcomer Award in Birmingham, AL. In addition, Dr. Kong was admitted to the 2017 Leadership Birmingham.

Margaret Winkler, MD, Pediatric Critical Care, was selected to serve on the ADAPT Publications committee which is a PALISI National Institutes of Health funded study. Dr. Winkler was also selected to serve as one of the seven people on the ABP task force for revision of the content specifications for the American Board of Pediatrics Sub-board of Pediatric Critical Care Medicine. The task force comprises three sub-board members and four non-sub-board members.

DEVELOPMENTAL-BEHAVIORAL PEDIATRICS



Pediatric Faculty

Dr. Myriam Peralta-Carcelen

Dr. Allison Cavender

Dr. Snehal Khatri

Dr. Justin Schwartz

Director | Professor

Assistant Professor

Associate Professor

Assistant Professor

Featured Research

The UAB Division of Developmental-Behavioral Pediatrics is an active participant in the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Neonatal Research Network. Myriam Peralta-Carcelen, MD, is the follow-up PI for the center at UAB. Developmental-Behavioral Pediatrics works with UAB Neonatology, and other investigators to assess the long-term outcomes among infants who participate in the Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Recent completed studies include the NICHD NRN SUPPORT Neuroimaging and Neurodevelopmental Outcomes and research on the impact of prematurity on behavioral and socio emotional outcomes.

Significant Publications

Pediatrics. 2017 Jun;139(6). pii: e20161043. doi: 10.1542/peds.2016-1043. **Behavioral Problems and Socioemotional Competence at 18 to 22 Months of Extremely Premature Children.** **Peralta-Carcelen M, Carlo WA**, Pappas A, Vaucher YE, Yeates KO, Phillips VA, Gustafson KE6, Payne AH, Duncan AF, Newman JE, Bann CM; Follow Up

Salas AA, Woodfin T, Phillips V, **Peralta-Carcelen M**, Carlo WA, Ambalavan N. ***Dose Response Relationship between Early Enteral Vitamin D supplementation and Neurodevelopmental Outcomes at 2 years of age: Follow Up data from a randomized trial in Extremely Preterm Infants.*** Accepted in *Neonatology* in 2017

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

The Division of Developmental and Behavioral Pediatrics is home to the Newborn Follow up program which participates as a follow up site in the NICHD neonatal research network. Dr. Waldermar Carlo from Neonatology is the PI for the UAB center of the neonatal research network and Dr. Myriam Peralta is the follow up PI for the UAB center of the NRN.

Faculty in our division (Dr. Peralta and Dr. Schwartz) participated in the 2017 Early Screening Collaborative, a program from the Alabama Child Health Improvement Alliance (ACHIA)

Project ECHO: Autism completed its first 6-month cycle in 2017. Our multidisciplinary, cross organizational team connected with primary care providers in pediatrics and family medicine to promote best practices in autism care.

PEDIATRIC EMERGENCY MEDICINE



Pediatric Faculty

Dr. Peter Glaeser

Dr. Allury Arora
Dr. Mark Baker
Dr. Steven Baldwin
Dr. Judson Barber
Dr. David Bernard
Dr. Christine Campbell
Dr. Christina Cochran
Dr. Teresa Coco
Dr. Valerie Davis
Dr. Shea Duerring
Dr. Pallavi Ghosh
Dr. Lynzee Head
Dr. Terry Hope
Dr. Nicole Jones
Dr. Ann Klasner
Dr. Patricia LaBorde
Dr. Laurie Marzullo
Dr. Heather Mitchell
Dr. Kathy Monroe
Dr. Michele Nichols
Dr. Melissa Peters
Dr. Christopher Pruitt
Dr. Annalise Sorrentino
Dr. Marjorie Lee White

Director | Professor

Assistant Professor
Associate Professor
Professor
Professor
Professor
Assistant Professor
Assistant Professor
Associate Professor
Assistant Professor
Assistant Professor
Assistant Professor
Instructor
Instructor
Assistant Professor
Professor
Instructor
Associate Professor
Assistant Professor
Professor
Professor
Associate Professor
Assistant Professor
Professor
Associate Professor

Featured Research

Researchers in the division are working on a number of multicenter studies involving infectious diseases in young infants, coordinated by the National Pediatric Emergency Medicine Clinical Research Network. The Division of Pediatric Emergency Medicine has additional important research focus areas including:

- Improved education through simulation
- Driving safety
- Pain management in the Emergency Department

Significant Publications

Acad Emerg Med. 2017 Feb;24(2):161-167. doi: 10.1111/acem.13115. *Lidocaine Pretreatment Reduces the Discomfort of Intranasal Midazolam Administration: A Randomized, Double-blind, Placebo-controlled Trial.* Smith D, Cheek H, Denson B, **Pruitt CM**.

Am J Emerg Med. 2017 Sep 4. pii: S0735-6757(17)30722-2. doi: 10.1016/j.ajem.2017.08.057. *Predictors of emergency department discharge following pediatric drowning*. **Cantu RM, Pruitt CM, Samuy N, Wu CL**.

Curr Opin Pediatr. 2017 Sep 20. doi: 10.1097/MOP.0000000000000557. *Program directors' opinions on medical genetics education in pediatric residency programs*. Hamm JA, **Nichols MH, Robin NH**.

JMIR Med Educ. 2017 Jan 31;3(1):e2. doi: 10.2196/mededu.5993. *Pediatric Residents' Perceptions of Potential Professionalism Violations on Social Media: A US National Survey*. Dawkins R, King WD, Boateng B, **Nichols M**, Desselle BC.

Journal of Pediatrics. 2017 Oct;189:169-174.e2. doi: 10.1016/j.jpeds.2017.06.021. *Impact of Enteroviral Polymerase Chain Reaction Testing on Length of Stay for Infants 60 Days Old or Younger*. Aronson PL, Lyons TW, Cruz AT, Freedman SB, Okada PJ, Fleming AH, Arms JL, Thompson AD, Schmidt SM, Louie J, Alfonzo MJ, Monuteaux MC, Nigrovic LE; Pediatric Emergency Medicine Clinical Research Network (PEM CRC) Herpes Simplex Virus (HSV) Study Group. Alpern ER, Balamuth F, Bradin SA, Curtis SJ, Garro AC, Grether-Jones KL, Ishimine PT, Kulik D, Mahajan P, Miller AS, Mistry RD, **Pruitt CM**, Schnadow D, Shah SS, Thomson JE, Uspal NG

Pediatr Infect Dis J. 2017 May 3. doi: 10.1097/INF.0000000000001634. *Correction of Cerebrospinal Fluid Protein in Infants with Traumatic Lumbar Punctures*. Lyons TW, Cruz AT, Freedman SB, Arms JL, Aronson PL, Fleming AH, Kulik DM, Mahajan P, Mistry RD, **Pruitt CM**, Thompson AD, Nigrovic L; Herpes Simplex Virus Study Group of the Pediatric Emergency Medicine Collaborative Research Committee (PEMCRC).

Resuscitation. 2017 Sep 21. pii: S0300-9572(17)30628-7. doi: 10.1016/j.resuscitation.2017.09.017. *What happens to the "good saves"?* **Pruitt CM**.

Simul Healthc. 2017 Mar 18. doi: 10.1097/SIH.0000000000000225. *Simulation Faculty Development: A Tiered Approach*. Peterson DT, Watts PI, Epps CA, **White ML**.

South Med J. 2017 May;110(5):343-346. doi: 10.14423/SMJ.0000000000000648. *Risky Teen Driving in a Rural Southern State*. **Monroe K**, Hardwick W, Lawson V, Nichols E, **Nichols M**, King WD.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Judson Barber, MD, Pediatric Emergency Medicine, physician and Medical Director of the PEM Sedation Service, was recognized at the 2017 Society for Pediatric Sedation (SPS) Conference in Orlando, Florida, for his six years of service on the board of Directors for the Society. Dr. Barber is also a founding member of the SPS and serves as the chairman of the communications subcommittee. The SPS was founded in 2007 to promote safe, high quality care, innovative research and quality professional education in pediatric sedation.

Christopher Pruitt, MD, Pediatric Emergency Medicine, has been selected to serve on the Executive Steering Committee for the Pediatric Emergency Medicine Collaborative Research Committee. The PEMCRC is the research arm of the AAP Section on Emergency Medicine, and the Executive Committee selects projects for allocation of funds and efforts; vets all research surveys through the section; and provides mentorship for trainees and junior faculty interested in research. In addition, Dr. Pruitt was elected to a second two-year term to the Southern Society for Pediatric Research (SSPR) Executive Council. His responsibilities include mentorship of trainee research, judging for trainee research awards, and conference organization.

Marjorie Lee White, MD, MPPM, MA is active in the international simulation community. She serves on the executive committee of the International Simulation Data Registry, the executive committee of the American Academy of Pediatrics' provisional Section on Simulation and Innovative Learning and a board subcommittee of the International Pediatric Simulation Society.

PEDIATRIC ENDOCRINOLOGY



Pediatric Faculty

Dr. Kenneth McCormick

Dr. Hussein Abdullatif
Dr. Ambika Ashraf
Dr. Joycelyn Atchison
Dr. Giovanna Beauchamp
Dr. Pallavi Iyer
Dr. Rose James
Dr. Gail Mick
Dr. Mary Lauren Scott
Dr. Michael Stalvey

Director | Professor

Professor
Professor
Professor
Assistant Professor
Associate Professor
Instructor
Professor
Assistant Professor
Associate Professor

Featured Research

In 2017, the research in the Division of Pediatric Endocrinology encompassed cystic fibrosis-related bone health/growth, treatment and etiology of type 1 diabetes (T1DM), lipoprotein metabolism, congenital hypothyroidism, endoplasmic reticulum luminal redox effect on cortisol production in isolated microsomes, and β -cell apoptosis in CF.

Ongoing research studies and clinical projects include such topics as:

- The biological defect in the CF transmembrane conductance regulator (CFTR) protein impact on both growth and bone health
- GABA intervention in new-onset Type1 diabetes to preserve β -cell function. This pioneering project is the first clinical trial of oral gamma aminobutyric acid (GABA) to preserve or restore endogenous insulin secretion, reduce prandial glucagon secretion, improve metabolic/glycemic control, and modulate favorably the autoimmune milieu
- Increased incidence of Type1 diabetes in African American youth
- Anti-N-acetylglucosamine antibodies from B lymphocytes, their prevalence and their role in the etiology of Type1 diabetes
- Immunology of Type1 diabetes the first year after diagnosis
- Redox regulation of endoplasmic calcium ATPase and uptake in isolated microsomes
- Modulation of macronutrient composition for management of lipid disorders and non-alcoholic fatty liver disease
- Natural history of Type1 diabetes (NIH multicenter study)
- 11-Ketotestosterone concentrations in children with CAH and other adrenal disorders
- Cystic fibrosis diabetes and β -cell apoptosis (in collaboration with Pennington Biomedical Center)
- ECHO (Extension for Community Healthcare Outcomes) video-conferencing program covering Pediatric Diabetes and Obesity - Spring 2018
- Diagnostic value of a second newborn screening test for congenital hypothyroidism
- At least 8 pharmaceutical-sponsored clinical drug studies concerning Type2 diabetes, growth hormone deficiency, hypophosphatasia, FGF23 excess, etc.

Significant Publications

Clinical Pediatrics. 2017 Jan 1:9922816685821. doi:10.1177/0009922816685821. *An unusual case of galactorrhea with normal serum prolactin*. Fernandez TF, **Ashraf AP**. 3

Global Pediatric Health, volume3: 1-5, 2016. *"Rhabdomyolysis in pediatric patients with diabetic ketoacidosis or hyperglycemic hyperosmolar state- a case series."* Mercer S, Hanks L, **Ashraf AP**

Horm Res Paediatr. 2017 Nov 17. doi: 10.1159/000484561. *Correlation between Cosyntropin Stimulation Study and Disease Severity in Children with Fluid- and Catecholamine-Refractory Shock in the Pediatric and Cardiovascular Intensive Care Unit*. **Iyer P**, Harrington B, Fadrowski JJ, Sibinga E, Amankwah EK.

JAMA Pediatr. Published online April 24, 2017. doi:10.1001/jamapediatrics.2017.0206. *Effects of Diagnosis by Newborn Screening for Cystic Fibrosis on Weight and Length in the First Year of Life*. Daniel H. Leung, MD1; SonyaL. Heltshe, PhD; Drucy Borowitz, MD; Daniel Gelfond, MD; Margaret Kloster, MS; James E. Heubi, MD; **Michael Stalvey, MD**; Bonnie W. Ramsey, MD; for the Baby Observational and Nutrition Study (BONUS) Investigators of the Cystic Fibrosis Foundation Therapeutics Development Network.

Journal of Clinical Lipidology. 2017 Apr 3. pii: S1933-2874(17)30085-5. *Pseudo-acidosis from extreme hypertriglyceridemia in an infant with lipo protein lipase deficiency due to segmental uniparental disomy*. **Ashraf AP**, Hurst ACE, Garg A.

J Clin Lipidol. 2017 Apr 3. pii: S1933-2874(17)30085-5. doi: 10.1016/j.jacl.2017.03.015. *Extreme hypertriglyceridemia, pseudohyponatremia, and pseudoacidosis in a neonate with lipoprotein lipase deficiency due to segmental uniparental disomy*. **Ashraf AP**, **Hurst ACE**, Garg A.

Pediatr Rev. 2017 Sep;38(9):424-434. doi: 10.1542/pir.2016-0138. *Approach to Hypertriglyceridemia in the Pediatric Population*. Valaiyapathi B, **Sunil B**, **Ashraf AP**.

Pediatrics. 2017; 139(2):e20162522. *Growth in Prepubertal Children with Cystic Fibrosis Treated with Ivacaftor*. **Stalvey, M.**, Pace, J., Niknian, M., Higgins, M., **Tarn, V.**, Davis, J., Heltshe, S., and **Rowe, S**.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Ambika Ashraf, MD, Pediatric Endocrinology, has been selected to serve as the Section On Endocrinology Program Chair for the 2018 AAP National Conference and Exhibition (NCE). As a program chair, Dr. Ashraf will be responsible for developing proposals sponsored by the Section On Endocrinology at the AAP National Conference. Dr. Ashraf has also been invited to Co-chair the Pediatric Endocrine Society (PES) Education Committee. The PES has over 1,300 members representing the multiple disciplines of Pediatric Endocrinology. The members are dedicated to research and treatment of children with endocrine disorders; reproductive, bone, thyroid, diabetes, obesity, growth, pituitary and adrenal. Dr. Ashraf was also the abstract reviewer and program Committee member for the 2017 10th International Meeting of Pediatric Endocrinology, held in Washington DC. In addition, she was the planning committee member of the PES annual meeting and editorial board member of AAP's Pediatric endocrinology section of Pediatrics Review and Education Program.

Pallavi Iyer, MD, Pediatric Endocrinology, participated in the 2017 Drugs and Therapeutics and Rare Disease Committee of the Pediatric Endocrine Society.

Hussein Abdul-Latif, MD, Pediatric Endocrinology, was an invited speaker for McEwen University in Edmonton, Alberta's "Islam and LGBTQ issues" in September 2017.

PEDIATRIC GASTROENTEROLOGY, HEPATOLOGY, & NUTRITION



Pediatric Faculty

Dr. Reed Dimmitt

Dr. Margaux Barnes
Dr. Nick Cajacob
Dr. Mitch Cohen
Dr. David Galloway
Dr. Marissa Gowey
Dr. Traci Jester
Dr. Rachel Kassel
Dr. Mike Leonis
Dr. Jeanine Maclin
Dr. Jose Mestre
Dr. Gillian Noel
Dr. Janaina Nogueira
Dr. Amanda Soong
Dr. Neelesh Tipnis

Director | Professor

Assistant Professor
Assistant Professor
Professor
Assistant Professor
Assistant Professor
Assistant Professor
Assistant Professor
Professor
Associate Professor
Professor
Assistant Professor
Assistant Professor
Assistant Professor
Professor

Featured Research

The Division of Gastroenterology, Hepatology & Nutrition focuses on research that mirrors our growth in developing specialty programs. Specific highlights include:

- Our Inflammatory Bowel Disease (IBD) Program continues to be a part of the multi-institutional collaborative ImproveCareNow. This collaborative is developed to aid clinicians in benchmarking patient outcomes.
- Margaux Barnes, PhD, is investigating the role of nutrition and lean body mass in IBD patients. Her research is focused on improving the health of pediatric patients with IBD utilizing nutrition and exercise.
- The eosinophilic disease program continues to partner with Cincinnati Children's Hospital Medical Center to study novel gene mutations in our patients with eosinophilic esophagitis (EoE). This partnership is focusing on inheritance patterns with EoE, specifically racial/ethnic differences.
- We are a site that is investigating a new medication for the treatment of EoE. This research will provide the first FDA approved ready to administer oral medication for EoE.
- The Intestinal Rehabilitation is part of an international network developing a database of patients with intestinal failure. As part of that effort, we are studying quality of life in our patients and have developed a novel quality instrument.
- We are testing vaccines for diarrheal disease and have secured successful licensing of the first cholera vaccine in the U.S.
- Marissa Gowey, PhD, has developed a novel study to understand pediatric obesity. The program is a family-based program focusing on executive function.
- We have established our new Pediatric Liver Care Center. We are involved in several multi-center collaborative projects involved in acute liver disease and liver transplantation.
- Michelle Mastin, PhD, and Margaux Barnes, PhD, are studying outcomes research in our Intensive Feeding Program.

- David Galloway, MD, is studying changes in the intestinal microbiome in patients with short bowel syndrome and intestinal failure.

We are expanding our portfolio of clinical care, education and research in 2017 with the recruitment of new faculty and the development of the new Pediatric Liver Care Center.

Significant Publications

Clin Obes. 2017 Aug 23. doi: 10.1111/cob.12210. *Children's food and satiety responsiveness in association with post-prandial glucose following a standardized liquid meal.* **Gowey MA**, Chandler-Laney PC.

Clin Vaccine Immunol. 2017 Jan 5;24(1). pii: e00470-16. doi: 10.1128/CI.00470-16. *The live attenuated cholera vaccine, CVD 103-HgR, primes responses to the toxin-coregulated pilus antigen TcpA in subjects challenged with wild type Vibrio cholera.* Mayo-Smith LM, Simon JK, Chen WH, Haney D, Lock M, Lyon CE, Calderwood SB, Kirkpatrick BD, **Cohen M,B** Levine MM, Gurwith M, Harris JB.

Eat Weight Disord. 2017 Mar;22(1):125-132. doi: 10.1007/s40519-016-0262-z. *Unhealthy weight control behaviors mediate the association between weight status and weight-specific health-related quality of life in treatment-seeking youth who are obese.* Lim CS, **Gowey MA**, Cohen MJ, Silverstein J, Janicke DM.

Gut Microbes. 2017 Mar 7:0. doi: 10.1080/19490976.2017.1299846. *Gut Microbes Addenda: Antibiotics promote the sampling of luminal antigens and bacteria via colonic goblet cell associated antigen passages.* Knoop KA, Gustafsson JK, McDonald KG, Kulkarni DH, **Kassel R**, Newberry RD.

International Journal of Behavioral Nutrition and Physical Activity. 2017 Aug 15;14(1):107. *Comparison of an alternative schedule of extended care contacts to a self-directed control: a randomized trial of weight loss maintenance.* Dutton GR, **Gowey MA**, Tan F, Zhou D, Ard J, Perri MG, Lewis CE

J Pediatr Gastroenterol Nutr. 2017 May;64(5):685-690. *Categorization Predicts Disability in Pain-associated Functional Gastrointestinal Disorders (FGIDs) After 6 Months.* Cunningham NR, Jagpal A, Peugh J, Farrell MK, **Cohen MB**, Mezzoff AG, Lynch-Jordan A, Kashikar-Zuck S. Risk.

J Pediatr Psychol. 2017 Apr 1;42(3):272-282. doi: 10.1093/jpepsy/jsw078. *Peer Victimization in Adolescents With Severe Obesity: The Roles of Self-Worth and Social Support in Associations With Psychosocial Adjustment.* Reiter-Purtill J, **Gowey MA**, **Austin H**, Smith KC, Rofey DL, Jenkins TM, Garland BH, Zeller MH; TeenView Study Group and in cooperation with Teen-LABS Consortium.

J Pediatr Psychol. 2017 Jun 8. doi: 10.1093/jpepsy/jsx091. *Executive Function and Dysregulated Eating Behaviors in Pediatric Obesity.* **Gowey MA**, Lim CS, Dutton GR, Silverstein JH, Dumont-Driscoll MC, Janicke DM.

J Pediatr Psychol. 2017 Oct 12. doi: 10.1093/jpepsy/jsx128. *Disease-Related Predictors of Health-Related Quality of Life in Youth With Eosinophilic Esophagitis.* **Lynch MK**, **Barnes MJ**, **Dimmitt RA**, Martin L, Rothenberg ME, Goodin BR

J Pediatr Psychol. 2017 Sep 15. doi: 10.1093/jpepsy/jsx117. *Evidence of Disturbed Sleep in Children With Eosinophilic Esophagitis and Persistent Epigastric Pain.* **Lynch MK**, **Dimmitt RA**, Goodin BR.

Pediatr Rev. 2017 Jan;38(1):35-43. doi: 10.1542/pir.2016-0066. *Overcoming Challenges to Care in the Juvenile Justice System: A Case Study and Commentary.* **Savage RJ**, Reese JM, **Wallace S**, **Wang T**, **Jester T**, Lowe R, Hyndman L, **Durant N**.

Pediatr Rheumatol Online J. 2017 Nov 9;15(1):79. doi: 10.1186/s12969-017-0207-8. *Risk of tuberculosis among Alabama children and adolescents treated with tumor necrosis factor inhibitors: a retrospective study.* **Stoll ML**, Grubbs JA, **Beukelman T**, **Mannion ML**, **Jester TW**, **Cron RQ**, **Crain MJ**.

Vaccine. 2017 Feb 16. pii: S0264-410X(17)30162-7. doi: 10.1016/j.vaccine.2017.01.082. *Rotavirus immunization: Global coverage and local barriers for implementation.* Lo Vecchio A, Liguoro I, Dias JA, Berkley JA, Boey C, **Cohen MB**, Cruchet S, Salazar-Lindo E, Podder S, Sandhu B, Sherman PM, Shimizu T, Guarino A.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

The ImproveCareNow quality improvement leadership team has invited Children's of Alabama to join the Trailblazers Learning Lab. This selected group of teams includes those who have several years of experience in ImproveCareNow, in addition to impressive results in process and outcome measures. Responsibilities will include testing innovations ahead of the spread across the network and teaching and mentoring other groups within the network. Our Division of Pediatric Gastroenterology, Hepatology, & Nutrition ImproveCareNow team's focus is on quality care and improvement efforts for our pediatric Inflammatory Bowel Disease patients and to participate in research through ImproveCareNow.

Margaux J. Barnes, PhD, Pediatric Gastroenterology, Hepatology, and Nutrition, was selected to serve on the Research Committee for ImprovedCareNow. The Research Committee is dedicated to the global aim of creating a scientific infrastructure that supports learning the necessary skills to improve health of children and adolescents with IBD.

Mitch Cohen, MD, Pediatric Gastroenterology, Hepatology, & Nutrition, has been elected to serve as a member of the American Academy of Pediatrics (AAP) Section on Gastroenterology, Hepatology & Nutrition Executive Committee. Dr. Cohen was also appointed to the Association of Medical School Pediatric Department Chairs (AMSPDC) Education Committee and New Chairs Program Committee, each for a two-year term. Dr. Cohen was selected to serve in the Consortium of Eosinophilic Gastrointestinal Disease Researchers (CEGIR) External Advisory Board. He was also selected as the 2017 Chair of the Alabama Genomic Health Initiative (AGHI) Oversight Committee. In addition, Dr. Cohen was selected as a 2017 National Institutes of Health member of SEP NICHD (K12): ZHD1 DSR-A (55) 1; 2017. Lastly, he has also been elected to the Board of Directors of ImproveCareNow.

PEDIATRIC HEMATOLOGY & ONCOLOGY



Pediatric Faculty

Dr. Kim Whelan

Dr. Elizabeth Alva
Dr. Christy Bemrich-Stolz
Dr. Smita Bhatia
Dr. Joseph Chewning
Dr. Gregory Friedman
Dr. Frederick Goldman
Dr. Hilary Haines
Dr. Lee M. Hilliard
Dr. Matthew Kutny
Dr. Wendy Landier
Dr. Jeffrey Lebensburger
Dr. Wayne Liang
Dr. Brandi Pernell
Dr. Alyssa Reddy
Dr. Purnima Singh
Dr. Avi Madan-Swain
Dr. Erik Westin
Dr. Julie Wolfson
Dr. Ana Xavier

Interim Director | Associate Professor

Assistant Professor
Assistant Professor
Professor
Associate Professor
Associate Professor
Professor
Assistant Professor
Professor
Assistant Professor
Associate Professor
Associate Professor
Informatics Assistant Prof
Assistant Professor
Professor
Assistant Professor
Professor
Instructor
Assistant Professor
Assistant Professor

Featured Research

The Division of Pediatric Hematology and Oncology is committed to advancing research, taking findings from the bench to the bedside and then to the community. The division works in close collaboration with members of the UAB Comprehensive Cancer Center, the Institute for Cancer Outcomes and Survivorship, the UAB Center for Clinical and Translational Science, UAB Center for Outcomes and Effectiveness Research and Education, Children's Center for Supportive and Palliative Care and UAB School of Public Health. These multidisciplinary collaborations serve as a rich resource to accelerate the pace of discovery across the entire trajectory of disease from diagnosis to survivorship and end of life.

An example of discoveries taken from bench to bedside include the research led by Gregory Friedman, MD, in the field of neuro-oncology. Dr. Friedman has demonstrated that the deadliest subgroup of medulloblastoma is highly sensitive to a genetically modified herpes simplex virus (HSV). His innovative phase 1 study using modified HSV to attack difficult-to-treat brain tumors began recruiting patients from across U.S. in 2016. To date, over 5 patients have been enrolled in this groundbreaking study with encouraging results thus far. This bench-to-bedside translation of engineered herpes simplex virotherapy is FDA-approved and supported by the National Institutes of Health (NIH). Another example of bench-to-bedside research is in the field of BMT, where Frederick Goldman, MD, is attempting to understand the pathogenetic mechanisms of bone marrow failure syndromes, congenital immune deficiencies and translating this information to the promotion of novel agents and stem therapies for these disorders. His translational research laboratory is addressing unmet needs in hematopoietic disorders using innovative gene correction technology, coupled with BMT, to develop safer cures.

Matthew Kutny, MD, is a member of the myeloid disease steering committee within the Children's Oncology Group. In this role he leads efforts to develop clinical trials testing novel treatments for childhood leukemia. He is the study chair for an international trial of acute promyelocytic leukemia open at over 100 institutions. His research efforts focus on improving treatment cure rates while also decreasing treatment toxicity.

The Pediatric Hematology and Oncology Division has a strong team dedicated to cutting-edge research in the field of sickle cell disease. Jeffrey Lebensburger, DO, continues to focus his research efforts on understanding the progression to chronic kidney disease that impacts about ¼ of adults with sickle cell anemia. One recent pathway that he studies is the link between acute kidney injury during sickle cell crisis and progression to chronic kidney disease for patients with sickle cell disease. He recently was awarded a grant from Pfizer ASPIRE Sickle Cell Research program to explore this topic. Also, he continues to evaluate the impact of hypertension and elevated uric acid on progression to chronic kidney disease in sickle cell patients. He identified that patients with nighttime hypertension and hyperuricemia may be already be at risk for kidney disease during adolescence. Finally, he continues to evaluate the other progressive organ disease, including stroke, which impacts the lives of patients with sickle cell disease. Dr. Goldman is using a murine model of sickle cell disease to optimize reduced intensity conditioning in blood or marrow transplantation (BMT) to balance toxicity with efficacy. Dr. Goldman is working closely with the Dr. Townes (UAB Dept. of Biochemistry and Molecular Genetics) to use gene editing with modified CRISPR technology and create "transplantable" gene-corrected autologous hematopoietic stem cells. A pre-IND FDA application has been filed with the ultimate goal of opening a Phase 1 clinical trial within the next 1-2 years to treat sickle cell infants with their own CRISPR-gene-corrected cord blood stem cells.

Smita Bhatia, MD, MPH, is the founding director of the Institute for Cancer Outcomes and Survivorship; several members of the division collaborate with and are members of the institute. The mission of the institute is to reduce the burden of cancer and its sequelae across all segments of population through interdisciplinary research, health promotion and education. The institute has been very active over the past year. Julie Wolfson, MD, MSHS, has focused on adolescents and young adults (AYAs) with hematologic malignancies. Using population-level data funded by St. Baldrick's, Dr. Wolfson determined that the increased risk of AYA mortality (vs. children) was partially mitigated by care at a NCI-designated Comprehensive Cancer Center (CCC), and that AYA were less likely to use a CCC. In addition, she investigated the impact of sociodemographic, treatment factors, and oncology service on disparate AYA outcomes in ALL in a pilot study also funded by St. Baldrick's; Concern]. In AYA and children, it was revealed that AYA with ALL maintain an increased risk of both early and late relapse as compared to children and she identified independent predictors of early (clinical trial enrollment, race/ ethnicity) and late (therapy duration) relapse. These findings were presented at the 2017 ASH meeting in Atlanta, GA. Finally, CAYAC: Disparities in Children, Adolescents and Young Adults with Cancer is a prospective pilot study led by Dr. Wolfson which aims to establish the infrastructure to identify reasons for outcome disparities among vulnerable subpopulations diagnosed with cancer. This study enrolls children and AYA newly diagnosed with leukemia, lymphoma, CNS tumors or sarcomas and presenting to Children's of Alabama. The study has enrolled 63 patients and preliminary data led to funding by Hyundai Hope on Wheels to expand the ALL cohort in a multi-center approach.

Wendy Landier, PhD, RN, has received funding from the NIH to understand the facilitators and barriers to HPV vaccination in childhood cancer survivors, as well as testing the immunogenicity and safety of using this vaccine in childhood cancer survivors. She recently received funding from the Alex's Lemonade Stand to develop a patient-family education intervention for children with newly diagnosed cancer. Dr. Bhatia has received funding from the Leukemia Lymphoma Society (LLS) to construct a cohort of 10,000 BMT survivors and understand the burden of morbidity borne by the survivors. This cohort of survivors have demonstrated that BMT survivors carry a substantial burden of morbidity with the highest risk seen in allogeneic BMT recipients with a history of chronic graft versus host disease. These findings have informed the need for lifelong follow up of BMT survivors. Funded by NIH, she has a multi-institutional study at >100 institutions to understand the molecular pathogenesis of treatment-related complications. Using this resource of >4,000 DNA samples, she has identified genomic variants that modify radiation-subsequent neoplasm and anthracycline-cardiac dysfunction association. This has led to improved models the identify survivors most at risk for radiation-related brain subsequent neoplasms. Dr. Bhatia is also developing FDA-approved and NIH-funded strategies to reduce the risk of radiation-related breast cancer in survivors of Hodgkin's lymphoma. Finally, she and Dr. Landier serve as co-PIs on a national trial funded by the NIH to improve adherence to oral chemotherapy in children with acute lymphoblastic leukemia treated at 85 institutions which has led to recommendations regarding 6-mp intake during maintenance therapy for childhood ALL that are aim to simplify administration in hopes of improving compliance and decreasing risk of relapse.

Significant Publications

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Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Lee Hilliard, MD, Pediatric Hematology & Oncology, has been invited to participate in the seventh annual American Society of Hematology (ASH) Advocacy Leadership Institute. The ASH Advocacy Leadership Institute is a unique opportunity for a select group of ASH members to learn about legislation and health policy that affects hematology.

Matthew Kutny, MD, Pediatric Hematology and Oncology, has been appointed to the NIH National Cancer Institute (NCI) Physician Data Query (PDQ) Pediatric Treatment Editorial Advisory Board. Dr. Kutny was selected to the advisory board for the NCI's recommendations for "Childhood Acute Myeloid Leukemia/Other Myeloid Malignancies Treatment."

Wendy Landier, PhD, Pediatric Hematology & Oncology, gave a keynote lecture titled *New Developments in Patient and Family Education: The Children's Oncology Group Experience* at the International Society of Pediatric Oncology Annual Conference held in Washington DC, in October 2017.

Jeffery Lebensburger, DO, Pediatric Hematology & Oncology, was nominated to serve on the American Society of Hematology (ASH) Sickle Cell Disease Guidelines Cardiopulmonary Renal Section. The ASH section will develop national guidelines to improve the care for patients with sickle cell disease. Based on his expertise in this field, Dr. Lebensburger will help shape the recommendations that guide patient and physician care. Dr. Lebensburger also served as a faculty member at the American Society of Hematology Clinical Research Training Institute. Lastly, Dr. Lebensburger was invited by the American Society of Hematology (ASH) Program Committee to moderate an Oral Session at the 59th Annual Meeting and Exposition to be held at the Georgia World Congress Center in Atlanta, GA.

Julie Wolfson, MD, Pediatric Hematology & Oncology, became the Study Chair of a Children's Oncology Group Study that she has been active in since 2014. *Documentation and Delivery of Guideline-Consistent Treatment in Adolescent and Young Adult (AYA) Acute Lymphoblastic Leukemia (ALL): An Intergroup NCORP CCDR Study* is the name of the group. She is also the Study Co-Chair of an Alliance called *Adherence to Oral Chemotherapy and Outcomes in Adolescents and Young Adults (AYAs) with Acute Lymphoblastic Leukemia (ALL)*. In addition, she is a Stakeholder Participant of the National AYA Research Strategy Meeting. Lastly, Dr. Wolfson is a Section Editor of NEJM Knowledge+. She reviews questions pertaining to pediatric hematology-oncology for the New England Journal of Medicine educational platform, NEJM Knowledge+. Dr. Wolfson is also an Expert Reviewer of NEJM Resident 360. She develops educational content for a pediatric rotation guide in Hematology and Oncology in the New England Journal of Medicine educational platform, NEJM Resident 360.

PEDIATRIC HOSPITAL MEDICINE



Pediatric Faculty

Dr. Robert Pass

Dr. Stephanie Berger
Dr. Emily Casey
Dr. Meghan Hofto
Dr. Natalia Lotz
Dr. Sri Narayanan
Dr. Lauren Nassetta
Dr. Mary Orr
Dr. Nichole Samuy
Dr. Paul Scalici
Dr. Cassi Smola
Dr. Susan Walley
Dr. Chang Wu

Director | Professor

Assistant Professor
Assistant Professor
Assistant Professor
Instructor
Associate Professor
Assistant Professor
Instructor
Assistant Professor
Assistant Professor
Assistant Professor
Associate Professor
Assistant Professor

Featured Research

The Division of Hospital Medicine seeks to improve the system of care and care delivery to inpatients. Hospital medicine faculty are prominently involved in training and education of medical students, resident physicians and pediatric hospital medicine fellows and are attempting to apply research methods to problems in medical education. The division currently has active research projects focused on:

- Evidence-based inpatient care of bronchiolitis and asthma
- Adherence to evidence-based guidelines for management of pneumonia
- Medical decision-making that leads to diagnostic error
- Understanding variability in faculty assessment of medical student clinical performance
- Impact of physician cohort turnover on patient safety
- Characteristics of nonfatal submersion victims that predict safe discharge from the emergency room
- Variability in the management of children admitted with complex febrile seizures
- Occurrence of hypotension in children with moderate to severe asthma treated with intravenous magnesium

During her fellowship here Rebecca Cantu, MD, (now Assistant Professor, University of Arkansas/Arkansas Children's Hospital) worked with Chang Wu, MD, and Nichole Samuy, MD, (Assistant Professors in Pediatric Hospital Medicine) and Chris Pruitt, MD, (Assistant Professor, Emergency Medicine) to study factors related to morbidity of children who are brought to the emergency room because of a nonfatal submersion. Expanded knowledge of clinical factors associated with potential morbidity, or lack thereof, from drowning could inform medical decision-making for these children. To this end, this study aimed to identify predictors of discharge in children presenting to the emergency department after accidental drowning. In this retrospective cohort study of nearly 100 patients in a tertiary-care pediatric emergency department with non-fatal drowning revealed that, after controlling for potential confounders, lack of field intervention and normal initial oxygen saturations were associated with emergency department discharge, with no recidivism in the cohort; results were published in 2017.

Sridaran Narayanan, MD, and Susan Walley, MD, worked with faculty members from Pulmonary Medicine and Academic General Pediatrics to create and implement an asthma clinical pathway. This evidence based pathway facilitates the use of a standardized approach to treatment of asthma in hospitalized children. They studied the impact of this clinical pathway on resource utilization by comparing patients managed on the pathway to those who were managed with usual care. In a paper published in 2017 they reported data from 3,429 asthma patients that showed that use of the pathway has significantly shortened length of hospital stay for patients admitted with status asthmaticus from 2.30 to 1.44 days and did not result in increased readmission rates. Additional studies of hospitalized children with asthma that are ongoing and are examining factors associated with increased length of stay and steroid prescribing at the time of discharge.

Susan Walley, MD, is a member of the leadership team for two successive multi-institution collaborative projects sponsored by the Quality Improvement Innovation Networks of the American Academy of Pediatrics (AAP). The aims of these projects include disseminating and implementing best practices for patients hospitalized with bronchiolitis and reducing unnecessary care in both inpatient and emergency room settings. These collaboratives achieved decreases in bronchodilator therapy, steroid use and chest radiography. In addition, there was a statistically significant increase in the screening for tobacco exposure and provision of parental tobacco dependence interventions. Dr. Walley served as the group's expert on the tobacco aims in these collaboratives. She developed a smoking cessation change package and served as a quality improvement coach on issues related to identifying and decreasing secondhand smoke exposure.

Significant Publications

Hosp Pediatr. 2017 Apr 25. pii: hpeds.2016-0090. doi: 10.1542/hpeds.2016-0090. *Respiratory Scores as a Tool to Reduce Bronchodilator Use in Children Hospitalized With Acute Viral Bronchiolitis.* Mussman GM, Sahay RD, Destino L, Lossius M, Shadman KA, **Walley SC.**

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Hosp Pediatr. 2017 May;7(5):279-286. doi: 10.1542/hpeds.2016-0090. *Respiratory Scores as a Tool to Reduce Bronchodilator Use in Children Hospitalized With Acute Viral Bronchiolitis.* Mussman GM, Sahay RD, Destino L, Lossius M, Shadman KA, **Walley SC.**

J Hosp Med. 2017 Nov;12(11):905-910. doi: 10.12788/jhm.2830. *Sustainability in the AAP Bronchiolitis Quality Improvement Project.* Shadman KA, Ralston SL, Garber MD, Eickhoff J, Mussman GM, **Walley SC,** Rice-Conboy E, Collier RJ

Journal of Hospital Medicine. 2017 December. doi: 10.1542/peds.2008-1536. *Heat-not-burn Tobacco Cigarettes: Industry Claims No Substitute for Science.* Shadman KA, Ralston SL, Garber MD, Eickhoff J, Mussman GM, **Walley SC,** Rice-Conboy E, Collier R.

Med Sci Educ 2016;26:623-9. *Demonstrating diagnostic error in the care of simulated pediatric patients.* **Nassetta LB,** Tofil NM, Kim Y-i, Eschborn S, White ML.

Pediatric Quality & Safety. August 2017 doi: 10.1097/pq9.0000000000000041 *Improving Inpatient Asthma Management: The Implementation and Evaluation of a Pediatric Asthma Clinical Pathway.* **Magruder, T; Narayanan, S; Walley, S;** Powers, T; Whitlock, H; Harrington, K; **Wall, T.**

Am J Emerg Med. 2017 Sep 4. pii: S0735-6757(17)30722-2. doi: 10.1016/j.ajem.2017.08.057. *Predictors of emergency department discharge following pediatric drowning.* **Cantu RM, Pruitt CM, Samuy N, Wu CL.**

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Susan Walley, MD, Pediatric Hospital Medicine, has been selected as a member of the Pediatric Hospital Medicine Advisory Board for the Inaugural edition of Pediatrics Review and Education Program (PREP) Hospital Medicine. Dr. Walley also serves as CME Chair and a board member of the Alabama Chapter-American Academy of Pediatrics (AL-AAP). Lastly, Dr. Walley was elected to serve as the American Academy of Pediatrics Section of Tobacco Control Education Chair. As the Education Chair, Dr. Walley will be responsible for the educational activities of the Section, including the Section sponsored programs at the AAP National Conference and Exhibition (NCE).

Chang L. Wu, MD, Pediatric Hospital Medicine, has been selected for the Academic Pediatric Association (APA) Region VIII Co-Chair position.

Meghan Hofto, MD, Pediatric Hospital Medicine, is a site investigator for a multi-site study of short course versus long course of antibiotic treatment of community acquired pneumonia. Enrollment in this clinical trial begins in early 2018. UAB/Children's of Alabama is one of 10 U.S. sites participating in this National Institutes of Allergy and Infectious Diseases sponsored clinical trial. Meghan will be working with David Kimberlin, MD, the UAB site principal investigator.

PEDIATRIC INFECTIOUS DISEASES



Pediatric Faculty

Dr. Richard Whitley

Dr. David Kimberlin

Dr. Mary Ballestas

Dr. Suresh Boppana

Dr. William Britt

Dr. Maaïke Everts

Dr. Karen Fowler

Dr. Cecelia Hutto

Dr. Scott James

Dr. Mark Prichard

Dr. Shannon Ross

Dr. Veronica Sanchez

Dr. Sergio Stagno

Co-Director | Professor

Co-Director | Professor

Assistant Professor

Professor

Professor

Professor

Professor

Professor

Assistant Professor

Professor

Associate Professor

Assistant Professor

Professor Emeritus

Featured Research

The Division of Pediatric Infectious Diseases is world-renowned in virology. For decades, its programs have defined the basic science, natural history, diagnosis and treatment of viral infections in infants and children. The division is responsible for nearly \$15 million in extramural funding. Ongoing programs include the following:

Congenital Cytomegalovirus Program

Multiple projects, including completion of patient follow-up and data analyses of the NIDCD-funded CHIMES study, are providing new insight into the natural history of congenital cytomegalovirus (CMV) infection. This study enrolled more than 100,000 infants from six hospitals in the U.S. and was organized and administered by Suresh Boppana, MD, and Karen Fowler, PhD. Important new findings include the development of a highly sensitive and specific PCR-based assay for testing newborn saliva samples to identify babies infected with CMV, failure of testing of blood spots collected from newborns for routine screening for detecting CMV infected babies, a significantly higher prevalence of congenital CMV infection in African-American women and teens, and the failure of newborn hearing screening to identify a significant proportion (~40%) of infants with CMV-associated hearing loss at birth. Most recently, the CHIMES data were utilized to establish the cost savings that would be achieved by a universal screening program for congenital CMV infections. The landmark findings from this pivotal study are being used in the development of new guidelines on caring for infants and children here in Alabama, nationally and internationally. Utilizing next-generation sequencing technologies and informatics, Shannon Ross, MD, is investigating the contribution of genetic heterogeneity in the distribution of viruses in different compartments (mouth, blood, urine, etc.) of viral shedding in infected infants, with the aim of identifying a biomarker for the development of hearing loss. Internationally, Bill Britt, MD, and Drs. Boppana and Fowler have ongoing projects in Brazil and South Africa (supported by the NIH). In Brazil more than 20,000 women and their newborn infants are being enrolled in studies to define the natural history of congenital CMV infection in a population of women with universal immunity to CMV, a critical question in the design of prophylactic vaccines for this infection.

Mary Ballestas, PhD, Veronica Sanchez, PhD, and Drs. Boppana, Britt, and Ross all lead robust laboratory research as well, with studies in basic molecular virology and of virus-host interactions. A significant effort has been focused on understanding the role of virus-induced inflammation and brain development in a small animal model of CMV infection of the developing central nervous system. This system has pointed to the role of inflammation in altered cell positioning in the developing brain, a finding that recapitulates aspects of the pathology of brain disease in infants with congenital CMV infection. A second major focus of this project is defining mechanisms of hearing loss in infants with congenital CMV infections. This small animal model closely recapitulates the findings of hearing loss in infants with congenital CMV infection, and findings generated from studies in this system have identified mechanisms of hearing loss, which include virus-induced inflammation. Additional studies aim to improve understanding of fundamental aspects of virus replication and virus-host interactions, including several projects directed at dissecting the role of the functional components of the infected cell in the efficient production of infectious virus from an infected cell – a project that can be translated into the identification of novel targets for antiviral agents. In addition, these studies have developed a new and previously unknown function of novel modes of regulation of cellular function, viral micro RNA molecules.

Antiviral Therapies Program

Major clinical trials of the treatment of life-threatening viral infections also have been undertaken by David Kimberlin, MD, and Richard Whitley, MD. Building upon their previous body of work that had established early initiation of intravenous ganciclovir or oral valganciclovir as the standard of care for the management of babies with symptomatic congenital CMV disease, Drs. Kimberlin and Whitley now are assessing whether starting antiviral therapy later in childhood provides the same benefit. They also are determining the appropriate dose of these medications to use in babies born extremely premature. A study of the treatment of babies with asymptomatic congenital CMV infection has been funded by the NIH and began in 2017. Additionally, studies assessing new diagnostic tests in neonatal herpes simplex virus (HSV) infections seek to establish biomarkers that will be of value in determining degrees of risk from this life-threatening disease. All of these studies are conducted through their multicenter, NIH-funded network known as the Collaborative Antiviral Study Group (CASG), and both CMV and HSV trials are being conducted both nationally and internationally in South America and Europe.

Antiviral Drug Development and Discovery Program

The antiviral drug development programs of Mark Prichard, PhD., Debra Quenelle, PhD, and Scott James, MD, assess novel antiviral agents that have activity against herpesviruses. These studies not only advance knowledge of drugs that can treat viral infections, but by inhibiting viral replication also yield insights into the natural history of CMV infections. Mechanisms of resistance of these novel agents are the focus of much of Drs. Prichard's and James' work, including drugs that are licensed or have completed Phase III trials (e.g., maribavir and ganciclovir for CMV) as well as those in earlier phases of development (e.g., serpin antithrombin III and methylenecyclopropane analogs, helicase-primase inhibitors for HSV and small molecule entry inhibitors for influenza). Their laboratory is a national center for the evaluation of new antiviral drugs for the DNA viruses, as well as antiviral resistance assessment.

Maike Everts, PhD, and Dr. Whitley lead the Alabama Drug Discovery Alliance. Based on the work here in Birmingham, they were awarded a U19 grant in March 2014, which funds a multi-institutional program under the Centers for Excellence in Translational Research program. UAB is the operational center for the five-year, \$34.3-million-dollar award that is focused on antiviral drug discovery and development. Already a lead has identified molecules directed against MERS and SARS. Preclinical toxicology and pharmacokinetic assessments in normal human volunteers have been completed, and the molecule is positioned for studies against MERS in Saudi Arabia, leading to the submission of an IND for clinical trials directed against coronaviruses. Patents have been submitted for lead molecules directed against chikungunya.

Emerging Infections Program

Richard Whitley, MD, and Drs. Britt and Boppana have been very active in the national response to the Zika outbreak in the Western Hemisphere over the past year. This includes involvement in the development of research priorities for Zika at the level of the NIH (Britt and Boppana), as well as programmatic guidance on the response of the U.S. and its physicians at the level of the Centers for Disease Control and Prevention (CDC) and the National Institute of Allergy and Infectious Diseases (Whitley). The decades of research experience in congenital CMV infections, as well as the international expertise of the UAB Division of Pediatric Infectious Diseases, positioned us well to be able to contribute to the newly recognized threat of congenital Zika infection. The NIH indicated that there was no group in the nation better positioned to understand the immediate and long-term outcomes of in utero acquisition of the Zika virus, given our expertise in congenital viral diseases. Dr. Britt summarized the impact on neurological development that follow well described congenital infections that were relevant to the unfolding natural history of congenital Zika virus infection at meetings sponsored by the National

Academy of Science, the WHO/Gates Foundation/Pasteur Institute and by the NIH. He is a site investigator for the Zika Virus Infection in Pregnancy (ZIP), a 15-center study sponsored by the NIH that will enroll 10,000 pregnant women and their offspring to define the natural history of this perinatal infection.

Significant Publications

Am J Obstet Gynecol. 2017 Feb 21. pii: S0002-9378(17)30299-5. doi: 10.1016/j.ajog.2017.02.026. *Preventing HPV-Related Cancers - We Are All In This Together*. Dilley S, Scarinci I, **Kimberlin D**, Straughn JM Jr.

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Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Suresh Boppana, MD, Pediatric Infectious Disease, has been appointed to the PREP Infectious Diseases Editorial Board. As a member of the PREP Infectious Diseases Editorial Board, Dr. Boppana will play an important role in the development and success of the PREP Infectious Diseases Self- Assessment.

Bill Britt, MD, Pediatric Infectious Disease, was the Keynote Speaker at the 42nd Annual International Herpesvirus Workshop (IHW) in Ghent, Belgium, in July 2017. He presented, "Cellular Membrane Reorganization and HCMV Assembly."

Maaïke Everts, PhD, Pediatric Infectious Disease, has been named as the recipient of the International Society for Antiviral Research William Prusoff Young Investigator Lecture Award. This award is given to outstanding young scientists who have demonstrated dedication and excellence in the field of antiviral research and future potential for contribution to the field and the society.

David Kimberlin, MD, Pediatric Infectious Disease, was invited to serve as a member on the Microbiology Devices Panel of the Medical Devices Advisory Committee of the Food and Drug Administration (FDA). The Microbiology Panel reviews and evaluates data concerning the safety and effectiveness of marketed and investigational in vitro devices for use in clinical laboratory medicine including microbiology, virology, and infectious disease and makes appropriate recommendations to the Commissioner of Food and Drugs.

Richard Whitley, MD, Pediatric Infectious Disease, was nominated to Honorary Fellowship of the Royal College of Physicians of Ireland in recognition of his significant contribution to medicine. The Royal College of Physicians of Ireland has been working to improve patient care, the standards of medical practice and health of the population of Ireland and internationally ever since it was founded in 1654. Honorary Fellowship is the highest honor that the College can bestow.

Antimicrobial Stewardship Program (ASP)

The ASP team includes co-medical directors, a pharmacist, six physicians that represent the various specialties within Children's of Alabama, a data analyst, and representation from Children's of Alabama performance improvement and administration. The ASP team works to develop hospital wide interventions to measure and

improve appropriate use of antimicrobial agents with the overarching goal of improving patient care. The ASP team participates in the Solutions for Patient Safety ASP collaborative with the goal of reducing antimicrobial use in the hospital and multi-drug resistant organisms. The team has worked to assure compliance with the Joint Commission antimicrobial stewardship standard that went into effect January 1, 2017. ASP monitors monthly hospital antimicrobial use and reports this back to prescribers in the hospital. In addition, we monitor daily bug-drug mismatches, duplicate antimicrobials, and high-risk antimicrobial use and make an average of 30 interventions based on this monitoring that results in antibiotic changes. The ASP prepares and publishes the Children's of Alabama hospital antibiogram twice yearly to help guide practitioners on appropriate antibiotic use. In November, the Children's of Alabama ASP, led by April Yarbrough and Drs. Boppana and Ross, program was featured in the Pew Charitable Trust's Antimicrobial Resistance Project.

Infection Control

The Infection Control and Prevention team that includes the medical director, the nurse manager, and three infection prevention nurses work together to identify, investigate, and develop processes to prevent infections acquired in the hospital. Over the past three years, they have worked closely with multi-disciplinary Solutions for Patient Safety teams to develop and educate the hospital staff about process bundles to prevent four of the hospital acquired conditions that are a focus of this nation-wide collaboration, CLABSI, SSI, CAUTI, and VAP.

Molecular Diagnostic Virology Laboratory

Under the leadership of Dr. Mark Prichard, the Molecular Diagnostic Virology Laboratory provides an essential service for the University of Alabama Hospital and Clinics and Children's of Alabama. Same day diagnostic services of infections of the central nervous system (CNS) and respiratory system allows for targeted therapeutic approaches, resulting in improved patient care. Same-day-turn around for CNS viral infections is not available either commercially or at hospital laboratories other than the services provided by Dr. Prichard.

NEONATOLOGY



Pediatric Faculty

Dr. Waldemar A. Carlo

Dr. Namasivayam Ambalavanan

Dr. Allison Black

Dr. Kathryn Buchan

Dr. Carl Coghill

Dr. George El Ferzli

Dr. Hannah Hightower

Dr. Tamas Jilling Associate

Dr. Jegen Kandasamy

Dr. Virginia Karle

Dr. Charitharth Lal

Dr. Albert Manasyan (Zambia)

Dr. Joseph Philips

Dr. Maran Ramani

Dr. Ariel Salas

Dr. Brian Sims

Dr. Trent Tipple

Dr. Rune Toms

Dr. Lindy Winter

Co-Director | Professor

Co-Director | Professor

Assistant Professor

Assistant Professor

Professor

Assistant Professor

Assistant Professor

Professor

Assistant Professor

Professor

Assistant Professor

Assistant Professor

Professor

Assistant Professor

Assistant Professor

Associate Professor

Associate Professor

Associate Professor

Associate Professor

Featured Research

The UAB Division of Neonatology is a founding member of the NIH Eunice Kennedy Shriver NICHD Neonatal Research Network (NRN). Over its 30 years of existence, the NRN has defined the standards of multiinstitutional collaborative research that has directly resulted in the increased survival and decreased morbidity rates of extremely low birth weight infants and other critically ill infants in the United States. The UAB Division of Neonatology is consistently one of the top centers in developing, leading, enrolling and analyzing the important randomized controlled trials and clinical studies conducted by the NRN. For example, Neonatology division members have led three major innovative NRN studies: the SAVE Factorial Trial, the Cytokine Study, and the SUPPORT Factorial Trial. A fourth innovative trial led by UAB neonatologists that tests the effects of caffeine late in the neonatal course and at home to shorten hospitalization and decrease apparent life threatening events will start enrollment in 2018. The UAB NRN grant was again renewed for the 2016–2021 cycle.

The UAB Division of Neonatology is also funded by the Eunice Kennedy Shriver NICHD Global Network for Women's and Children's Health Research. Division researchers led seminal investigations of resuscitation and essential newborn care in 100 communities in six countries, which included almost 200,000 infants. These trials established the effectiveness of these interventions in reducing stillbirths and neonatal mortality and led to worldwide implementation of training, including the globally-implemented Helping Babies Breathe Program and the Essential Care for Every Baby Program introduced in 2014. The Division of Neonatology at UAB is the only one in the country funded to lead sites for both NICHD neonatal networks.

The Neonatology Division also conducts groundbreaking basic research in the LungMAP project (www.lungmap.net). Namasivayam Ambalavanan, MD, is the principal investigator of the UAB Research Center, which comprises one of the four research centers in NIH NHLBI LungMAP consortium. LungMAP seeks to improve lung health by providing the research community with a web-based resource to support investigations into the processes that regulate lung development. The use of cutting-edge technologies for analysis of the developing mouse and human lung will generate a novel map of where and when the lung cells differentiate and the alveoli form. LungMAP is making this knowledge accessible and freely available to the public through novel imaging and web-based tools (www.lungmap.net). Dr. Ambalavanan is also principal investigator of the UAB Research Center in the NHLBI PreVENT Consortium comprising five research centers, which studies control of breathing in preterm infants.

There are many ongoing extramurally funded projects with a research focus on bronchopulmonary dysplasia (BPD). Dr. Ambalavanan is funded by the NHLBI for "STOP BPD" (Signature of Top Omic Profiles in BPD) to prospectively define and validate clinical and "omic" signatures associated with resilience against or risk for development of BPD. Trent Tipple, MD, is funded by the NHLBI to determine mechanisms of oxygen-induced lung injury and evaluate novel strategies, such as thioredoxin reductase-1 inhibition to attenuate BPD in animal models. Vivek Lal, MD, is funded by an American Heart Association Scientist Development Grant to evaluate the role of the neonatal airway microbiome in the development of BPD.

The Division of Neonatology at UAB, in collaboration with the Department of Anesthesiology at UAB, also conducts research funded by the CounterACT Network of the NIH. The CounterACT network operates under the oversight of the Office of Biodefense Research and Surety (OBRs), and its main goal is to bolster medical readiness to care for victims of mass casualties by chemical threat agents. Tamas Jilling, MD is co-principal investigator, along with Sadis Matalon, PhD (Department of Anesthesiology), of a UO1 grant awarded by the CounterACT program to perform preclinical studies, in multiple animal models, to test the therapeutic efficacy of tadalafil (Cialis) as a countermeasure against pregnancy-specific toxicity of bromine gas inhalation.

Significant Publications

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Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Namasivayam Ambalavanan, MD, Neonatology, has been selected to serve as a member of the NIH Lung Injury, Repair, and Remodeling (LIRR) Study Section by the Center for Scientific Review. Members will review applications that focus on lung development and the response of non-vascular pulmonary tissue or cells to injury, repair, fibrosis, and barrier function.

Waldemar A. Carlo, MD, Neonatology, received the Wallace Alexander Clyde Distinguished Service Award for Excellence in Pediatrics at the Alabama Chapter-American Academy of Pediatrics (AL-AAP) Annual Meeting and Fall Pediatric Update.

Charitharth Vivek Lal, MD, Neonatology, received the Southern Society of Pediatric Research (SSPR) Young Faculty Award in Feb 2017. Dr. Lal received the Perinatal Research Society Young Investigator Award and was invited as an Early Career Speaker. Dr. Lal received the 2017 Gage Award for Quality initiative from America's Essential Hospitals for the Golden Week QI Program at Regional NICU, UAB. Dr. Lal conceived and directs this program.

Trent Tipple, MD, Neonatology, has been asked to serve as an editorial board member of Life Sciences. As an editorial board member, Dr. Tipple will help maintain and improve journal standards by monitoring the editorial policy of the journal in terms of scope and the level and quality of papers published. He serves as the District X representative (Alabama, Georgia, Florida, and Puerto Rico) for the Mid-Career Neonatology Group (MidCaN) of the AAP Section on Neonatal-Perinatal Medicine. Dr. Tipple is a Pediatric Representative on the Perinatal Research Society Council.

PEDIATRIC NEPHROLOGY



Pediatric Faculty

Dr. Daniel Feig

Dr. David Askenazi
Dr. Sahar Fathallah-Shaykh
Dr. Michael Seifert
Dr. Tennille Webb
Dr. Megan Yanik

Director | Professor

Professor
Associate Professor
Assistant Professor
Assistant Professor
Assistant Professor

Featured Research

The Division of Pediatric Nephrology leads research efforts in drug discovery and pharmacokinetics, as well as the assessment, progression and treatment of chronic kidney disease in children.

David Askenazi, MD, MPH, who directs The Pediatric and Infant Center for Acute Care Nephrology (PICAN) seeks to develop novel management options for pediatric patients with renal impairment, and includes translation from bedside to bench and back again. As an example, PICAN studied a new dialysis device called Aquadex. We adapted the Aquadex to treat neonates and premature infants with kidney failure who were too small for hemodialysis. As a result of this work, children as small as 1 kg can now receive this lifesaving therapy. With the publication of these results, this technology now is being used at other major children's hospitals across the country, including Cincinnati Children's Hospital Medical Center, Boston Children's Hospital and Seattle Children's. In collaboration with Dr. Feig and members of the Hematology program, Dr. Askenazi also been investigating the causes of renal impairment in patients with sickle cell disease.

Sahar Fathallah, MD, who serves as Medical Director of dialysis is the site investigator for nearly a dozen nationwide studies aimed to improve the care of children with chronic kidney disease and those requiring dialysis. She tirelessly works to improve the care of children with renal disease.

Daniel Feig, MD, PhD, leads the Childhood Hypertension Program which has identified critical mechanisms involved in the development of adolescent onset essential hypertension, as well as the risk factors associated with hypertensive target organ damage. Previous clinical trials have demonstrated that elevated serum uric acid causes vascular damage and activation of the renin angiotensin system, resulting in high blood pressure that can be mitigated by uric acid-lowering therapy. The SURPHER (Serum Uric acid Reduction to Prevent HyperTension) trial is an ongoing study to assess the effectiveness of uric acid reduction in lowering blood pressure in young adults. This study found that even mild hyperuricemia results in increased risk for hypertension and chronic kidney disease in patients with type 2 diabetes through vascular injury associated mechanisms. A new branch of research, in collaboration with faculty in the school of public health, is the evaluation of the impact of early life stress on the development of vascular dysfunction that leads to hypertension and renal disease.

Michael Seifert, MD, investigates ways to improve long-term kidney function in children who receive kidney transplants. In a study that will alter how children with kidney transplants are evaluated, he has demonstrated that early immunologic activation, seen on surveillance renal transplant biopsies, predicts long-term

complications even before changes in laboratory values. His current NIH-funded studies are aimed identification of biomarkers of chronic transplant dysfunction and new therapeutic targets to mitigate chronic allograft nephropathy.

Tennille Webb, MD, is collaborating with investigators in the Cardiac Intensive Care Unit to better understand the alterations in perfusion, cytokines and inflammation that lead to acute kidney injury in patients undergoing cardiac surgery. The goal of her program is to reduce complications, hospital time, morbidity and improve survival in these critically ill children.

Megan Yanik, MD, focuses on research that bridges the fields of renal transplantation, genetics and pharmacology. Her studies evaluate individual variations in metabolism that can predictably alter the body's handling of both diet and medications. These findings can be leveraged to more accurately and effectively prescribe immune suppression for transplant recipients, increasing longevity and reducing complications.

In addition to these programs, the Division of Nephrology has a robust portfolio of quality improvement efforts. On a local level we have projects that address two of the most severe complications of dialysis, anemia and hyperparathyroidism, and important aspect of renal transplantation including immune suppression medication titration, management of opportunistic viral infections and pre-clinic planning to improve efficiency and medication adherence.

We are also involved in leadership of national quality improvement efforts.

IROC (Improved Renal Outcomes) is a national consortium of 17 pediatric renal transplantation programs. Generous donations have allowed us to both participate and lead aspects of this program. We have automated data collection that is now monitoring over 30 benchmark issues. We have initiated intervention programs aimed at improving BP control after transplant, which is critical for organ longevity, and standardization of immune suppression induction. Upcoming projects include standardization of post-transplant biopsy schedules and therapy of asymptomatic acute rejection episodes that may presage future graft dysfunction. Dr. Seifert leads the IROC Research Committee and is on the Governance Board.

SCOPE (Standardization Care to Improve Outcomes in Pediatric End Stage Renal Disease) is a collaborative of 78 pediatric nephrology programs to prevent infections in peritoneal and hemodialysis patients using large-scale collaboration to identify and disseminate effective interventions across pediatric care settings. Dr. Fathallah, Medical Director of the Pediatric Renal Dialysis Unit, leads the local chapter. In the past year, since we have joined SCOPE, our dialysis associated infection rates have fallen over 25%. This represents in a substantial cost savings and prevention of numerous infection related hospitalizations.

NINJA (Negation of Renal Injury by Just-In-Time Action) is a collaboration between Children's of Alabama (led by Dr. Askenazi) and Cincinnati Children's Hospital in which hospitalized patients receiving medications that can cause kidney injury are automatically identified by using the electronic medical record system and scheduled for dose adjustments and increased renal function surveillance. The rate of acute renal injury in inpatients has been decreased by over 60% resulting in substantially decreased morbidity across the hospital and reduced hospitalization duration. A very recent application of this program in the Neonatal Intensive Care Unit, a project only done at Children's of Alabama has nearly eliminated medication associated acute kidney injury in our most vulnerable premature infants. The NINJA program has been so successful that in 2018 it will be the first new program added to the Solutions of Patient Safety consortium and instituted at 147 children's hospitals worldwide.

Significant Publications

Am J Med Sci. 2017 Apr;353(4):336-341. PMID: 28317621. *Uric Acid Excretion Predicts Increased Blood Pressure Among American Adolescents of African Descent*. Mrug S, Mrug M, Morris AM, Reynolds N, Patel A, Hill DC, **Feig DI**.

Blood. 2017 Jan 19;129(3):385-387. PMID: 27919909. *Severe anemia early in life as a risk factor for sickle-cell kidney disease*. Aban I, Baddam S, Hilliard LM, Howard TH, **Feig DI**, Lebensburger JD.

Blood Purif. 2017 Oct 12;44(4):269-270. doi: 10.1159/000478974. *The Nephrologist Has Great Potential to Have an Important Role in the Intensive Care Unit: Reply to the Letter to the Editor of David J.R. Morgan*. **Askenazi DJ**, Faubel S.

Circulation. 2017 May 9;135(19):e1017-e1034. PMID: 2755097. *Added sugars and cardiovascular disease risk in children: A Scientific Statement From the American Heart Association*. Vos MG, Kaar JL, Welsh JA, Van Horn LV, **Feig DI**,

Anderson CA, Patel JM, Cruz-Munos J, Krebs NF, Xanthakos SA, Johnson RK; for the American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Clinical Cardiology; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing, Council on Epidemiology and Prevention; Council on Functional Genomics and Translational Biology; and Council on Hypertension.

Health Qual Life Outcomes. 2017 Aug 23;15(1):166. doi: 10.1186/s12955-017-0737-2. *Responsiveness of the PROMIS® measures to changes in disease status among pediatric nephrotic syndrome patients: a Midwest pediatric nephrology consortium study*. Selewski DT, Troost JP, Cummings D, Massengill SF, Gbadegesin RA, Greenbaum LA, Shatat IF, Cai Y, Kapur G, Hebert D, Somers MJ, Trachtman H, Pais P, **Seifert ME**, Goebel J, Sethna CB, Mahan JD, Gross HE, Herreshoff E, Liu Y, Carlozzi NE, Reeve BB, DeWalt DA, Gipson DS.

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New England Journal Of Medicine. 2017; 376(1): 11-20. PMID 27959707. *AWARE Investigators. Epidemiology of Acute Kidney Injury in Critically Ill Children and Young Adults*. Kaddooura A, Basu RK, Bagshaw SM, **Askenazi D**, Goldstein SL.

Oncologist. 2017 Oct 27. pii: theoncologist.2017-0243. doi: 10.1634/theoncologist.2017-0243. *Consensus Guideline for Use of Glucarpidase in Patients with High-Dose Methotrexate Induced Acute Kidney Injury and Delayed Methotrexate Clearance*. Ramsey LB, Balis FM, O'Brien MM, Schmiegelow K, Pauley JL, Bleyer A, Widemann BC, **Askenazi D**, Bergeron S, Shirali A, Schwartz S, Vinks AA, Heldrup J.

Pediatr Crit Care Med. 2017 Sep 20. doi: 10.1097/PCC.0000000000001349. *The Impact of Fluid Overload on Outcomes in Children Treated With Extracorporeal Membrane Oxygenation: A Multicenter Retrospective Cohort Study*. Selewski DT, **Askenazi DJ**, Bridges BC, Cooper DS, Fleming GM, Paden ML, Verway M, Sahay R, King E, Zappitelli M.

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Pediatr Res. 2017 Oct;82(4):569-573. doi: 10.1038/pr.2017.136. *Developing a neonatal acute kidney injury research definition: a report from the NIDDK neonatal AKI workshop*. Zappitelli M, Ambalavanan N, **Askenazi DJ**, Moxey-Mims

MM, Kimmel PL, Star RA, Abitbol CL, Brophy PD, Hidalgo G, Hanna M, Morgan CM, Raju TNK, Ray P, Reyes-Bou Z, Roushdi A, Goldstein SL.

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PLoS One. 2017 May 30;12(5):e0178233. doi: 10.1371/journal.pone.0178233. *Treatment of AKI in developing and developed countries: An international survey of pediatric dialysis modalities*. Raina R, Chauvin AM, Bunchman T, **Askenazi D**, Deep A, Ensley MJ, Krishnappa V, Sethi SK.

Semin Fetal Neonatal Med. 2017; 22(2): 90-97. PMID 28034548. *Acute kidney injury in the fetus and neonate*. Nada A, Bonachea EM, **Askenazi DJ**.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

David Askenazi, MD, MPH, Pediatric Nephrology, was elected to be the associate editor for the Journal of American Society of Nephrology (JASN). The editors of JASN triage the majority of the submitted manuscripts. As a member of the editorial board, he – reviews about five to seven manuscripts per year that survive triage, serves as a Guest Editor, writes a Perspective or Editorial, and occasionally advises the editors on a difficult editorial decision.

Daniel Feig, MD, PhD, Pediatric Nephrology, was elected Pediatric Nephrology Subboard Chair of the American Board of Pediatrics (ABP). The subboard is responsible for the development of the certifying exams and their analysis. He serves as the International Pediatric Nephrology Association (IPHA) Education Chair. Dr. Feig is also the Chair of the American Academy of Pediatrics Nephrology Awards Committee. In addition, he is a member of the Pediatric Academic Societies' Program Committee, and the Data Safety Monitoring Board's International Study Patisomer for Hyperkalemia in Children.

PEDIATRIC NEUROLOGY



Pediatric Faculty

Dr. Leon Dure

Dr. Matthew Alexander
Dr. Amitha Ananth
Dr. Pierre Fequiere
Dr. Monisha Goyal
Dr. Katherine Hammond
Dr. Krisztina Harsanyi-Jilling
Dr. Samuel Hopper
Dr. Pongkiat Kankirawatana
Dr. Jan Mathisen
Dr. Tony McGrath
Dr. Ismail Mohamed
Dr. Jayne Ness
Dr. Sarah Novara
Dr. Alan Percy
Dr. Salman Rashid

Director | Professor

Assistant Professor
Assistant Professor
Assistant Professor
Professor
Assistant Professor
Assistant Professor
Assistant Professor
Professor
Professor
Associate Professor
Associate Professor
Professor
Assistant Professor
Professor
Assistant Professor

Featured Research

Alan Percy, MD, has maintained funding and serves as the Principal Investigator for the multi-site Natural History Study that initially addressed three aligned epigenetic disorders: RTT, Prader-Willi Syndrome and Angelman Syndrome. This study continued for 11 years and upon its second renewal in 2014 the focus shifted to RTT, MECP2 Duplication disorder, males and females with MECP2 mutations, but failing to meet the consensus diagnostic criteria for RTT, and other genetic disorders, specifically, FOXP1 and CDKL5, meeting some features of RTT. The RTT NHS has now enrolled more than 1,700 individuals meeting criteria for enrollment and is continuing to enroll in NHS 3 with a target of 1000 individuals with RTT and 100 each with MECP2 Duplication disorders and with FOXP1 and CDKL5 mutations or other MECP2-related issues. Beginning with three enrolling sites, the NHS has expanded now to fourteen sites covering a broad sweep of geographic regions in the US. This expansion resulted from the concerted efforts of colleagues and the parent advocacy group, Rettsyndrome.org.

Presently, the total group of participants represents the largest single study of individuals with classic or atypical RTT examined directly by qualified physicians and followed successively for up to at least 12 years. Over the past dozen years, numerous cross-sectional and longitudinal studies have emerged from the NHS covering a wide range of clinically relevant topics including but not limited to growth, development, phenotype-genotype correlation, seizures, awake breathing dysfunction, gastrointestinal dysfunction, scoliosis, puberty, diagnostic improvements, quality of life, clinical severity criteria, survival, and emergence of parkinsonian features. Additional studies in the current iteration include neurophysiologic analysis of auditory brain stem and visual evoked responses, biomarker analyses, development of a reliable behavioral outcome measure, and utilization of wearable device to assess specific modalities including heart rate, blood pressure, respiratory patterns, stereotypic hand movements, and skin temperature. As an indication of the significance and value of Dr. Percy's efforts at UAB, the Rett Syndrome Clinic was given the designation of a Center of Excellence in 2017.

In addition to the clinical research, Dr. Percy has worked closely with Dr. Lucas Pozzo-Miller and Dr. Michelle Olsen in fundamental studies in the mechanism of action of the relevant protein, MeCP2, and to translational studies in animal models aimed at identifying candidate drugs for potential clinical trials. These studies continue to the present time although Dr. Olsen has now moved to Virginia Tech.

In 2016, Matthew Alexander, PhD, was recruited as a basic science investigator in the Division. The major focus of his laboratory is to study the epigenetic (non-DNA modifications) and genetic (DNA modifications) factors that regulate human neuromuscular diseases and to develop novel therapeutics for the treatment of these debilitating disorders. The laboratory takes a multi-systematic translational approach in using a combination of zebrafish and mouse disease modeling, along with using primary human samples to better understand the etiologies of these disorders and determine any potential avenues for therapeutic treatment. Duchenne muscular dystrophy (DMD) is the most prevalent muscular dystrophy that is studied; although there are additional projects in myotonic dystrophy type 1 (DM1) and limb-girdle muscular dystrophy 2I (LGMD2I). Zebrafish are an excellent translational tool for use as they have low maintenance costs, high numbers of offspring (200-300 embryos per mating pair), ex vivo (outside of the womb) development, and most importantly can rapidly uptake small molecules through their gills and skin during development. The laboratory performs important pre-clinical mouse testing of "hit" compounds for eventual opportunity for translational (e.g. DMD patient) use and applications (e.g. bench to bedside).

One of the most important Alexander collaborations is with Dr. Pierre Fequiere with whom the Alexander lab shares a Human Subject's Protocol (UAB IRB Protocol# F160427006; renewed 05/31/17). The major goal of this collaboration is to identify novel genetic and epigenetic modifiers of DMD among siblings using whole genome sequencing analyses. This project was funded by a grant to Dr. Alexander via the Kaul Pediatrics Research Institute (KPRI) (grant number: 514637) to perform whole genome sequencing (WGS) of the DMD patient and family samples collected. The Alexander lab coordinates with Dr. Fequiere and his staff, along with the UAB CCTS (research coordinator for the study) to obtain samples from DMD patients and their families for WGS analysis. The WGS analysis is being performed through a collaboration with the laboratory of Dr. Liz Worthey (HudsonAlpha Institute of Biomedical Sciences).

In 2017, Dr. Alexander received notification of funding of a 3 year grant from the Muscular Dystrophy Association to continue his research on epigenetic and genetic regulation of neuromuscular diseases. His laboratory has also received UAB T32 training support for Rylie Hightower, who is pursuing a PhD with Dr. Alexander.

In terms of funded research activities, Leon Dure, MD, serves as the pediatric neurology resource for the multisite clinical trials consortium, NeuroNEXT. In this role, he has responded to queries from clinical trial investigators regarding the suitability of UAB as a site. Few NeuroNEXT studies have been developed that address childhood neurologic disorders, and UAB has not been selected as a site. In 2014, the State of Alabama enacted legislation to decriminalize the use of cannabidiol (CBD) for individuals with refractory epilepsy. As part of this law, money was set aside to carry out an observational study of the effect of CBD in known epileptics. Dr. Dure is a member of the Steering Committee for this effort, which involved a number of administrative and logistical issues in order to carry out the study. Besides taking a major role in the development of the study, Dr. Dure continues as a records analyst to determine if patients meet inclusion criteria for this study.

In 2017, Dr. Dure was named the site investigator for two industry-sponsored trials. The first is a phase 3 assessment of the efficacy and safety of triheptanoin for the treatment of movement disorders in Glucose Transporter Type 1 Deficiency, and is not as yet active. Similarly, Dr. Dure will serve as the site investigator for an open-label extension of an agent to treat Niemann-Pick Type C1, and this study is awaiting regulatory approval.

Tony McGrath, MD, functions as a consultant on the U01 HD052102-02 research cooperative addressing disease burden for HIV-infected children, and as a sub-investigator for U01 HL078787-05S1, a trial examining features of cerebrovascular events in children with sickle-cell disease. He chairs the Selection Committee for the UAB CBD study, and is a sub-investigator with Dr. Ness on two industry sponsored MS therapy trials. Finally, he is a medical monitor for a phase 1 clinical trial of a modified herpesvirus vector to treat childhood brain tumors.

As the head of the site of the only pediatric MS center in the South, Jayne Ness, MD, PhD, has accumulated a large panel of children with a variety of demyelinating disorders. He currently is the site investigator for two industry sponsored clinical trials, one examining the safety and efficacy of tocilizumab in neuromyelitis optica spectrum disorders, and the other addressing safety and efficacy of oral fingolimod versus intramuscular beta-interferon in MS.

In collaboration with Dr. Martina Bebin in the Department of Neurology, Monisha Goyal, MD, serves as co-PI for two NIH funded studies of tuberous sclerosis. The first involves the identification of biomarkers for autism-spectrum disorders, and the second examines EEG biomarkers as well as treatment strategies in tuberous sclerosis. Dr. Goyal is the principal site investigator for three industry-sponsored studies of the efficacy and safety of cannabidiol in Dravet syndrome and Lennox-Gastaut syndrome.

Dr. Goyal is initiating a telemedicine project, Access Improvement and Management for Epilepsy with Telehealth (AIM-ET), a quality improvement pilot project sponsored by the American Academy of Pediatrics. The goal is to increase access to care for children with epilepsy. By partnering with Alabama Department of Public Health, follow-up epilepsy patients will be seen in certain County Health Clinics across the state. This pilot project will increase access to care, decrease travel costs and time.

Dr. Goyal will also lead ECHO Epilepsy, another initiative by the American Academy of Pediatrics. The goal of Project ECHO (Extension for Community Healthcare Outcomes) is to create partnerships between primary care providers in underserved areas and epilepsy specialists. Using state-of-the-art telehealth technology, clinical management tools, and case-based learning, Project ECHO will train and support PCPs in the community to develop knowledge and self-efficacy in epilepsy.

Pongkiat Kankirawatana, MD, has focused exclusively on industry sponsored epilepsy studies. He is currently the site investigator for two studies examining lacosamide as an adjunctive therapy for partial onset seizures, as well as an intravenous equivalency study of lacosamide. He is also recruiting patients with new onset epilepsy to compare safety and tolerability of topiramate vs levetiracetam. One study of an investigational drug for super-refractory epilepsy has recently closed enrollment, and an open label study of lacosamide safety and tolerability is in the development/regulatory stages.

Ismail Mohamed, MD, is our representative to the Pediatric Epilepsy Research Consortium, and has taken over our recruitment for a multicenter study of treatment and outcomes in infantile spasms. He is also a participant in the Experimental Program to Stimulate Competitive Research initiative examining the dynamics of seizure and memory networks.

Significant Publications

Brain. 2017 Feb;140(Pt 2):306-318. doi: 10.1093/brain/aww302. *Longitudinal course of epilepsy in Rett syndrome and related disorders*. Tarquinio DC, Hou W, Berg A, Kaufmann WE, Lane JB, Skinner SA, Motil KJ, Neul JL, **Percy AK**, Glaze DG.

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J Neurol Sci. 2017 Apr 15;375:371-375. doi: 10.1016/j.jns.2017.02.041. *Evaluating the association of allergies with multiple sclerosis susceptibility risk and disease activity in a pediatric population*. Bourne T, Waltz M, Casper TC, Kavak K, Aaen G, Belman A, Benson L, Candee M, Chitnis T, Graves J, Greenberg B, Gorman M, **Harris Y**, Krupp L, Lotze T, Mar S, **Ness J**, Olsen C, Roalstad S, Rodriguez M, Rose J, Rubin J15, Schreiner T, Tillema JM, Kahn I, Waldman A, Barcellos L, Waubant E, Weinstock-Guttman B, US Network of Pediatric MS Centers.

JAMA Neurol 73(1):102-110,2016. *Clinical-Genetic Associations in the Prospective Huntington at Risk Observational Study (PHAROS): Implications for Clinical Trials*. Huntington Study Group, P. I., K. M. Biglan, I. Shoulson, K. Kiebertz, D. Oakes, E. Kayson, M. A. Shinaman, H. Zhao, M. Romer, A. Young, S. Hersch, J. Penney, K. Marder, J. Paulsen, K. Quaid, E. Siemers, C. Tanner, W. Mallonee, G. Suter, R. Dubinsky, C. Gray, M. Nance, S. Bundlie, D. Radtke, S. Kostyk, C. Baic, J. Caress, F. Walker, V. Hunt, C. O'Neill, S. Chouinard, S. Factor, T. Greenamyre, C. Wood-Siverio, J. Corey-Bloom, D. Song, G. Peavy, C. Moskowitz, M. Wesson, A. Samii, T. Bird, H. Lipe, K. Blindauer, F. Marshall, C. Zimmerman, J. Goldstein, D. Rosas, P. Novak, J. Caviness, C. Adler, A. Duffy, V. Wheelock, T. Tempkin, D. Richman, L. Seeberger, R. Albin, K. L. Chou, B. Racette, J. S. Perlmutter, S. Perlman, Y. Bordelon, W. Martin, M. Wieler, B. Leavitt, L. Raymond, J. Decolongon, L. Clarke, J. Jankovic, C. Hunter, R. A. Hauser, J. Sanchez-Ramos, S. Furtado, O. Suchowersky, M. L. Klimek, M. Guttman, R. Sethna, A. Feigin, M. Cox, B. Shannon, **A. Percy, L. Dure**, M. Harrison, W. Johnson, D. Higgins, E. Molho, C. Nickerson, S. Evans, D. Hobson, C. Singer, N. Galvez-Jimenez, K. Shannon, C. Comella, C. Ross, M. H. Saint-Hilaire, C. Testa, A. Rosenblatt, P. Hogarth, W. Weiner, P. Como, R. Kumar, C. Cotto, J. Stout, A. Brocht, A. Watts, S. Eberly, C. Weaver, T. Foroud, J. Gusella, M. MacDonald, R. Myers, S. Fahn and C. Shults.

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PEDIATRIC PULMONOLOGY & SLEEP MEDICINE



Pediatric Faculty

Dr. Hector Gutierrez

Dr. Jennifer Guimbellot

Dr. Tom Harris

Dr. Wyn Hoover

Dr. Claire Lenker

Dr. Isabel Lowell

Dr. Mary Halsey Maddox

Dr. Teri Magruder

Dr. Gabriella Oates

Dr. Ammar Saadoon Alishlash

Dr. Valerie Tarn

Dr. Brad Troxler

Dr. Brett Turner

Director | Professor

Assistant Professor

Assistant Professor

Associate Professor

Associate Professor

Associate Professor

Associate Professor

Associate Professor

Assistant Professor

Assistant Professor

Assistant Professor

Associate Professor

Assistant Professor

Featured Research

The Pediatric Pulmonary Division maintains a broad research portfolio that complements the clinical programs, with focus areas in cystic fibrosis (CF), asthma, primary ciliary dyskinesia (PCD) neuromuscular disorders (NMD), sleep medicine, and sickle cell disease (SCD).

Cystic Fibrosis

The UAB/Children's of Alabama CF Clinical Research Center has been a Therapeutic Development Network (TDN) Center since 2002 and has a strong leadership role in the Cystic Fibrosis network. This is evidenced by our position as the TDN CFTR Detection National Resource Center, one of seven National Resource Centers in the TDN, and our role as a trailblazer in CFFT-led research of national importance. The UAB/Children's of Alabama TDN center was also a leader in the clinical trials leading to the development and FDA approval of two groundbreaking drugs for CF aimed at correcting the basic defect in this life-limiting disease. The UAB TDN center is led by Steven Rowe, MD, (Adult Director) and Isabel Lowell, MD, (Pediatric Director). The UAB/ Children's of Alabama CF clinical research center is currently conducting 13 industry-sponsored CF trials and 15 investigator-initiated CF trials.

In 2016-2017, UAB and Children's of Alabama personnel served as national principal investigators or co-PIs in the PROSPECT study, and multiple other clinical trials investigating CFTR modulation or other ion transport pathways to address the basic CF defect. Dr. Rowe is the International Co-Chair for the extremely promising Next Generation Modulator studies that will be started this Spring.

Our unique expertise places UAB and Children's of Alabama as the only center in the country trained to perform and measure all of the following: Nasal Potential Difference (NPD), Sweat Rate (evaporimetry), Sweat Chloride, Intestinal Current Measurements (ICM), Lung Clearance Index (LCI), and Mucociliary Clearance (MCC) imaging, providing a unique resource to partners requiring one or more of these clinical trial endpoints for the evaluation

of agents that address the basic CF defect. Dr. Rowe has also been instrumental in developing and testing Optical Coherence Tomography (OCT) technology which is the first technology to measure mucus transport and ciliary beating in humans. To date, Dr. Rowe has conducted two small clinical trials utilizing this technology. Dr. Lowell has developed a comprehensive database for all CF and Pediatric Pulmonary Clinical trials which will enable us to track our research metrics and more easily conduct quality improvement initiatives aimed at improving our clinical trial recruitment and performance.

Gabriela Oates, PhD, is conducting research on the role of social determinants for adherence to prescribed therapies in cystic fibrosis and chronic obstructive pulmonary disease. This work places biological and behavioral processes in a social context to uncover pathways through which the social and physical environments impact adherence and lung health, identify adherence-promoting interventions effective in specific subgroups, and advance patient-centered care. Dr. Oates is also the Children's of Alabama/UAB PI for the CF Foundation Successful Therapies Research Consortium (STRC) Barriers study which seeks to develop standardized measures of barriers to treatment adherence.

Cystic fibrosis research in the division also involves development of minimally invasive, personalized models for predicting the effectiveness of CFTR modulators in CF patients and those with acquired CFTR dysfunction. Jennifer Guimbellot, MD, PhD, and colleagues have developed a rapid cell culture-based model of epithelial cells from the nose as a screening method to assess the efficacy of small molecule therapies from individual patients ex vivo, which will provide a unique and innovative tool to predict corrector activity in any candidate for CFTR modulators. In addition, individualized pharmacokinetic analysis and pharmacogenomics approaches being studied in the Guimbellot laboratory will allow further tailoring of modulator therapy to provide maximal therapeutic benefit for every CF patient.

Tom Harris, MD, investigates mechanisms of disease progression in cystic fibrosis (CF). He specifically focuses on genetic modifiers of disease, as these might provide clues to improved treatment strategies. His work focuses on the genetic modifier transforming growth factor beta (TGF- β). Using transcriptome analysis with proteomic overlay, he has demonstrated TGF- β signaling pathways to be among the most upregulated in CF lungs. He has identified several targetable consequences of increased TGF- β activity in CF relevant to pulmonary decline, including small airway remodeling and myofibroblast activation. In 2017, Dr. Harris identified the consequence of micro RNA (miRNA) to mediate TGF- β inhibition of F508del CFTR correction. miRNA are small (~22 base pair) non-coding RNA that destabilize mRNA transcripts and inhibit protein translation. miR-145 mimics destabilize CFTR mRNA, protein synthesis, and channel function in airway and nasal epithelia. miR-145 antagonists reverse TGF- β associated CFTR blockade and augment F508del CFTR correction. His work in CF-related miRNA recently have won him Cystic Fibrosis Foundation (CFF) and National Institutes of Health (NIH) support to trial miRNA antagonists and miRNA target site blockers in CF animal models. Dr. Harris also leads several pharmaceutical trials of CFTR correction at UAB, including one trial that for the first time evaluates benefit of CFTR potentiation in infants and toddlers with CF, and another that brings next generation CFTR modulators to young school-aged children.

Dr. Lowell is working in collaboration with Drs. Shelly Mercer, Michael Stalvey, Kenneth McCormick and Daniel Hsia to determine whether unmethylated insulin DNA levels in CF patients can be used to detect significant pancreatic beta cell death prior to detection of high blood sugars. This could help predict those CF patients who will soon develop diabetes and allow for earlier initiation of treatment.

Wynton Hoover, MD, has served at site PI in a series of three multi-center clinical trials funded by the CF Foundation in collaboration with UNC to evaluate the treatment effect and efficacy of MRSA in children with CF. The third and final study in this series, TriStar, completed enrollment in late 2017 and investigates treatment effect on MRSA in children and adults with chronic infection following treatment with IV antibiotics. Dr. Hoover also served at site PI for a multi-centered trial evaluating the incidence of small colony variant MRSA in individuals with CF. Through this ongoing collaboration, we have contributed to 4 published manuscripts and multiple poster presentations that have significantly impacted the treatment of MRSA in children and adults with CF.

Hector Gutierrez, MD, leads the Cystic Fibrosis Clinical Center. His research objectives are to implement and investigate quality improvement, outcome measurement, and management of both clinical and non-clinical processes using CF care as a model to improve the quality and value of clinical care, which ultimately results in longer survival. By applying quality improvement methodologies, assessment and optimization of care processes, and team functioning, his work has demonstrated significant improvement in key measures of clinical outcomes in CF. Replicating the results obtained at the CF center by working with teams from Latin American countries is showing encouraging results.

Asthma

The UAB and Children's of Alabama Pulmonary Programs recently joined the American Lung Association's Airways Clinical Research Center (ACRC) Network, a collaborative of 17 different clinical research centers throughout the U.S., that forms the nation's largest not-for-profit network of clinical research centers dedicated to asthma and chronic obstructive pulmonary disease (COPD) treatment research. The ACRC Network conducts large clinical trials that will directly impact patient care for COPD and asthma.

The Children's of Alabama Pediatric Pulmonary physicians involved as principal investigators are Terri Magruder, MD, MPH, and Dr. Lowell. The ACRC has been responsible for many groundbreaking pediatric and adult asthma clinical trials and is currently in the planning stages for several new pediatric asthma trials looking at different anti-inflammatories, the effect of e-cigarettes, and the role of obesity in asthma and its management.

The Children's of Alabama Asthma Program is also involved in several quality improvement projects aimed at optimizing care and outcomes in the pediatric asthma population. Asthma program has been developing an IRB approved asthma database to track long term outcomes to improve chronic disease management and characterization of the asthma population served in our division. Dr. Magruder and colleagues in Division of Hospital Medicine and General Pediatrics published the 5-year outcome data for the Children's of Alabama inpatient Asthma Clinical Pathway. This has been a sustainable Quality Improvement initiative since 2011. Long-term outcomes showed sustainable reductions in inpatient length of stay, stable readmission rates, and charge containment over the 5-year study period. Drs. Magruder and Lowell also work with basic scientists in the UAB Lung Health Center interested in learning more about the pathophysiology of asthma and potential therapeutic interventions.

Drs. Lowell and Magruder are also serving as faculty for the current Alabama Children's Health Improvement Alliance project "Breathe Easy". This project is aimed at providing primary care providers education regarding the diagnosis and management of asthma and enable these providers to develop their own quality improvement projects revolving around asthma care. This project also integrates home visits into chronic disease management for Medicaid insured patients.

Primary Ciliary Dyskinesia

The Primary Ciliary Dyskinesia (PCD) program at UAB/Children's of Alabama received full accreditation by the PCD Foundation in 2016 under the leadership of Dr. Hoover, (Center Director), Dr. Brett Turner, and Shelley Coskery, CRNP. We are one of four centers to have received full accreditation as a joint adult and pediatric center. During our first year of operation we have performed diagnostic and therapeutic consultations for children referred from AL, MS, LA, FL and GA. Adult PCD Center activities are led by Drs. Rowe and Solomon. Ongoing research endeavors include conducting and collaborating with other centers in basic science research projects utilizing animal models to study factors that affect coordination of ciliary function leading to effective mucociliary transport. Dr. Solomon is the PI for a clinical trial evaluating the safety and efficacy of a new epithelial sodium inhibitor with and without a CFTR Modulator in patients with PCD.

Neuromuscular Diseases

The NeuroMuscular Disease (NMD) Program is a multispecialty, multidisciplinary program that provides comprehensive care to the patient population of children, adolescents and young adults with various neuromuscular diseases. The NMD program received the MDA Clinical Care grant award in 2017 and Dr. Brad Troxler serves as the center director. He also serves as the primary investigator for the first clinical trial in Duchenne muscular dystrophy at UAB or Children's of Alabama. The SIDEROS trial is a multinational, multisite Stage III clinical trial to assess the efficacy of idebenone on the lung function of patients with Duchenne muscular dystrophy who are taking steroids. In addition, 2017 saw the development and implementation of the Spinraza (nusinersen) protocol at UAB/Children's of Alabama for patients with spinal muscular atrophy. Key to the growth and development of the NMD program has been the development and deployment of the NMD Database, an IRB-approved clinical database. The NMD program is currently assessing the caregiver quality of life and the impact of new therapies on this measurement. The NMD program has been actively engaged in quality improvement as well. Due to these efforts, the use of polysaccharide pneumococcal immunization in the neuromuscular patient population went from 90% in 2016. Similar improvements occurred with influenza vaccination rates, currently at 92%.

Sleep Medicine

The Sleep Center, coupled with the Pediatric Pulmonary Center (PPC) is involved in multiple efforts in pediatric sleep medicine. This partnership resulted an analysis of the marketing of safe sleep environments for infants. This study assessed how cribs are marketed online, in print, and at physical stores to parents. This effort found a great discordance between the AAP recommendations and the actual marketing of infant sleep environments. We

described a wide disparity in the portrayal of safe sleep environs for white versus non-white infants. The efforts with the PPC have also resulted in research protocol to assess the impact of health literacy of caregivers on the adherence of patients to positive airway pressure. The Sleep Center has also been engaged in significant quality improvement efforts to improve access, increase efficiency in study reports, and to improve the quality of care for patients with OSA and narcolepsy.

Sickle Cell Disease

In collaboration with the Hematology/Oncology Division, Dr. Alishlash launched the Sickle Cell Pulmonary Program at Children's of Alabama. It encompasses both basic research and clinical components. Dr. Alishlash's lab investigates the pathogenesis and management of pulmonary complications of Sickle Cell Disease (SCD). The clinical component involves screening, developing protocols and treating SCD patients for pulmonary complications such as asthma, pulmonary hypertension, acute chest syndrome and sleep disordered breathing. Dr. Alishlash has a designated clinic for SCD patients with pulmonary disorders.

Significant Publications

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Curr Opin Pharmacol. 2017 Nov 9;34:132-139. doi: 10.1016/j.coph.2017.09.013. *The therapeutic potential of CFTR modulators for COPD and other airway diseases.* Solomon GM, Fu L, **Rowe SM**, Collawn JF.

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Patient Prefer Adherence. 2017; 11: 761–767. Published online 2017 Apr 10. doi: 10.2147/PPA.S130439 PMID: PMC5391831 *Strengthening care teams to improve adherence in cystic fibrosis: a qualitative practice assessment and quality improvement initiative*. Allison J Gardner, Alice L Gray, **Staci Self**, and Jeffrey S Wagener.

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Thorax. 2016 Nov 72:318-326. Muhlebach MS, Beckett V, Popowitch E, Miller MB, Baines A, Mayer-Hamblett N, Zemanick ET, **Hoover WC**, VanDalfsen JM, Campbell P, Goss CH. *Microbiological efficacy of early MRSA treatment in cystic fibrosis in a randomized controlled trial*.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Gabriela Oates, PhD, Pediatric Pulmonary and Sleep Medicine, was the poster Judge for the Center for Healthy African American Men through Partnerships (CHAAMPS) National Conference in October. She was also a member of – the COPDGene Study – Social and Behavioral Sciences Working Group, and Clinical Sequencing Evidence-Generating Research (CSER2) Consortium – Ethical, Legal, and Social Implications (ELSI) and Diversity Working Group. Dr. Oates was also a member of – the CF Global Action Network, and the CF Foundation, Successful Therapies Research Consortium (STRC).

PEDIATRIC REHABILITATION MEDICINE



Pediatric Faculty

Dr. Drew Davis

Dr. Paola “Lala” Mendoza-Sengco
Dr. Erin Swanson-Kimani

Director | Associate Professor

Assistant Professor
Assistant Professor

Featured Research

The UAB Division of Pediatric Rehabilitation Medicine at Children’s of Alabama seeks to generate new knowledge related to disabling conditions of childhood. Through close collaboration with the UAB Lakeshore Research Collaborative, we are working to develop telehealth interventions for children with obesity and physical impairment, a major problem in the state of Alabama. The upcoming expansion of division clinical services on the campus of Lakeshore Foundation will serve to further the research goals of the collaborative. Drew Davis, MD, and Erin Swanson-Kimani, MD, are members of the Children’s of Alabama Concussion Work Group, collaborating with other UAB researchers to identify biomarkers and risk factors for prolonged concussion recovery in children and adolescents, as well as to assess potential nutritional interventions to minimize post-concussive symptoms through reduction of inflammation. Dr. Swanson-Kimani in collaboration with Krista Casazza, PhD, has written a manuscript accepted for publication entitled “Nutrition as Medicine to Improve Outcomes in Adolescents Sustaining a Sports-Related Concussion” to be published in early 2018. The division also collaborates with the UAB Translational Research for Injury Prevention Laboratory (TRIP Lab) to understand the impact of concussion on driving ability in adolescents. This work is at the forefront of efforts nationally to learn more about the serious consequences of traumatic brain injury. The division also continues close collaboration with leaders in the UAB Constraint Induced (CI) Therapy Research Group to develop new applications for CI therapy in the pediatric population.

Significant Publications

Optom Vis Sci. 2017 Jan;94(1):60-67. doi: 10.1097/OPX.0000000000000977. *Academic Difficulty and Vision Symptoms in Children with Concussion*. **Swanson MW**, Weise KK, Dreer LE, Johnston J, Davis RD, Ferguson D, Hale MH, Gould SJ, Christy JB, Busettini C, Lee SD, Swanson E.

PEDIATRIC RHEUMATOLOGY



Pediatric Faculty

Dr. Randy Cron

Dr. Tim Beukelman
Dr. Melissa Mannion
Dr. Matthew Stoll
Dr. Peter Weiser

Director | Professor

Associate Professor
Assistant Professor
Associate Professor
Associate Professor

Featured Research

Members of the Division of Pediatric Rheumatology excel in research into macrophage activation syndrome (MAS) in the pediatric population. This includes the novel recognition that a group of patients with fatal H1N1 flu died after their viral infections triggered this serious hyperinflammatory disorder. Randy Cron, MD, PhD, led a group of investigators from across the country to determine that the reason for this increased mortality was related to gene mutations in susceptible individuals. His data suggest that people with other types of infections and identical gene mutations also may be prone to the disorder, known as reactive HLH (rHLH), or hemophagocytic lymphohistiocytosis. Perhaps more importantly, these findings raise the question of whether to screen for HLH gene mutations (potentially 10% or more of the population) at birth to identify those carrying risk alleles for developing severe H1N1 or other infections. Dr. Cron's research laboratory is also exploring the pathophysiology of this disease by demonstrating that identified mutations in HLH genes contribute to the pathology of MAS in children and adults by disrupting white blood cell function.

Dr. Cron's work in this area also includes a retrospective re-analysis of the results from a large clinical trial of IL-1 blockade using Anakinra for the treatment for sepsis. When sepsis patients were divided based on the presence of macrophage activation syndrome (MAS), it was found that Anakinra doubled survival of those sepsis patients with features of MAS. Anakinra had no effect on survival of sepsis patients without MAS. In recognition of his leadership in this area, Dr. Cron led a group of experts who developed and published classification criteria for macrophage activation syndrome (MAS) complicating systemic juvenile idiopathic arthritis (sJIA). Recently, in collaboration with Dr. Winn Chatham (UAB), Dr. Cron is conducting an investigator initiated clinical trial to study the role of Anakinra in treating children and adults with MAS. As part of this trial, Dr. Cron, in collaboration with Dr. Devin Absher (HudsonAlpha) is funded to explore potential genetic contributions to the development of MAS in these patients.

Tim Beukelman, MD, MSCE, serves as the scientific director of the Childhood Arthritis and Rheumatology Research Alliance (CARRA) Registry. The CARRA Registry, a multicenter prospective observational registry for children with arthritis became operational in 2015 and currently has more than 40 clinical sites enrolling patients. The primary aim of the registry is to evaluate the safety of therapeutic agents used to treat pediatric rheumatic diseases, and the secondary aim is to evaluate clinical outcomes and their determinants, including treatment. Dr. Beukelman has worked closely with other members of the registry executive committee to bring the registry to fruition and encourage the performance of Phase IV safety surveillance studies that satisfy FDA requirements. Current work is focused on expanding the capabilities of the registry to allow investigator initiated observational and interventional substudies to be layered on the existing registry infrastructure.

Dr. Beukelman also recently completed NIH funding for the development of a research plan to assess the treatment of children newly diagnosed with juvenile idiopathic arthritis (JIA) that involves fewer than five joints and does not affect the eyes. Patients with this JIA phenotype are currently treated with NSAIDs and steroid joint injections as the standard of care. However, more than 50% of these children will develop arthritis in five or more joints (polyarthritis) or inflammation of the eyes (uveitis). When this occurs, children are typically treated with methotrexate, but they often have suboptimal clinical outcomes. The aim of his current efforts is to determine whether the use of methotrexate earlier in the disease course can prevent the occurrence of polyarthritis and uveitis and improve clinical outcome overall. Dr. Beukelman is the principal investigator of a pharmacoepidemiology project as part of the AHRQ-funded UAB Center for Education and Research on Therapeutics (CERTs). This project aims to use administrative claims data, such as Medicaid billing data, to further evaluate the safety of medications used to treat JIA with emphasis on serious infection and malignancy risk. These studies build upon this team's prior successful publications and will allow for longer-term follow-up of patients, as well as the examination of newer biologic agents. Recently, Dr. Beukelman, in collaboration with Dr. Jeffrey Curtis (UAB), were awarded a grant from PCORI to compare the effectiveness and safety of novel biologic therapies.

Matthew Stoll, MD, PHD, MSCE, has NIH funding to explore the role of the microbiota in children and adults with spondyloarthritis. He has identified various bacterial species in patients with spondyloarthritis that are protective for disease and others which contribute to the pathology. Recently, Dr. Stoll has evaluated the metabolic diversity and functions in the gut microbiomes and shown diminished function in arthritis patients versus controls, as well as alterations in tryptophan metabolism that may alter immune function to allow for autoimmunity. Dr. Stoll, along with Dr. Cron, are also experts in temporomandibular joint (TMJ) arthritis in children with juvenile idiopathic arthritis, and they continue to explore the diagnosis and treatment of this common problem in children with chronic arthritis.

Melissa Mannion, MD, MSPH, conducts research using epidemiologic analysis related to juvenile idiopathic arthritis (JIA). Specifically, she is interested in the use of medications to treat juvenile idiopathic arthritis (JIA), the outcomes of JIA in adulthood, and the comparative effectiveness of treatment modalities. Her specific research topics include the risk of malignancy associated with biologic treatments and the transition of pediatric arthritis patients in adult rheumatologic care. Dr. Mannion also employs the pediatric rheumatology national quality improvement network, PR-COIN, to address related research questions by exploring this large database.

Significant Publications

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Virology. 2017 Jan 31;504:79-87. doi: 10.1016/j.virol.2017.01.018. *CD4 regulatory T cells augment HIV-1 expression of polarized M1 and M2 monocyte derived macrophages.* Robinson TO, Zhang M, Ochsenbauer C, Smythies LE, **Cron RQ**.

Division Awards | Participation in National Research, Quality Improvement and Learning Networks

Tim Beukelman, MD, MSCE Pediatric Rheumatology, received the American College of Rheumatology/ Rheumatology Research Foundation Scientific Reviewer for Innovative Research Awards, 2016 – 2018. He is also a member of the ACR Pediatric Rheumatology Symposium (PRSYM) Planning Committee.

Randy Cron, MD, PhD, Pediatric Rheumatology, has been appointed as a member of the Rheumatology Content Development Team for the American Board of Pediatrics (ABP). Dr. Cron has also accepted the Associate Editor position of the Editorial Board of Autoimmune and Autoinflammatory Disorders, a specialty of Frontiers in Immunology. He was a key note lecturer for the 5th Annual James and Nancy Cassidy Endowed Lecture in Pediatric Rheumatology. In addition, Dr. Cron became a visiting professor at the American College of Rheumatology RRF/ AMGEN Pediatric Rheumatology, Chair of the ACR Pediatric Rheumatology Visiting Professorship program, and Scientific Advisory Board member of the American College of Rheumatology, Rheumatology Research Foundation. He has also served in an organizational role in the following meetings: Fellows Basic Science Abstracts Awards Selection Committee, Society for Pediatric Research (SPR), San Francisco, CA; “Pediatric Rheumatology – Pathogenesis and Genetics”, Abstract Selection Subcommittee, American College of Rheumatology National Scientific Meeting, San Diego, CA; “Macrophage Activation Syndrome - Beyond Systemic Juvenile Idiopathic Arthritis”, Macrophage Activation Syndrome Study Group, Co-Organizer and Co-Moderator, American College of Rheumatology National Scientific Meeting, San Diego, CA; “TMJ Arthritis in JIA into Adulthood - An Oromaxillofacial Perspective”, Juvenile Arthritis Workgroup (JAW), Organizer and Co-Moderator, American College of Rheumatology National Scientific Meeting, San Diego, CA; “Macrophage Activation Syndrome – Kill or Be Killed” - James and Nancy Cassidy Endowed Lecture in Pediatric Rheumatology, University of Missouri, Columbia, MO

Matthew Stoll, MD, PhD, MSCS, Pediatric Rheumatology, has been selected to serve on the Abstract Oversight Subcommittee of the Committee on Education for the American College of Rheumatology (ACR). The Abstract Oversight Subcommittee, which reports to the Committee on Education, reviews current policies and develops the overall abstract selection process. Dr. Stoll was also on the Abstract Selection Subcommittee of the 2017 Spondyloarthritis Research and Treatment Network (SPARTAN) annual conference. Lastly, he was an invited presenter at the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) Annual meeting held in Amsterdam, The Netherlands in July, 2017. His presentation was titled Clinical aspects of juvenile psoriatic arthritis.

Melissa Mannion, MD, MSPH, Pediatric Rheumatology, became the UAB/Children's of Alabama Site Leader of the Pediatric Rheumatology Care and Outcomes Improvement Network (PR-COIN). She is also a member of the Arthritis Foundation Leadership Board, and Arthritis Foundation Medical Chair for Birmingham.

Pediatric Education Programs

Pediatric Residency Program

The UAB Pediatric Residency Program represents 67 pediatric residents who participate in scholarly efforts. We have three combined programs that also participate in research. Our programs include: Combined Internal Medicine/Pediatric Program (16 residents), Child Neurology (2 residents) and Combined Medical Genetics/Pediatrics (3 residents).

Research is an important part of our resident's education and is encouraged and supported by the program. While research is not a requirement of our Pediatric Residency Program, the majority of our residents have either ongoing research projects, extensive involvement in Quality Improvement projects, and/or experience in clinical case presentations. For the past 10 years, 50% of our graduates have continued into academic fellowships.

The program offers multiple opportunities for the residents to participate in research during their residency. Some of these include:

- Pediatric Research Academic Program: research interest group that meets monthly to discuss basic research topics, set monthly goals, and network with each other as well as faculty.
- Senior Talks: Every PGY 3 Pediatric and PGY 4 MedPeds and Peds/Genetics resident presents a 30-minute research topic at a Noon Conference throughout the year. Below are examples of topics that have been presented in 2017.
 - "Health Disparities and Your Practice" -Dr. Shannon Booker
 - "Genetic Testing in Pediatrics" -Dr. Megan Boothe
 - "Medicaid and Health Care Reform" -Dr. Mary Silverberg
 - "Pediatric Depression" -Dr. Anna White
 - "An Overview of GERD for Primary Care Provider" -Dr. Rob Sellers
 - "Inborn Errors of Metabolism" -Dr. Joy Dean
 - "So You Think You Have a Penicillin Allergy" -Dr. Baani Bawa
 - "Beyond the Language Barrier: Embodying Cultural Humility" -Dr. Andrea Wolf
 - "The Heart of a Champion: Screening for Cardiovascular Disease in Young Adults" -Dr. Stephen Clark
 - "Breastfeeding-What a Pediatrician Needs to Know" -Dr. Jamie Powell
 - "Functional Abdominal Pain" -Dr. Carter Wallace
 - "The Deuce is Loose: Chronic Diarrhea in Pediatrics" -Dr. Taylor Woodfin
- Quality Improvement Projects: Every resident must participate in a QI project during their residency. They are able to join projects that have already been started by previous residents or create a new one. Below is a sampling of resident QI projects.
 - "Back to Boot Camp: Procedural Competence of Pediatric Residents"
 - "Adolescent Depression Screening in Primary Care"
 - "Improving Firearm Safety Counseling in Primary Care Clinic"
 - "Increasing the Delivery of Optimal Asthma Care in PCC"
 - "Infant Safe Sleep: A Medical Student Focused Educational Intervention"
 - "Out of Sight, Out of Mind: Reduction of Viral Respiratory Panels Ordered in Patients Admitted with Bronchitis"
 - "Reducing Referrals to Heme/Onc Clinic for Mild to Moderate Thrombocytopenia"
 - "Smoking Cessation Counseling: A Simulated Enhanced Curriculum for Residents to Promote Smoking Cessation Counseling"
- Annual UAB Pediatric Science Day: Pediatric Residents can attend or present at this all-day department conference.
- RIME (Research and Innovation in Medical Education): A 3-day long program at UAB where residents have the opportunity to present their research.
- Founders' Fund Grant: \$1,000 research grants awarded annually to peer selected projects to help residents accomplish research goals. Below is a list of grants awarded this year.
 - "Use of Mental Health Simulation to Improve Pediatric Primary Care, Resident Reflection on Suicide Prevention and Development of Support Group"
 - "Procedural Competence of Pediatric Residents"
 - "Utilizing the Validated Pediatric Delirium Scale to Monitor Intubated and Sedated Patients in Pediatric Intensive Care Unit"
 - "Augmented Cardiac Teaching During Simulations through the Use of 3-D Printed Model of Congenital

Heart Disease”

- Attendance at national and regional meetings is supported by the Department of Pediatrics throughout the year. Below is a list of conferences our residents have attended this year.
 - Southern Society for Pediatric Research (SSPR) - 25 residents presented at last year’s conference.
 - Pediatric Academic Society (PAS)
 - American Academy of Pediatrics National Conference and Exhibition (AAP-NCE)
 - North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN)
 - American Society of Hematology (ASH)
 - Pediatric Critical Care Colloquium
 - American Society of Clinical Oncology
 - Crohn’s and Colitis Congress
 - Vermont Oxford Network Quality Congress

We are very proud of the research accomplishments of our Pediatric Residents. We are very grateful to the Department of Pediatrics Faculty and Fellows who have mentored and inspired their work.

Pediatric Fellowship Programs

The UAB pediatric fellowship programs encompass 18 fellowship programs (16 ACGME and 2 non-ACGME programs). This represents over 60 pediatric fellows who participate in scholarly efforts.

Research and research scholarship are of upmost importance to our pediatric fellowship programs. Research activities are a requirement of the American of Board Pediatrics (ABP) as well as the Accreditation Council for Graduate Medical Education (ACGME), but many of our fellows perform at a level well above the minimum expected requirements. These efforts during fellowship are further supported by the fact that approximately 80% of our pediatric fellowship graduates go into academic medicine or seek additional training, while 20% go into private practice or other areas of interest (i.e., CDC, International Missions, etc.).

In the UAB pDepartment Pediatrics, we offer some innovative opportunities and programs to assist our fellows to perform at high levels of research during their fellowship training. A few highlights include:

- Annual Pediatric Science Day – Daylong conference with invited guest grand rounds speaker and moderator. Pediatric fellows, residents and medical students present their ongoing research and case presentation in platform and poster format.
- RIME (Research and Innovation in Medical Education) – A 3-day long program at UAB including invited speakers, poster presentation by residents and fellows, and a one-day educational session just for fellows.
- Dixon Fellows – A program initiated in 1988, aimed at supporting and preparing selected fellows for careers in academia. Since its inception this program has aided in the training and research efforts of 68 fellows, with 28 of these remaining as active faculty at UAB.
- T-32 Fellowship Positions – The ability to support our strongest research fellows on training grants, including, for example, most recently in the Divisions of Pediatric Nephrology and Pediatric Infectious Disease.
- CHIF (Child Health Investigative Forum (CHIF) – A twice monthly conference to allow presentation of on-going research and research-related topics across all pediatric divisions. Fellows take active part in these conferences, presenting at up to 50% of the meetings.
- Fellow’s Core Educational Series – A two-year curriculum for all pediatric fellowship programs with an entire year devoted to research techniques and research related topics.

Nationally and regionally our fellows present at scientific conferences including Southern Society for Pediatric Research (SSPR), American Academy of Pediatrics National Conference and Exhibition (AAP-NCE), Pediatric Academic Society (PAS) just to name a few.

Highlighting some of the grants and awards received by our Pediatric Fellows:

- Founders’ Fund Grant for multiple fellows (i.e. Child Neurology and Pediatric Emergency Medicine)
- Hemostasis and Thrombosis Research Society Mentored Research Award (Pediatric Hematology & Oncology)
- St. Baldrick’s Fellow Award (Pediatric Hematology & Oncology)

To give you an idea about some of the specific projects our Pediatric Fellows are involved in, below you will see some selected recent publications with the fellow’s name and project title bolded:

- **Rao S**, Walters KB, Wilson L, Chen B, Bolisetty S, Graves D, Barnes S, Agarwal A, Kabarowski JH. **Early Lipid Changes in Acute Kidney Injury Using SWATH Lipidomics Coupled with MALDI Tissue Imaging.** *American Journal of Physiology- Renal Physiology*. 2016 May 15. 310(10): F1136-1147.
- Carlo WA, **Travers CP**. **Maternal and Neonatal mortality: Time to Act.** *Journal of Pediatrics (Rio J)*. 2016 Nov – Dec. 92(6): 543-545.
- **Stoops C**, Sims B, Griffin R, Askenazi DJ. **Neonatal Acute Kidney Injury and the Risk of Interventricular Hemorrhage in the Very Low Birth Weight Infant.** *Neonatology*. 2016. 110(4): 307-312.
- Koneru A, Jolly PE, **Blakemore S**, McCree R, Lisovicz NF, Aris EA, Mtesigwq T, Yuma S, Mwaiselage JD. **Acceptance of Peer Navigators to Reduce Barriers to Cervical Cancer Screening and Treatment Among Women with HIV infection in Tanzania.** *Int Journal Gynaecol Obstet*. 2017 July. 138(1): 53-61.
- Walker MM, Novak L, **Widener R**, **Grubbs JA**, King J, Ochs MM, Myers LE, Briles DE, Deshane J. **PcpA Promotes Higher Levels of Infection and Modulates Recruitment of Myeloid-Derived Suppressor Cells during Pneumococcal Pneumonia.** *Journal of Immunology*. 2016 March 1. 196(5): 2239-2248.
- **Schmit, E, Poole, C, Diaz F**, Hutto C. **Group C and G Streptococcal Septic Shock in Two Pediatric Patients.** *Ann Pediatr Child Health*. 2017. 5(2):1128.
- **Richard KR**, Lovvorn JJ, Oliver SE, Ross SA, Benner KW, Kong MY. **Chromobacterium Violaceum Sepsis: Rethinking Conventional Therapy to Improve Outcome.** *American Journal of Case Reports*. 2015 Oct 19. 16:740-744.

ACGME –APPROVED PEDIATRIC FELLOWSHIP PROGRAMS

Adolescent Medicine
Cardiology
Critical Care
Endocrinology
Hematology-Oncology
Infectious Disease
Nephrology
Rheumatology

Allergy-Immunology
Child Neurology
Emergency Medicine
Gastroenterology
Hospice-Palliative Care
Neonatology
Pulmonary
Sleep Medicine

NON-ACGME –APPROVED PEDIATRIC FELLOWSHIP PROGRAMS

Cardiac Critical Care

Hospital Medicine