



HOSPITALS • RESEARCH • FOUNDATION

RAISING

THE BAR

in Pediatric Care | 2023

Table of contents

4	A Message from Arkansas Children's President and CEO	40 - 43	Nephrology
5	Our Mission	44 - 47	Neurology and Neurosurgery
6	A Message from the Chief Clinical and Academic Officer	48 - 51	Orthopedics
7	One (Exceptional) Team	52 - 55	Pulmonology
8	A Message from the Chair, Department of Pediatrics	56 - 59	Urology
9	Department of Pediatrics Vice Chairs	60 - 63	Vascular Anomalies
10 - 11	Service Chiefs	64 - 65	Expansion
12 - 15	Behavioral Health	68	A Message from the President of Arkansas Children's Research Institute
16 - 19	Cancer and Blood Disorders	69	Research: Clinical Excellence
20 - 23	Cardiology and Heart Surgery	70 - 73	Changing the Future of Child Health through Research
24 - 25	Cleft	74 - 75	Exceptional Highlights
26 - 27	Craniofacial	76 - 77	Opioid Research
28 - 31	Diabetes and Endocrinology	78 - 79	Care Even Closer to Home
32 - 35	Gastroenterology and GI Surgery		
36 - 39	Neonatology		



Two twin-engine, instrument flight-capable helicopters and five ground ambulances in our Angel One patient transport program let us reach anyone in the state within **55 MINUTES.**





A SPECIAL MESSAGE

Our commitment
to improving
child health

Every day, more than 2,000 patient families walk the halls of our facilities. They are here for the routine well check, the acute injury or illness or in the hope of elusive answers. Arkansas is home to nearly 700,000 children, all deserving to reach their fullest potential. We are ambitiously chasing a vision of unprecedented child health for every child in Arkansas and are unwavering in that pursuit.

As one of the nation's leading children's hospitals and the only pediatric health system in the state, children and their families rely on Arkansas Children's for exceptional clinical care. In addition to ranking nationally in clinical outcomes, we are committed to pioneering bold initiatives that raise the bar in pediatric care and establishing and strengthening partnerships that enhance the whole health of the child. We are making extraordinary progress.

Last year, we served more children than ever and recorded some of our best-ever outcomes in quality and safety. We achieved many milestones this year, announcing the largest clinical expansion and the largest philanthropic gift of \$25 million to expand facilities and clinical care in our 111-year history. We also announced a history-making \$50 million grant from the state of Arkansas to advance research and led the country in system-wide patient experience for our emergency services.

As you read about our outcomes, I hope you are inspired to join us in improving child health.

Sincerely,



Marcy Doderer, FACHE
President & CEO
Arkansas Children's

OUR MISSION

We champion children by making them better today and healthier tomorrow.



161,216

children served across 47 states + Washington, D.C.



540,198

appointments across
7 campuses

1 HEALTH SYSTEM
3 Primary Components

HOSPITALS
RESEARCH
FOUNDATION



11 Consecutive
Years of Rankings

U.S. News and World Report Best Children's Hospitals voting is held every year in February and March. Register your profile at Doximity.com to be eligible for the next survey.

Excellence in Motion



For more than a century, Arkansas Children's has served the children of Arkansas by providing exceptional clinical care. As the reputation of our outstanding clinical care and outcomes grows, Arkansas Children's continues to expand its regional and national presence, recruiting scholars from around the country and treating patients from all 50 states and internationally.

We continue to pave the way in expanding clinical programs, service-delivery models and breakthrough treatments. Last year, we launched gene therapies for spinal muscular atrophy (SMA) and Duchenne muscular dystrophy (DMD), expanded our multidisciplinary aerodigestive program and hip and spine programs, as well as the use of the da Vinci robot across surgical services, and completed the first robotic-assisted cholecystectomy and gastric sleeves. The Arkansas Children's Heart Institute team celebrated the first pediatric patient in Arkansas to go home on a ventricular assist device (VAD), and welcomed more than 100 Project Adam schools certified across the state. Arkansas Children's, alongside the University of Arkansas for Medical Sciences, Baptist Health and Proton International, opened the state's first and only proton therapy center.

Whether a child needs us for an acute illness or injury or a lifetime of care, we are committed to evolving to meet the unique needs of our community.

Sincerely,

Frederick (Rick) Barr, M.D., M.B.A.
Executive Vice President, Chief Clinical and Academic Officer
Arkansas Children's

One (Exceptional) Team



Voted **best hospital** in the state



Retained **Magnet Certification**
for outstanding patient care



Selected **#1 Forbes'**
Best-In-State Employer



Honored with **Newsweek's**
World's Best Specialized
Hospitals: Pediatrics

LEVEL 1

Pediatric Surgical Center designated by
the American College of Surgeons

LEVEL 1

Pediatric Trauma Center reaccredited
by the American College of Surgeons

57

Physicians recognized as
top doctors in the state



Excellent Outcomes

ARKANSAS CHILDREN'S: **RAISING THE BAR** • 8

There has never been a more exciting time in pediatrics. Modern medicine is changing at lightning speed, offering innovative ways to discover, learn and practice. The dynamic collaboration between the University of Arkansas for Medical Sciences (UAMS) Department of Pediatrics and Arkansas Children's is leading to developments in the cures of tomorrow and excellent outcomes in providing cutting-edge clinical care today. Together, we advocate for children while preparing the next generation of providers.

As the pediatrician-in-chief and the UAMS Department of Pediatrics chair, I am excited to report our strategic focus on building an innovative department to support ambitious, forward-thinking and service-minded physicians and scientists.

We recruited 51 new physicians across the system in 2023 alone and are continuing at that pace to recruit more talented providers than ever before. We have a full-time provider presence in the northeast, northwest and central Arkansas regions. We established new vice chair roles in quality and innovation, and diversity and health equity. We restructured and expanded the pediatric residency program, significantly expanded pediatric fellowships and fellowship slots, and reshaped all clinical care delivery to be more robustly specialized, growing our physician leadership and medical staff.

We are resolute in pursuing an Arkansas that is the safest, healthiest place to be a child. And this work starts with creating the very best place to practice medicine. It is an exciting time to be at Arkansas Children's.

Sincerely,



William J. Steinbach, M.D.
Robert H. Fiser Jr., M.D. Endowed Chair in Pediatrics
Chair, Department of Pediatrics

Department of Pediatrics

Vice Chairs



Renee A. Bornemeier, M.D.

Pediatric cardiologist, Arkansas Children's Hospital; vice chair of faculty affairs; professor of pediatrics, University of Arkansas for Medical Sciences



Eduardo R. Ochoa Jr., M.D.

Pediatrician, Arkansas Children's Hospital; vice chair of diversity and health equity; professor of pediatrics, University of Arkansas for Medical Sciences



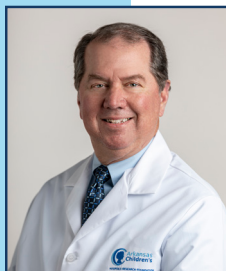
Abdallah Dalabih, M.D., M.B.A.

Pediatric critical care medicine physician, Arkansas Children's Hospital; vice chair of quality and innovation; professor of pediatrics, University of Arkansas for Medical Sciences



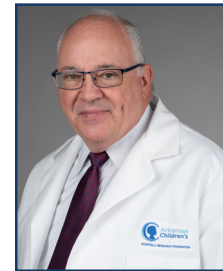
Steve M. Schexnayder, M.D.

Pediatric critical care medicine physician, Arkansas Children's Hospital; executive vice chair of pediatrics; professor of pediatrics, University of Arkansas for Medical Sciences



Eudice E. Fontenot, M.D.

Pediatric cardiologist, Arkansas Children's Hospital; vice chair of education, fellowships; professor of pediatrics, University of Arkansas for Medical Sciences



Christopher Smith, M.D.

Pediatrician, Arkansas Children's Hospital; vice chair of primary care; professor of pediatrics, University of Arkansas for Medical Sciences



Rebecca L. Latch, M.D.

Pediatric hospitalist, Arkansas Children's Hospital; vice chair of education, residency and students; professor of pediatrics, University of Arkansas for Medical Sciences



Brian M. Varisco, M.D.

Pediatric critical care medicine physician, Arkansas Children's Hospital; vice chair of research; professor of pediatrics, University of Arkansas for Medical Sciences

Service Chiefs



Kelly Curran, M.D., M.A.
Adolescent internist, Arkansas Children's Hospital; chief of adolescent medicine; associate professor of pediatrics, University of Arkansas for Medical Sciences



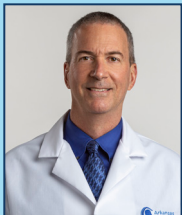
Tamara Perry, M.D.
Pediatric internist, Arkansas Children's Hospital; chief of the allergy and immunology division; professor of pediatrics, University of Arkansas for Medical Sciences



Arundathi Reddy, M.D., M.B.A.
Pediatric anesthesiologist, Arkansas Children's Hospital; chief of pediatric anesthesia; professor of anesthesiology, University of Arkansas for Medical Sciences



Jason Williams, Psy.D., M.S. Ed.
Senior vice president, chief mental and behavioral health officer, Arkansas Children's Hospital; professor of psychology, University of Arkansas for Medical Sciences



Paul Seib, M.D.
Pediatric cardiologist, Arkansas Children's Hospital; chief of pediatric cardiology; professor of pediatrics, University of Arkansas for Medical Sciences



Brian Reemtsen, M.D.
Pediatric cardiovascular surgeon, Arkansas Children's Hospital; chief of cardiovascular surgery; professor of surgery, University of Arkansas for Medical Sciences



Karen Farst, M.D., M.P.H.
Chief medical officer and child abuse pediatrician, Arkansas Children's Hospital; professor of pediatrics, University of Arkansas for Medical Sciences



Feliciano "Pele" Yu, M.D.
Chief medical information officer, Arkansas Children's Hospital; professor of pediatrics and public health, University of Arkansas for Medical Sciences



Chenia Y. Eubanks, M.D., M.P.H.
Pediatrician, Arkansas Children's Hospital; interim chief of community pediatrics; associate professor of pediatrics, University of Arkansas for Medical Sciences



M. Sid Dassinger III, M.D.
Pediatric surgeon, Arkansas Children's Hospital; chief of pediatric general surgery; professor of surgery, University of Arkansas for Medical Sciences



Ronald C. Sanders, Jr., M.D.
Pediatric critical care medicine physician, Arkansas Children's Hospital; chief of critical care medicine; professor of pediatrics, University of Arkansas for Medical Sciences



Jay Kincannon, M.D.
Pediatric dermatologist, Arkansas Children's Hospital; chief of dermatology at ACH and UAMS; professor of dermatology and professor of pediatrics, University of Arkansas for Medical Sciences



Mario Ferruzzi, Ph.D.
Chief of development nutrition, Arkansas Children's Hospital; director of Arkansas Children's Nutrition Center; professor of pediatrics, University of Arkansas for Medical Sciences



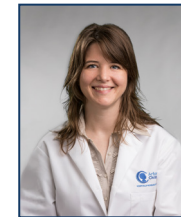
Jill J. Fussell, M.D.
Developmental pediatrician, Arkansas Children's Hospital; chief of developmental pediatrics; professor of pediatrics, University of Arkansas for Medical Sciences



David M. Spiro, M.D., M.P.H.
Emergency medicine pediatrician, Arkansas Children's Hospital; chief of emergency medicine, pharmacology and toxicology; professor of pediatrics, University of Arkansas for Medical Sciences



Jon Oden, M.D.
Pediatric endocrinologist, Arkansas Children's Hospital; chief of pediatric endocrinology; professor of pediatrics, University of Arkansas for Medical Sciences



Megan W. Butler, M.D.
Pediatric gastroenterologist and hepatologist, Arkansas Children's Hospital; interim chief of pediatric gastroenterology; associate professor of pediatrics, University of Arkansas for Medical Sciences



Sowmya N. Patil, M.D.
Pediatrician, Arkansas Children's Hospital; chief of general pediatrics; professor of pediatrics, University of Arkansas for Medical Sciences



Elizabeth A. Sellars, M.D.
Clinical geneticist, Arkansas Children's Hospital; chief of genetics; assistant research professor in pediatrics, University of Arkansas for Medical Sciences



Kathryn Stambough, M.D.
Pediatric and adolescent gynecologist, Arkansas Children's Hospital; chief of gynecology, assistant professor of obstetrics and gynecology, University of Arkansas for Medical Sciences



David L. Becton, M.D.
Pediatric hematologist/oncologist, Arkansas Children's Hospital; chief of pediatric hematology and oncology; professor of pediatrics, University of Arkansas for Medical Sciences



Virginia Erin Willis, M.D.
Pediatric neurologist, Arkansas Children's Hospital; chief of neurology; associate professor of pediatrics, University of Arkansas for Medical Sciences



Bobby Boyanton, Jr., M.D.
Anatomic and clinical pathologist, Arkansas Children's Hospital; chief of pathology; section medical director of molecular pathology; professor of pathology, University of Arkansas for Medical Sciences



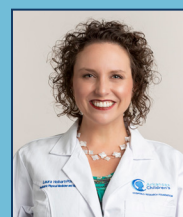
Brandi N. Whitaker, Ph.D.
Psychologist, Arkansas Children's Hospital; chief of psychology; associate professor of pediatrics, University of Arkansas for Medical Sciences



Rebecca Cantu, M.D., M.P.H.
Pediatrician; chief of hospital medicine, Arkansas Children's Hospital; associate professor of pediatrics, University of Arkansas for Medical Sciences



Greg Albert, M.D., M.P.H.
Pediatric neurosurgeon, Arkansas Children's Hospital; chief of pediatric neurosurgery; associate professor of neurosurgery, University of Arkansas for Medical Sciences



Laura Hobart-Porter, D.O.
Pediatric physiatrist, Arkansas Children's Hospital; chief of physical medicine and rehabilitation; associate professor of pediatrics, University of Arkansas for Medical Sciences



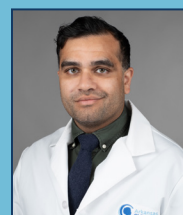
John L. Carroll, M.D.
Pediatric pulmonologist, Arkansas Children's Hospital; chief of pulmonology and sleep medicine; professor of pediatrics, University of Arkansas for Medical Sciences



Jessica N. Snowden, M.D., M.S., MHPTT
Pediatric infectious diseases specialist, Arkansas Children's Hospital; chief of pediatric infectious diseases; professor of pediatrics, University of Arkansas for Medical Sciences



R. Scott Lowery, M.D.
Pediatric ophthalmologist, Arkansas Children's Hospital; chief of ophthalmology at ACH and UAMS; associate professor of ophthalmology, University of Arkansas for Medical Sciences



Sagar Mehta, M.D.
Plastic surgeon, Arkansas Children's Hospital; chief of plastic and reconstructive surgery; assistant professor of surgery, University of Arkansas for Medical Sciences



Stacie M. Jones, M.D.
Pediatric allergist-immunologist, Arkansas Children's Hospital; interim chief of rheumatology; professor of pediatrics, University of Arkansas for Medical Sciences



Ashley Ross, M.D.
Neonatologist, Arkansas Children's Hospital; chief of neonatology; professor of pediatrics, University of Arkansas for Medical Sciences



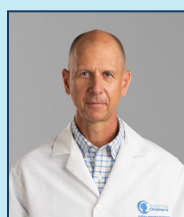
Brant Sachleben, M.D.
Sports medicine and pediatric orthopedic surgeon, Arkansas Children's Hospital; chief of pediatric orthopedics; co-director of sports medicine; associate professor in the department of orthopedic surgery, University of Arkansas for Medical Sciences



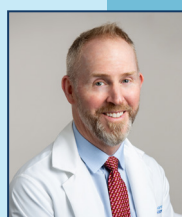
Paul M. Darden, M.D.
Pediatrician, Arkansas Children's Hospital; director of population health; director of Arkansas ECHO IDeA State Pediatric Clinical Trials Network (AREIS); professor of pediatrics, University of Arkansas for Medical Sciences



Ashay Patel, D.O.
Pediatric urologist, Arkansas Children's Hospital; chief of urology; associate professor of urology, University of Arkansas for Medical Sciences



Richard T. Blaszak, M.D.
Pediatric nephrologist, Arkansas Children's Hospital; chief of nephrology; professor of pediatrics, University of Arkansas for Medical Sciences



Gresham Richter, M.D.
Pediatric otolaryngologist, Arkansas Children's Hospital; chief of pediatric otolaryngology; director of Vascular Anomalies Center of Excellence; professor and vice chair of otolaryngology-head and neck surgery, University of Arkansas for Medical Sciences



Srinivasa Gokarakonda, M.D., M.P.H.
Child and adolescent psychiatrist, Arkansas Children's Hospital; interim chief of behavioral health, interim associate division director of child and adolescent psychiatry; medical director, STRIVE Clinic; assistant professor of psychiatry, University of Arkansas for Medical Sciences

BEHAVIORAL HEALTH

Improving Pediatric Mental Health Care

Arkansas Children's Hospital (ACH) continues to grow and enhance its psychiatric services for pediatric mental and behavioral health. The Child Study Center is an assessment and treatment center offering medication management, psychological testing and evidence-based treatments for children with histories of trauma. It is a UAMS psychiatric program in the Clark Center for Safe and Healthy Children on the ACH campus.

In 2023, Jason Williams, Psy.D., M.S. Ed., was hired as the Arkansas Children's senior vice president and chief mental and behavioral health officer, a newly created position. He is also the new chief of UAMS' division of child and adolescent psychiatry in the College of Medicine's department of psychiatry. Under Williams' leadership, the behavioral and mental health program elevates pediatric care in Arkansas.

ARMAPP



Arkansas Mental Health Access in Pediatric Primary Care Improving Mental Health Outcomes

Arkansas Children's and the University of Arkansas for Medical Sciences (UAMS) partnered to implement Arkansas Mental Health Access in Pediatric Primary Care (ARMAPP), an innovative program designed to improve the mental health outcomes of pediatric patients in the state.

The program's primary goal is to promote behavioral health integration in pediatric primary care in Arkansas by linking primary care physicians around the state with a pediatric mental health care team for initial and ongoing education, consultation and referral of patients who are under 18 and have behavioral health needs.

UAMS was awarded more than \$2 million in federal grant money to equip and support primary care providers across the state to screen, diagnose, treat and refer children with behavioral health conditions. Arkansas Children's and UAMS partnered to become a hub for Project ECHO, which developed a knowledge-sharing model with proven results in health care.

Four principles drive this simple but effective model:

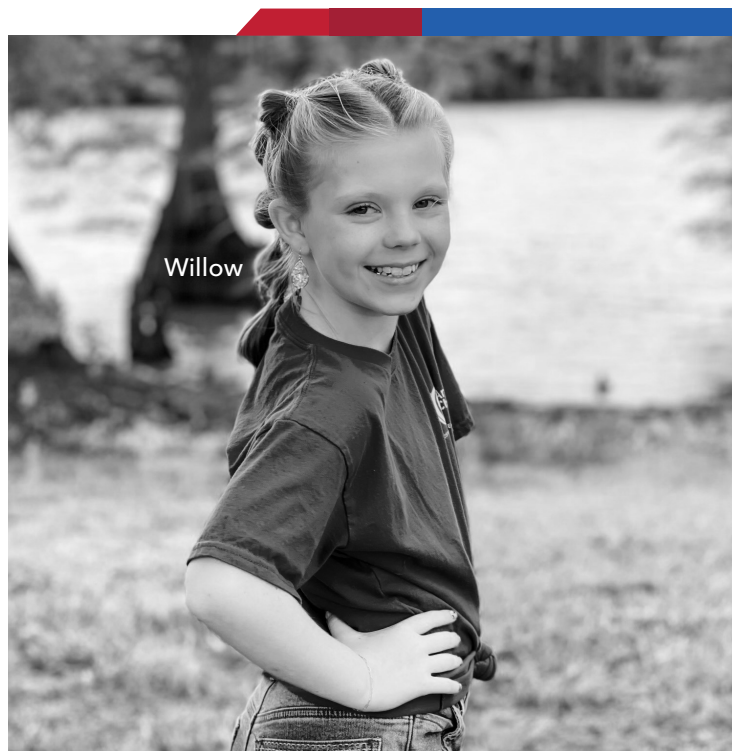
- Use technology to leverage scarce resources
- Share best practices to reduce disparities
- Apply case-based learning to master complexity
- Evaluate and monitor outcomes

Participants meet once or twice a month via teleconferencing to engage in facilitated discussion in which "all learn, and all teach." Over the past two decades, Project ECHO has demonstrated that moving expert knowledge to remote parts of the state or country is more efficient than moving patients to specialty care providers who practice primarily in large cities. ARMAPP connects pediatric primary care providers to mental health specialists in Arkansas and discusses de-identified cases.

ARMAPP provides:

- ECHO training sessions
- Individual or group case consultation
- Behavioral strategies
- Recommendations for non-emergent pharmacologic management

Participating primary care physicians are trained to identify and treat mental health conditions in children and adolescents. This training equips physicians with the confidence to start mental health-related medications for pediatric patients, have resources for screening and referring pediatric patients to mental health providers, improve pediatric behavioral health in rural areas, and increase telehealth for mental health treatment and consults in primary care.



BY THE NUMBERS

Total patient visits: **6,270**

Total unique patients served: **913**

Total new patient therapy assessments: **346**

Total family therapy sessions: **1,361**

Total individual therapy sessions: **2,018**

Total psychology (testing) evaluations: **111**

Total psychiatry visits: **1,822**

Top five diagnostic categories:

- Conduct disorder
- Generalized anxiety
- Post-traumatic stress disorder
- Attention-deficit hyperactivity disorder
- Unspecified anxiety disorder

Launched Social Determinants of Health Screening in November of 2022 for patients and their families. EMR-based screening provides a consistent tool that prompts annually upon check-in or in advance of a patient visit:

- **172,249** patients screened across Arkansas Children's health care system for vulnerabilities around food security, housing, financial resource strain, transportation, child education and adolescent education and socialization.

Launched Arkansas Children's Resource Connect, a digital platform to refer patients' families to free and reduced-cost community resources.

- **919** referrals for **623** individual patients were made through Resource Connect.
- Of these referrals, **213** were closed loop. Overall, there was a **54%** response rate, where referred organizations provided a status update of the referral.

BEHAVIORAL HEALTH



James

Awards and Achievements

Arkansas Mental Health Access in Pediatric Primary Care (ARMAPP) - Health Resources & Service Administration (HRSA) grant

Established Behavioral Emergency Response Team (BERT)

Implemented systemwide depression screening in all ambulatory settings for children 12 and up

UAMS Child & Adolescent Division of Psychiatry to begin substance abuse treatment program for adolescents and young adults in FY24

Implemented Adaptive Care Program "Pause for Me"

Created "Autism Spectrum Disorder: Moving the Needle for Children and Families in Arkansas" lecture series education for medical professionals

Implemented HealthySteps program in primary care to provide universal screenings for children 0-3 and to connect mothers who may experience maternal depression to free or low-cost counseling

Chief Mental and Behavioral Health Officer



Jason Williams, Psy.D., M.S. Ed.



I practice at Arkansas Children's Hospital because I am passionate about the mission to serve kids who have the biggest needs and struggle with mental and behavioral health issues. It's my goal to bring a 'whole' child approach to care, supporting not only the child but the community that supports that child and family. I strive to make children better today and healthier tomorrow.

— **Jason Williams, Psy.D., M.S. Ed.**

Senior vice president, chief mental & behavioral health officer
Belinda H. and Robert L. Shults Endowed Chair in child behavioral health
Professor of Psychiatry, University of Arkansas for Medical Sciences



CLINICAL LEADERSHIP

Srini Gokarakonda, M.D.

Maya Lopez, M.D.

Liza Murray, M.D.

Brandi Whitaker, Ph.D.

CANCER AND BLOOD DISORDERS

Comprehensive Cutting-Edge Cancer Care

Providing the gold standard for quality of care, Arkansas Children's cancer and blood disorders program is the only pediatric cancer treatment program in the state. The large number of children we serve each year helps us develop new care and treatments and train future health leaders through our fellowship program.



Proton Therapy

The Proton Center of Arkansas – opened in September 2023 – is the first in Arkansas and one of only 44 proton centers nationwide. Arkansas Children's partnered with the University of Arkansas for Medical Sciences, Baptist Health and Proton International to bring this advanced treatment to cancer patients in the region. The addition of proton therapy brings a new dimension to the already exceptional surgical and chemotherapy cancer treatments available at Arkansas Children's.

On November 3, 2023, 15-year-old Gracie Spears marked a significant milestone as the first pediatric patient to "ring the bell" at the Proton Center of Arkansas. Diagnosed with Hodgkin lymphoma in 2022, Gracie initially underwent six months of standard treatment – chemotherapy and low-dose radiation – a regimen that typically eradicates the disease. Although the initial treatment successfully eliminated the tumors on the left side of her neck, a PET scan revealed a relapse that occurs in roughly 30% of patients. The cancer had spread to the right side of her torso.

Gracie received comprehensive care from the

oncologists at Arkansas Children's involving additional chemotherapy, immunotherapy and an autologous stem cell transplant. These treatments coincided with the construction of the Proton Center of Arkansas. Once the center opened, Gracie had the opportunity to receive state-of-the-art proton therapy. As a young female, she is at high risk for developing long-term toxicities from radiation, like heart damage and increased risk of breast cancer. Recognized as the safest form of radiation for pediatric patients, proton therapy reduced her risk of another relapse without placing additional burdens on her family. Her Arkansas Children's cancer care team wanted her to receive the optimal treatment and recommended proton therapy in consultations with the family.

The ability to focus precision radiation means less potential damage to nearby organs and tissue still developing in a child's body. Bringing this level of safe, exceptional care to the pediatric patients of Arkansas means patients and their caregivers can stay near the comforts of home while receiving treatment.



Hewitt's Journey from a High-Grade Neuroepithelial Tumor with a BCOR Alteration to NED

Hewitt Kahana loves school. Shaw Elementary in Springdale, Ark., is where he gets to hang out with friends, and he's an excellent student.

"The day I made the appointment to see our primary care physician at Arkansas Children's Northwest (ACNW) was the day he didn't want to go to school," Hewitt's mother, Christen Sluyter, said.

Hewitt had also complained of light sensitivity and recurring headaches. His parents suspected migraines or the possibility that Hewitt might need glasses. They shared their concerns with their pediatrician, Andrew Hamby, M.D. "He really

took the time to listen to what we had to say. He didn't dismiss any of it."

Shortly after having an MRI, the Sluyters got a call from Tomoko Tanaka, M.D., a pediatric neurosurgeon at Arkansas Children's and an associate professor in the division of pediatric neurosurgery in the Department of Neurosurgery at the University of Arkansas for Medical Sciences (UAMS).

Tanaka told them the source of Hewitt's headaches and nausea was not migraines or poor vision; it was a baseball-sized tumor near the base of Hewitt's skull. He would need surgery as soon as possible, and she would be their surgeon.

● ○ ○ Craniotomy

The family's first cancer-related trip was to Arkansas Children's Hospital (ACH) in Little Rock. Three days after Hewitt's parents received the phone call, Tanaka performed a five-hour craniotomy, successfully removing the tumor.

After the surgery, tumor tissue samples were sent to the lab to identify the specific type of cancer. Officially, Hewitt's tumor was a "high-grade neuroepithelial tumor with a BCOR alteration." This classification was helpful information for his oncologist and the care team trying to prevent cancer from returning. For his parents, those technical terms translated into three critical facts. The cancer was rare, malignant and fast-growing.

● ○ ○ Chemotherapy

When Hewitt's parents received that first call about the tumor, they feared the care their son needed would require them to move the entire family to a different city or state. One of the biggest comforts came when they realized Arkansas Children's Northwest (ACNW) in Springdale would provide Hewitt's chemotherapy treatment, only a 10-minute drive from the Sluyter's house. Hewitt's father said it was a relief to be near home but an even bigger relief that ACNW and ACH are part of the Arkansas Children's statewide health network. He said the "culture of excellence" evident in Arkansas Children's facilities gave them peace of mind,

especially as they made tough decisions about Hewitt's care.

Hewitt's surgery removed the large tumor, and a combination of proton therapy and chemotherapy was needed to eliminate all the tiny cells that might allow cancer to return. Robert Saylor, M.D., chief of the medical staff and the medical director of the Hematology/Oncology program and the Infusion Center at ACNW and a professor of pediatrics in the Division of Pediatric Hematology/Oncology at UAMS led Hewitt's aggressive chemotherapy.

● ○ ○ Ringing the Bell and NED

On Monday, March 13, 2023, Hewitt received his final round of chemotherapy. When we asked what he looked forward to the most, Hewitt said, "I'll get to go back to school and see all my friends again." Three months after the bell-ringing celebration, Hewitt still showed No Evidence of Disease (NED). As Christen reflected on the journey, she said she remains grateful for the feeling of community Hewitt's care team provided. She learned, "We don't have to do hard things alone. That is what Arkansas Children's has been for us – a surrounding of joy and hope."

● ○ ○ Proton Beam Therapy

Proton beam therapy – considered the safest radiation treatment for pediatric patients because it does less damage to surrounding tissue – wasn't available in Arkansas at the time. Families like Hewitt's are the reason Arkansas Children's partnered with UAMS, Baptist Health and Proton International to bring a proton center to Little Rock in 2023.

BY THE NUMBERS

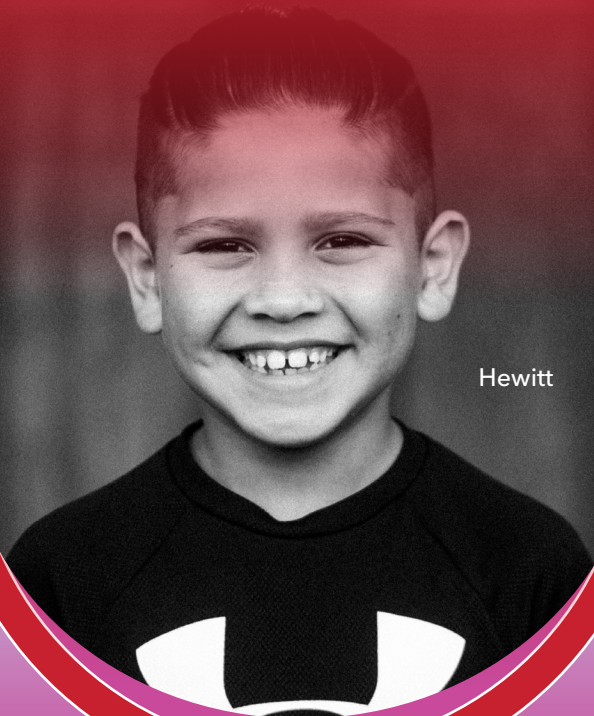
Arkansas Children's Cancer & Blood Disorders team sees an average of **11,000** appointments yearly.

Provides cancer or blood disorders care to more than **250** patients at any given time.

Performed **7** Chimeric Antigen Receptor (CAR) T-cell infusions

Performed **8** autologous and **8** allogeneic stem cell transplants, including with mismatched donors

CANCER AND BLOOD DISORDERS



Hewitt

CLINICAL TRIALS

Arkansas Children's Cancer & Blood Disorders division participates in nationwide clinical trials to bring the latest, most advanced therapies to our patients. Currently involved in trials regarding:

NEUROBLASTOMA • DIPG • RELAPSED AML

Awards and Achievements



FACT-accredited autologous and stem cell collection

Modern therapies, CAR-T and photopheresis

DA-approved gene therapy

Children's Oncology Group (COG) member

Early phase clinical trials through POETIC, Beat Childhood Cancer and industry partnerships

Certified Chimeric Antigen Receptor (CAR) T-Cell Therapy Center

The THRIVE Clinic, a survivorship program, offers a multidisciplinary support team to coordinate visits and decrease disruption of newfound normalcy for up to 10 years post-treatment.

Becker's list of 100 hospitals and health systems with great oncology programs | 2023





Mackenzie

Hematology & Oncology Service Chief



David Becton, M.D.

CLINICAL LEADERSHIP

Lauren Appell, M.D.

David Becton, M.D.

Kevin Bielowicz, M.D.

Tucker Blackledge, M.D.

Divyaswathi Citla Sridhar, M.D.

Shelley Crary, M.D.

David Douglass, M.D.

Jason Farrar, M.D.

Medhavi Honhar, M.D.

Joana Mack, M.D.

Arun Modi, M.D.

Carolyn Suzanne Saccente, M.D.

Paige Strebeck, M.D.

Andrew Tran, M.D.

David Wilson, M.D.



I practice here because I know my patients will get the best care possible, with tremendous support from our entire team, with compassion, expertise and an emphasis on safety.

— **David Becton, M.D.**

Pediatric hematologist/oncologist, Arkansas Children's Hospital
Chief of pediatric hematology and oncology
Lawrence H. Schmieding Chair in pediatric hematology-oncology
Professor of pediatrics, University of Arkansas for Medical Sciences



CARDIOLOGY AND HEART SURGERY

Making History with Pediatric VAD Patient

Arkansas Children's Heart Institute is the only program in the state dedicated to pediatric cardiology. Our cardiology team was recognized again for expert care as one of seven specialties from Arkansas Children's ranked in the 2023-2024 U.S. News and World Report Best Children's Hospitals. Our 24/7 state-of-the-art facility, with seven in-house pediatric cardiac intensivists, diagnoses and treats congenital heart diseases and conditions in infants, children, adolescents and young adults.



Arkansas Children's Heart Institute Sends First Pediatric Patient in the State Home on a VAD

MacKenzie Maddy, 16, is the first pediatric patient in Arkansas to go home on a ventricular assist device (VAD), specifically a HeartMate 3™ LVAD, thanks to the expertise of the cardiology team at Arkansas Children's Heart Institute. The institute has placed more than 65 pediatric VADs, including traditional pneumatic-driven pumps like the Berlin Heart EXCOR®, centrifugal pumps such as the HeartMate 3™ and the total artificial heart system SynCardia. The Institute's team has also successfully placed percutaneous VADs for single-ventricular and bi-ventricular support.

While sending a patient home rather than keeping them in the hospital on a VAD is occurring more often in the pediatric population, it is not a universally available practice. Successful outcomes rely on a stellar medical team to provide proper training and monitoring while patient safety is at the forefront.

Osteosarcoma & Orthopedics

MacKenzie's story began in 2020 when she was diagnosed with osteosarcoma. She received 21 cycles of chemotherapy treatment under the care of David Douglass, M.D., a pediatric oncologist at ACH and assistant professor at UAMS.

Though chemotherapy killed most of the cancer, in April 2021, MacKenzie had part of her femur removed and replaced with a cadaver bone by Corey Montgomery, M.D., an orthopedic oncologist at ACH and associate professor of orthopedics at UAMS. He is the only orthopedic oncologist in Arkansas and the only surgeon in the state to perform this type of surgery.

"Success depends on having a good medical team that can provide care for her as well as the outreach of the community," said Ken Knecht, M.D., a pediatric cardiologist and medical director of the heart transplant and advanced heart failure program at Arkansas Children's Hospital in Little Rock (ACH) and a professor of pediatrics at the University of Arkansas for Medical Sciences (UAMS). "Success also relies upon the patient and family because they are heavily involved in education, as well as having to deal with the complexity of this. I will say that a lot of similar programs require you to stay within the local area. I think it's huge for us to be able to actually get her home."

MacKenzie's case was a multidisciplinary partnership among cancer, orthopedics and cardiology.

MacKenzie's family opted for the cadaver bone to preserve her joint and flexibility rather than a metal or plastic prosthesis. In 2021, she completed chemotherapy treatments at Arkansas Children's Northwest (ACNW), closer to her hometown of Bella Vista.



BY THE NUMBERS

Number of cardiac surgeries performed: **263**

Total transplants since program inception in 1990 (through Dec. 31, 2022): **382**

Piccolo implants as of the end of FY23: **65**, including **16** on oscillating ventilation, presented at an international meeting "Congenital and Structural Interventions" in Frankfurt, Germany, June 28–July 1

Number of cases treated in cardiac catheterization lab (cath lab): **646**

Valve implants in the cath lab: **25**

2 rooms, including 1 state-of-the-art hybrid cardiac cath lab, resulting in less time under anesthesia and faster recovery

Participating in 3 separate clinical trials through cath lab work: **Alterra PAS**, **PIVOTAL**, **PEACE** and **COMPASSION S3**

Maintained an average of **91st** percentile patient experience in CVICU

Going Home on a VAD

As a result of rare chemo side effects, MacKenzie became a heart patient at ACH. She was admitted to ACH's CVICU for a couple of weeks in October 2022, where she was diagnosed with dilated cardiomyopathy and end-stage heart failure.

MacKenzie's LVAD was surgically implanted in November 2022 by Brian Reemtsen, M.D., director of the Arkansas Children's Heart Institute, chief of cardiovascular surgery at ACH and professor of surgery at UAMS, and Lawrence Greiten, M.D., an ACH pediatric cardiothoracic surgeon and assistant professor of surgery at UAMS.

She went home in February 2023, a six-hour round trip from Arkansas Children's Heart Institute. She will have LVAD until she receives a new heart.

Knecht said the team weighed several factors when choosing for MacKenzie to go home on an LVAD, including her age, size and overall mental

well-being. The VAD team trained her family and area medical staff should an emergency arise. The training included in-person education to understand the meaning of the various alarms on her LVAD, how to stabilize her and how to immediately get in touch with her ACH VAD team, which consists of five to 12 people. The team even connected with medical personnel in Kansas City so MacKenzie could safely travel to watch her brother play soccer.

"It's great for her because she does better at home. She does better mentally at home. She's allowed to do her physical therapy, see her pets and her family," Knecht said. "It shows that here within Arkansas, we can work with community providers to take care of these complex patients even at a distance without them having to be specifically here at Arkansas Children's Hospital in central Arkansas."



Locke



Reese



Dr. Anguaco
in the cath lab

CARDIOLOGY AND HEART SURGERY



Addie Grace

Awards and Achievements



Transition from
Heart Center to
Heart Institute
in 2021



Placed first
Impella 5.5 VAD
in hybrid cath lab



PHTS Vanguard Center Award for
outstanding contributions to the Pediatric
Heart Transplant Society Registry



Surgical outcomes
and length of stays
that continue to
best our peers

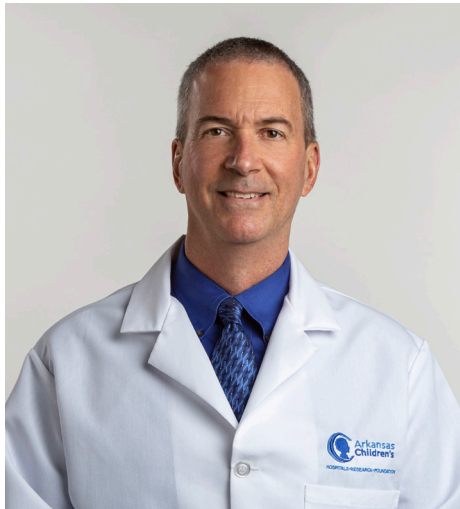


Redesignated Beacon Award
for Excellence from the
American Association of Critical
Care Nurses for distinguished
patient care in Cardiovascular
Intensive Care Units



Launched
Project ADAM

Cardiology Service Chief



Paul Seib, M.D.



Arkansas Children's Hospital is unique in our staff's care, love and hope. I have practiced cutting-edge care for 30 years at ACH, and I'm proud that children across the region can receive world-class care close to home, from prenatal identification of heart disease to surgical care at birth and continued care through adolescence and adult life. We are performing impactful research and training the next generation of pediatric cardiologists who will practice throughout Arkansas and the region for generations to come.

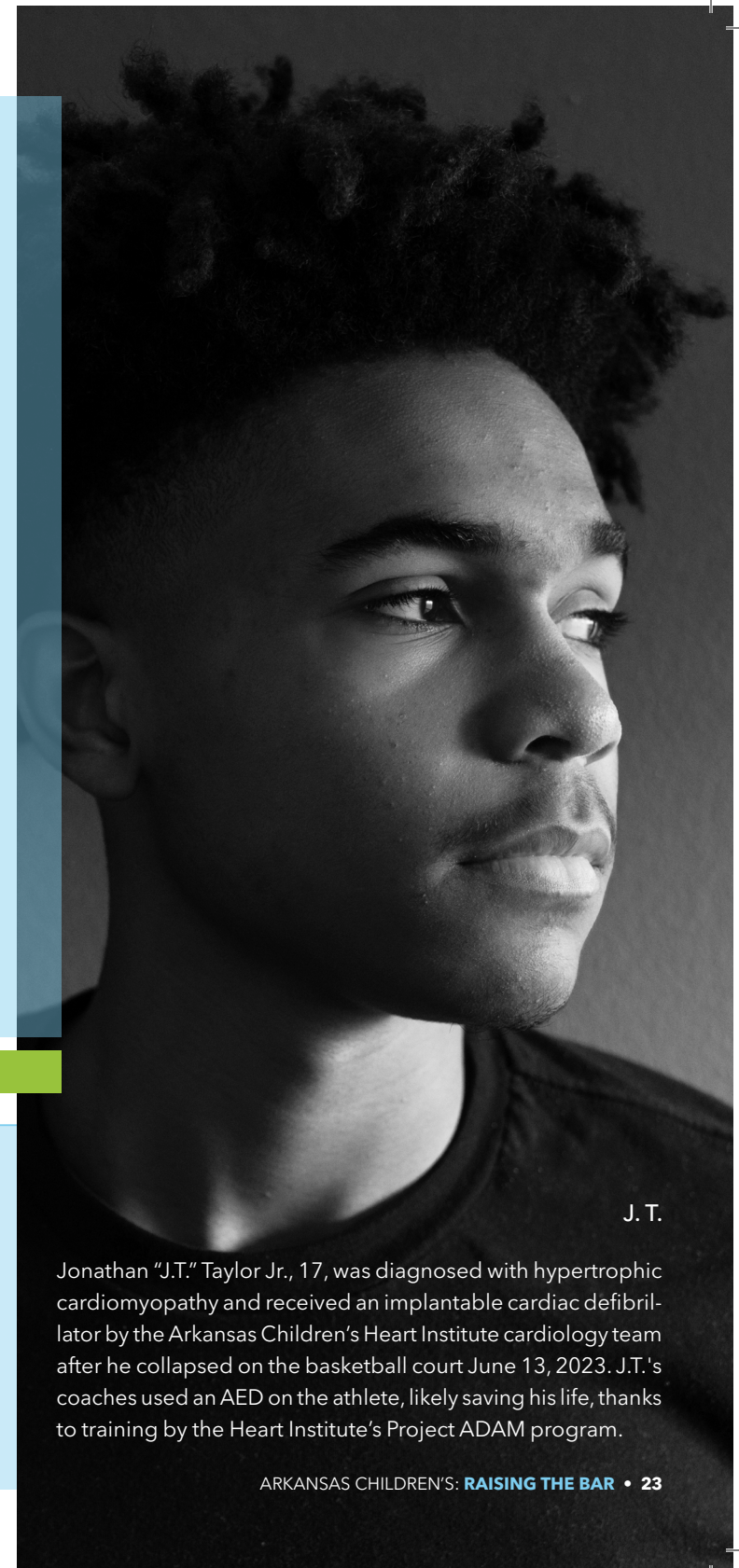
— **Paul Seib, M.D.**

Pediatric cardiologist, Arkansas Children's Hospital
Chief of pediatric cardiology
David and Stephanie Clark Endowed Chair in pediatric cardiology
Professor of pediatrics, University of Arkansas for Medical Sciences



CLINICAL LEADERSHIP

Sylvia Angtuaco, M.D.	Lawrence Greiten, M.D.
Michael Angtuaco, M.D.	Jorge Guerrero, M.D.
Lindsay Arthur, M.D.	Kevin Hinkle, M.D.
Thomas Best, M.D.	Benjamin Ittleman, M.D.
Rupal Bhakta, M.D.	Krittika Joshi, M.D.
Tanmay Bhamare, M.D.	Kenneth Knecht, M.D.
Elijah Bolin, M.D.	Sam Lee, M.D.
Renee Bornemeier, M.D.	Michael Luna, M.D.
Destiny Chau, M.D.	Shae Merves, M.D.
Harrison Cobb, M.D.	Michele Moss, M.D.
Tyler Cunningham, M.D.	Jeffrey Orcutt, M.D.
Joshua Daily, M.D.	Parthak Proadhan, M.D.
Stephen Dalby, M.D.	Amna Qasim, M.D.
Amy Dossey, M.D.	Konrad Rajab, M.D.
Brian Eble, M.D.	Brian Reemtsen, M.D.
Daniel Fiedorek, M.D.	Markus Renno, M.D.
Eudice Fontenot, M.D.	Michael Schmitz, M.D.
Elizabeth Frazier, M.D.	Paul Seib, M.D.
Xiomara Garcia, M.D.	Bryan Watkins, M.D.
Scott Gatlin, M.D.	Dala Zakaria, M.D.



J. T.

Jonathan "J.T." Taylor Jr., 17, was diagnosed with hypertrophic cardiomyopathy and received an implantable cardiac defibrillator by the Arkansas Children's Heart Institute cardiology team after he collapsed on the basketball court June 13, 2023. J.T.'s coaches used an AED on the athlete, likely saving his life, thanks to training by the Heart Institute's Project ADAM program.

CLEFT

Decades of Perfecting, Leading the Way in Cleft Care

The otolaryngology and pediatric plastic surgery specialists at Arkansas Children's are skilled in the surgical management of congenital or acquired conditions of the head and neck area for children of any age. The members of the cleft team care for all cleft-related issues, including speech and hearing problems, and breathing issues, collaborating with surgical and therapeutic teams to provide the highest standard of care possible.



Innovative, Multidisciplinary Cleft Care

About one in 700 children is born with a cleft palate. Our multidisciplinary cleft team includes 12 different specialties to provide patients with a comprehensive, individualized treatment plan.

Contributing specialties include:

- Otolaryngology (ENT)
- Craniofacial Plastic Surgery
- Speech
- Orthodontics
- Audiology
- Nutrition
- Pediatric Dentistry
- Prosthodontics
- Periodontics
- Psychology
- Social Work
- Genetics

Advanced Presurgical Cleft Lip Treatment Option and State-Of-The-Art Comprehensive Care

Nasoalveolar molding (NAM) – a research-supported technique for improving surgical outcomes – is available through the orthodontic/dental clinic and coordinated through the Plastics and ENT teams at Arkansas Children's. The retainer-like device can significantly narrow the width of the cleft lip and the gap in the gums and improve the nasal shape prior to surgery.

Using the NAM technique frequently reduces the total number of surgeries in a patient's treatment plan while improving surgical outcomes.

Our cleft surgeons and team actively research and develop techniques for reducing pain at bone harvest sites. Increasingly we use bone allografts rather than hip bone grafts for cleft gumline (alveolus) repair, in some cases placing bone at the time of the original palate surgery.



How the Cleft Team Collaborates in Riley's Multidisciplinary Care for Chromosome Seven Genetic Anomaly

When Riley Foster was born prematurely at 8 ½ months on March 20, 2020, so much was unknown: How would his genetic deletion and duplication impact his health and survival? How long would he be in the Arkansas Children's Neonatal Intensive Care Unit? How would the COVID-19 pandemic impact the family's lives?

Having a multidisciplinary team at Arkansas Children's Hospital in Little Rock walking alongside Riley and his family turned a stressful start to Riley's life into one of triumph.

Riley has a chromosome seven genetic anomaly, causing a variety of abnormalities and developmental conditions. He sees ACH medical experts in cleft, cardiology, ENT, general surgery for his G-tube, genetics, complex care, dental, vision and others. His most significant surgeries were heart and cleft palate repairs. Of all his care team members these days, Riley most frequently sees Adam Johnson, M.D., a pediatric otolaryngologist at Arkansas Children's Hospital (ACH) and associate professor of otolaryngology at the University of Arkansas for Medical Sciences.

"Riley's condition requires an extreme amount of multidisciplinary care. The way we do that is we coordinate not only with cleft, lip and palate, but we also have to coordinate with his heart surgeries, as well as the speech and nutrition departments, who also see him on a regular basis." Johnson said.

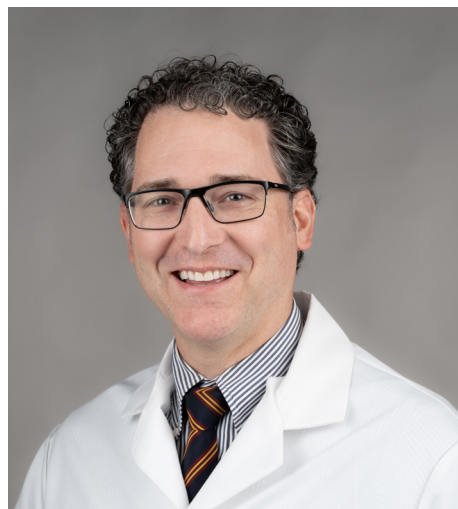
Johnson performed Riley's cleft palate repair in April 2021 and, in October 2022, widened his nose and repaired his stenosis. Beyond the medical care, Riley's care team has connected the family with other resources at ACH, such as financial counseling and social work as well as additional community resources. For example, when the ACH ophthalmology team diagnosed Riley with cortical visual impairment (CVI), they connected the family to an Arkansas School for the Blind and Visually Impaired program with CVI experts to offer support.

Today, Riley is thriving. Johnson said it's a testament to his family and ACH's medical collaboration. ■



Riley

Cleft Lip and Palate Director



Larry Hartzell, M.D., FAAP

CLINICAL LEADERSHIP

Larry Hartzell, M.D.

Adam Johnson, M.D., Ph.D.

Sagar Mehta, M.D.

Alexis Tashima, M.D.



I practice at Arkansas Children's because I love this hospital and the patients we take care of. I've been here for almost 20 years and am so impressed by everyone's focus on providing the best care possible for each and every patient. I am especially drawn to patients born with cleft lip and palate who we can help from their first day of life and get them to where they are doing everything that they want to do. We have a robust and comprehensive team focused on caring for all aspects of their care and I thoroughly enjoy the collaboration and mutual efforts to do what is best for every patient.

— Larry Hartzell, M.D., FAAP

Pediatric otolaryngologist, Arkansas Children's Hospital

Director of cleft lip and palate program

Benjamin and Milton Waner, M.D. Endowed Chair in pediatric facial plastic and reconstructive surgery

Associate professor of otolaryngology, University of Arkansas for Medical Sciences



CRANIOFACIAL

Innovative Procedures and Excellent Outcomes in Craniofacial Care

The craniofacial and pediatric plastic surgery team at Arkansas Children's specializes in comprehensive craniomaxillofacial care for patients with conditions ranging from congenital birth defects to traumatic injuries.

Our pediatric specialists are experts at treating patients with complex facial conditions including craniosynostosis, cleft lip and palate, hemifacial microsomia, Treacher Collins syndrome, microtia and complex jaw deformities. They are experts in surgical corrections of jaws to allow patients to eat, speak and sleep better. The Arkansas Children's team is adept at using microsurgery techniques to reconstruct parts of the body impacted by congenital anomalies, including facial nerve palsy, cleft lip and palate and hemifacial microsomia. Beyond surgical management of the head and neck, the plastic surgery service also assists in complex soft tissue reconstruction in patients with spina bifida, complex spine surgery, pediatric wounds and burns.

Leading Innovations in Craniosynostosis Treatments

For craniosynostosis patients diagnosed with the condition by four months of age, the Arkansas Children's Hospital team in Little Rock has pioneered a new surgical technique, the modified fronto-orbital advancement, performed endoscopically for metopic suture synostosis. The technique has shown consistent and positive long-term patient outcomes.

"Not only do we make cuts to remove the diseased suture where the bone is fused together prematurely, but we also make cuts at the cranial base to expand out the skull bone to the appropriate size and shape. Over the course of the first 15 procedures, we found the results associated with cutting into the cranial base at the time of the metopic suture to be really quite impressive," said Sagar Mehta, M.D., a plastic surgeon and director of the craniofacial team at Arkansas Children's Hospital and assistant professor of surgery in the division of plastic and reconstructive surgery at UAMS.

Along with novel treatment methodologies, traditional procedures such as the endoscopic strip craniectomy and cranial vault reconstruction for older patients are still offered.

Ace's Experience with Craniosynostosis

The Riveras adopted their son, Ace, in 2021 when he was 13 months old. Ace was born prematurely and, at a little over a year old, hadn't met several developmental milestones. Experienced foster parents, the Riveras had multiple adopted children, so some of the developmental delays and issues Ace was experiencing were familiar to them. Night terrors, or periods of crying and screaming in the night, are more common among adopted children,

according to a study published by the National Institute of Health. These plagued Ace frequently. Also, Ace's vocabulary and speech lagged behind his peers. And he had frequent head-banging episodes.

Ace also had physical issues, which included a jaw problem and a pronounced ridge on his skull. He came to Arkansas Children's for genetic screening and physical examinations. One of his appointments was with Dr. Mehta

Based on the unusual shape of Ace's skull and the issues Rivera described, Mehta and the experienced team at ACH immediately suspected craniosynostosis. A few measurements of his head confirmed the diagnosis as metopic craniosynostosis. A CT scan showed in more detail where Ace was experiencing pressure on his brain. Waking up crying multiple times a night was Ace's way of describing his pain.

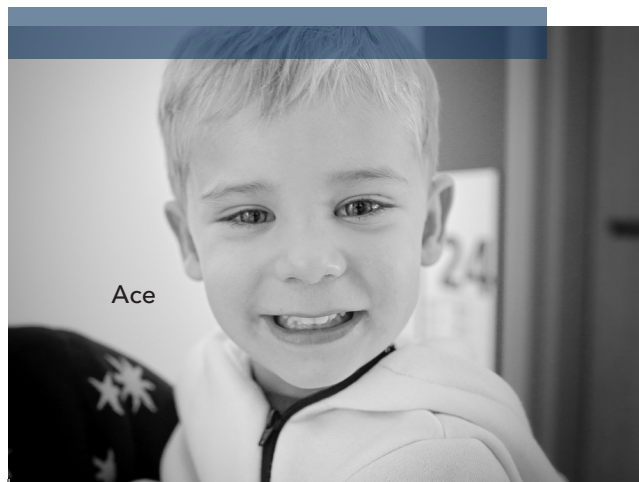
"It's hard for a kid less than two or three years of age, with a limited vocabulary and inability to understand what's happening with his body to say, 'Mom, there's pressure on my head.' They're not going to complain of headaches," Mehta said. "Kids may wake up crying, screaming and be angry and irritable. Things like bottles may not console them because what they're having is a pretty significant headache."

Craniosynostosis occurs in about one in every 2,500 children born in the United States, according to the Centers for Disease Control and Prevention (CDC). Some cases are mild and can be corrected non-surgically. Some require surgery to relieve pressure on the brain – pressure that can lead to eye problems, seizures or brain damage.

Craniosynostosis looks different in every child, but there are five general types, depending on which of the skull plates has fused. Ace's type – metopic synostosis – is one of the rarest. Fortunately, the Arkansas Children's craniofacial team is one of the most experienced in the country with this defect.

The treatments for craniosynostosis vary based on the child's age and which of the skull plates have fused. In some children who are diagnosed early – less than a few months of age – a minimally-invasive endoscopic strip craniectomy can often reshape the skull and give the brain room to grow. However, Ace's 2-year-old skull had already hardened too much for the endoscopic approach. Based on the amount of pressure on Ace's brain, Mehta and the craniofacial team recommended an open cranial vault reconstruction procedure.

Typically, the intricate surgery takes many hours and can involve blood transfusions and staying in a hospital's intensive care unit (ICU) for multiple days during recovery. The expert pediatric craniofacial specialists at Arkansas Children's have mastered techniques for increasing safe outcomes and expediting recovery. Ace's surgery took more than nine hours, but safeguards allowed him to recover quickly and without complication. Most exciting of all, his mother noticed improvements in Ace's behavior and ability to communicate within just a few weeks after the surgery.



Craniofacial Director



Sagar Mehta, M.D.



We are on the leading edge when it comes to taking care of our maxillofacial patients, providing unique, individualized solutions for complex problems.

— Sagar Mehta, M.D.

Plastic surgeon, Arkansas Children's Hospital
Chief of plastic and reconstructive surgery
Craniofacial team director
Assistant professor of surgery, University of Arkansas for Medical Sciences



CLINICAL LEADERSHIP

Sagar Mehta, M.D.

Alexis Tashima, M.D.

BY THE NUMBERS

High-volume craniosynostosis surgical program, averaging **100+** craniosynostosis surgical repairs annually

Blood transfusion rates for these surgeries down to **11%** from national averages of greater than **75%**, while also lowering the number of patients who require ICU care after surgery

Awards and Achievements

ACPA Approved Cleft Team and Craniofacial Team

Received a grant to explore nonopioid pain management in pediatric patients using the long-acting numbing medication Exparel

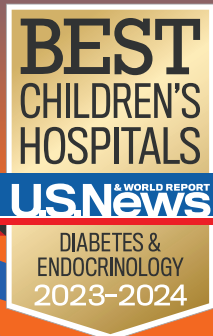
National presenters at the American Academy of Pediatrics on Head Shape and Craniosynostosis



DIABETES AND ENDOCRINOLOGY

Excellent Outcomes in Thyroid Care and Diabetes Management

At Arkansas Children's, our board-certified pediatric endocrinologists provide comprehensive care for children with endocrine disorders. Our team includes pediatric endocrinologists, advanced practice pediatric nurse practitioners, highly trained nurses and clinical diabetes educators who collaborate with other services within Arkansas Children's and primary caregivers to develop individualized treatment plans.



Early Assessment and Intervention Reduce the Risk of Hospitalization for Diabetic Patients

"Parental involvement is essential in all aspects of diabetes care but is crucial when patients are ill and dealing with ketones," said Jurhee Freese, M.D., pediatric endocrinologist at Arkansas Children's Hospital (ACH) and assistant professor of pediatrics in the division of endocrinology at the University of Arkansas for Medical Sciences. "Therefore, we teach families when to check for ketones and how to treat them."

Frequent, Accessible Diabetes Education

Understanding ketones and best practices for the care of ill children empowers parents to help their children avoid diabetic ketoacidosis (DKA) and maintain optimal well-being. At Arkansas Children's Hospital, concerted education efforts arm families with the tools necessary for successful diabetes management.

Arkansas Children's Hospital has developed and implemented pathways for continuous glucose monitoring in the inpatient setting. In-house staff education efforts ensure young patients can resume their insulin pumps as soon as DKA resolves or following admission for surgery or illness.

Our new retinal eye exam machine aids in the early identification of diabetic retinopathy and hypertension in our pediatric patients.

Multidisciplinary Thyroid Program Provides Comprehensive Care

The thyroid program at Arkansas Children's offers comprehensive diagnostics and management for the full range of thyroid conditions. The clinical team takes a multidisciplinary approach that calls

on the expertise of fellowship-trained specialists in endocrinology, pediatric surgery, nuclear medicine, pathology, radiology and oncology. We offer high-level clinical medicine paired with excellent family and patient education to children with thyroid needs.

Innovation for Pediatric Thyroid Cancer

The Thyroid Center at Arkansas Children's Hospital offers assessments to all pediatric patients with thyroid nodules and thyroid cancer. "We use state-of-the-art equipment, including thyroid ultrasound, to perform exams and biopsies," said Shipra Bansal, M.D., medical director of the thyroid nodule and cancer program at Arkansas Children's Hospital and associate professor of Pediatrics in the Division of Endocrinology at the University of Arkansas for Medical Sciences.

Arkansas Children's Hospital provides interventions based on the latest recommendations from the American Thyroid Association, including radioactive iodine use for hyperthyroidism and thyroid cancer.

"Our overall post-surgery outcomes are excellent," Bansal said. "We have developed protocols to decrease incidences of postoperative hypocalcemia commensurate with the best in the country. Almost all our patients can wean off calcium supplementation, if needed, within three to four months of close follow-up care. Due to our surgeons' expertise, we have not had any complications of vocal cord injury."

CLINICAL TRIALS AND RESEARCH

The pediatric endocrinology team at Arkansas Children's is actively involved in research to find the best treatments for diabetes and other pediatric endocrine conditions. Our doctors, nurses and other staff take part in local, national and global investigations into new and existing treatments.

BY THE NUMBERS

Thyroid Center performed **15** thyroid surgeries

99% Type I and Type II primary diabetes patients over 11 years old have had a lipid profile within the past three years

96% Type I and Type II primary diabetes care patients over 10 years of age had depression screens and were referred to mental health professionals where needed

Awards and Achievements

100% of diabetes nurses are nationally certified

50% of diabetes nurses are certified as a Diabetes Care and Education Specialist



Raelynn

DIABETES AND ENDOCRINOLOGY



Evan Grace

Endocrinology Service Chief



Jon Oden, M.D.

Arkansas Children's is working on a comprehensive Diabetes Center for children, which will encompass a global approach to all forms of diabetes, including the evaluation and treatment of children at risk of developing this terrible disease.

— **Jon Oden, M.D.**

Pediatric endocrinologist, Arkansas Children's
Chief of pediatric endocrinology
James H. Hamlen II Endowed Chair in Pediatric Endocrinology
Professor of pediatrics, University of Arkansas for Medical Sciences

CLINICAL LEADERSHIP

Shipra Bansal, M.D.

Jon Oden, M.D.

Emily Crain, M.D.

Whitney Smith, M.D.

Jurhee Freese, M.D.

Daniel Mak, M.D.

Dawson

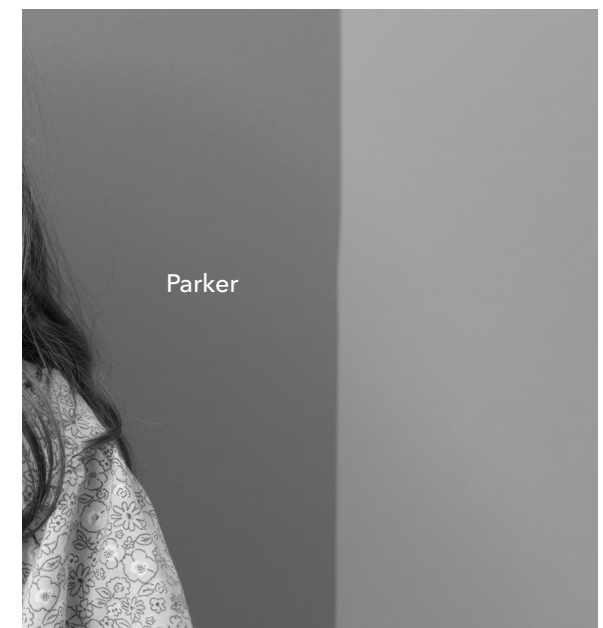
GASTROENTEROLOGY AND GI SURGERY

Regional Leaders in Gastrointestinal Care with Aerodigestive and Colorectal Multidisciplinary Clinics

Arkansas Children's gastroenterology provides consultations, a full range of pediatric services and collaborates across specialties to ensure patients receive comprehensive care. Arkansas Children's is home to the region's only Aerodigestive Clinic with specialists in ENT, gastroenterology, nutrition, pulmonary and speech therapy working together to deliver coordinated, exceptional care.

Advancing Gastrointestinal Care

- Aerodigestive Clinic - Patients experiencing oropharyngeal dysphagia – the inability to manage a body's secretions because of laryngeal dysfunction – can end up aspirating their saliva, formula or liquids they are trying to drink, eat and swallow. Sometimes they aspirate gastric contents if they have significant gastroesophageal reflux. This may cause lung disease, asthma, chronic bronchitis and lead to malnourishment. Interrelated conditions are best served with the coordinated care provided in our multidisciplinary Aerodigestive Clinic.
- Our Advanced Endoscopic Procedures include:
 - SpyGlass Cholangioscopies
 - Video capsule endoscopies
 - Electrohydraulic lithotripsies
 - Endoscopic balloon dilations
 - Gastrointestinal sphincter botulinum toxin injections
 - Push and single balloon enteroscopies



BY THE NUMBERS

Performed more than **500** endoscopic retrograde cholangiopancreatographies (ERCPs)

More than **300** patients being served in our Inflammatory Bowel Disease program

In the past 3 years, we have coordinated care with **9** transplant centers

— St. Louis Children's, UPMC-Pittsburgh, UCLA, Cincinnati Children's, Nebraska, Dallas, Miami, UAMS, Indiana University

Percent of Crohn's patients in clinical remission (reported **78.7%** vs. national average of 82.2%)

Percent of Crohn's patients in sustained remission (reported **72.6%** vs. national average of 61.37%)

Awards and Achievements

Actively increasing our involvement in research with 7 current studies in process. 3 studies pending IRB approval. 4 studies pending submission.



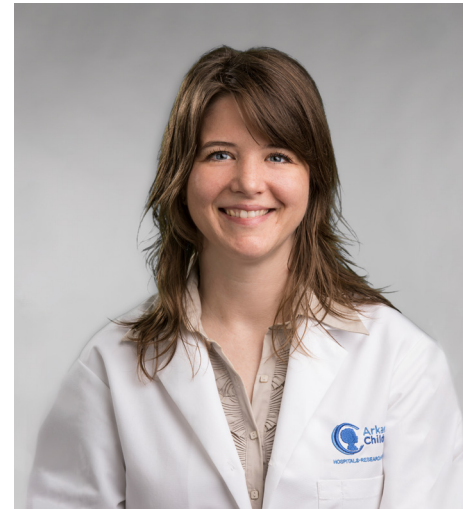
Paxton

GASTROENTEROLOGY AND GI SURGERY

Judah



Gastroenterology Service Chief



Megan W. Butler, M.D.

I take care of children with gastrointestinal and liver problems and enjoy working at ACH because I can work with a multidisciplinary team of experts to help deliver the best care possible.

— **Megan W. Butler, M.D.**

Pediatric gastroenterologist, Arkansas Children's Hospital
Interim chief of pediatric gastroenterology
Associate professor of pediatrics, University of Arkansas for Medical Sciences



Kree

CLINICAL LEADERSHIP

John Alberty, M.D.

Megan W. Butler, M.D.

Todd Maxson, M.D.

Lindsey Wolf, M.D.

Travis Ayers, M.D.

M. Sid Dassinger III, M.D.

Elaine Odiase, M.D.

Deidre Wyrick, M.D.

Sulaiman Bharwani, M.D.

Richard Jackson, M.D.

Alex Ramirez, M.D.

Jeff Burford, M.D.

David Kawatu, M.D.

Robert Vandewalle, M.D.

NEONATOLOGY

Saving Lives with Angel One

Arkansas Children's neonatology provides the highest level of care for the most vulnerable patients, from at-risk infants to critically ill neonates. As the state's only Level 4 neonatal intensive care unit (NICU), our patients receive 24/7 faculty-level neonatologist care. Our Angel One Patient Transport System has seven vehicles, including five ground ambulances and two Sikorsky S-76D helicopters. They can reach anyone in the state within 55 minutes. State-of-the-art transport isolettes are outfitted with high-frequency oscillatory ventilators, inhaled nitric oxide delivery systems and total body cooling. Extracorporeal membrane oxygenation (ECMO) is available in any mode of transportation.

Safety and Speed – Arkansas Children's Hospital Neonatal Transport

Safety and speed are hallmarks of the nationally-respected patient transport team at Arkansas Children's Hospital, known as Angel One.

"Our average connection time between the time the referring hospital calls to speaking to an ICU physician (neonatologist or critical care doctor) is less than five minutes. We try to get the [Angel One] team out of this hospital and en route as fast as possible. We average less than 30 minutes for both pediatric and neonatal patients," said, Francesca Miquel-Verges, M.D., medical director of neonatal transport at Arkansas Children's Hospital.

Providing Care in Transit

Arkansas Children's Hospital is home to the state's only Level 4 NICU, but frequently care begins before the patient reaches the facility. The Angel One team often provides intensive care immediately upon arrival at the referring hospital and while transporting a patient. The transport units are outfitted with high frequency oscillatory ventilators, inhaled nitric oxide delivery systems, therapeutic devices and can provide mobile ECMO machines. Speed and those advanced technologies are essential for critically ill neonates with conditions such as pulmonary hypertension or hypoxic-ischemic encephalopathy (HIE).

Respiratory distress is the most common condition for neonates requiring transport, but other patients that warrant high-level transport include babies with congenital anomalies, sepsis or those experiencing deterioration due to underlying conditions.

The Angel One team is often called for threatened pre-term deliveries of extremely premature babies.

"That makes us different from a lot of hospitals. Our team goes to the deliveries of a lot of premature babies or babies with congenital anomalies." Transporting the pregnant mother to a facility with a NICU happens if possible. When a mother cannot be transferred, the Angel One team assists in the birth, then provides care for the newborn and transports them to Arkansas Children's Hospital. Angel One nurses and respiratory therapists are highly trained in neonatal and pediatric resuscitation techniques. Team members participate in simulations regularly and attend deliveries at partner hospital UAMS in order to keep their skills sharp and current.

Achieving Exceptional Outcomes

The combination of trained and experienced team members and leading-edge technology results in excellent outcomes. The Angel One team participates in Ground and Air Medical Quality in Transport (GAMUT), a national quality collaborative. The team has consistently proven to be a leader in pediatric transport. Their rate of successfully intubating neonatal and pediatric patients on the first attempt exceeds the national average.

"Our team does well with a lot of quality metrics, including tracking waveform capnography for mechanically ventilated patients and checking glucoses, but also cares for the family as a whole and almost always will transport a parent with a child," Miquel-Verges said.

Arkansas Children's Hospital Angel One transport team is certified by the Commission on Accreditation of Medical Transport Systems (CAMTS), an organization dedicated to improving

ANGEL ONE

the quality of patient care and safety for the transport team. In addition, the team is involved in local as well as multicenter research trials and the medical directors are members of the American Academy of Pediatrics Section of Transport Medicine executive committee.



Awards and Achievements



Aligned patient-to-provider ratios with national benchmarks by starting a new acute care team in the NICU

Implemented a new Small Baby Protocol to enhance care for the smallest Arkansans

Commission on Accreditation of Medical Transport Systems (CAMTS) certified

Members of the Ground & Air Medical Quality in Transport (GAMUT) Collaborative

BY THE NUMBERS

104 beds

2,019 neonatal emergent transports from **7** states

Angel One travels a **200-nautical-mile radius**, bringing more than 90% of NICU babies from in-state or out-of-state, including Oklahoma, Texas, Louisiana and Missouri

Increased the number of advanced practice providers and added **6 new neonatologists** in FY23

Reduction in unplanned extubations by **63%**, a marker of quality of care in intensive care units

NICU RN vacancy rate reduced by over **30%**; increased the number of certified RNs in the NICU

7-member Nursery Alliance:

- Conway Regional Health System – Conway
- CHI St. Vincent – Hot Springs
- Jefferson Regional Medical Center – Pine Bluff
- South Arkansas Regional Hospital – El Dorado
- Unity Health – Newport
- Saint Mary's Regional Health System – Russellville
- Saline Memorial Hospital – Benton

NEONATOLOGY



Kylo

Neonatology Service Chief



Ashley Ross, M.D.

Practicing at Arkansas Children's holds a special place in my heart as a native Arkansan. From the outset of my medical career, I was determined to make a difference in my home state, particularly in caring for newborns. With its rich history of delivering exceptional care to hospitalized pediatric patients, Arkansas Children's was my natural choice. I recognized that improving newborn outcomes required more than just care within the hospital walls. What truly excites me about Arkansas Children's is its profound understanding of this fact. The institution has developed strategic plans to enhance health care outcomes within the hospital by extending care closer to home, reaching every corner of Arkansas.

— **Ashley Ross, M.D.**

Neonatologist, Arkansas Children's Hospital
Chief of neonatology
Walmart Endowed Chair in neonatology
Professor of pediatrics, University of Arkansas for Medical Sciences

CLINICAL LEADERSHIP

Jennifer Andrews, M.D.

Robert Arrington, M.D.

Indirapriya Avulakunta, M.D.

Megan Baber, D.O.

Jared Beavers, M.D.

Jessica Beavers, M.D.

Carla Brown, M.D.

Carrie Brown, M.D.

Laura Carroll, M.D.

Angela Chandler, M.D.

Vonita Chawla, M.D.

Vikas Chowdhary, M.D.

Sherry Courtney, M.D.

Caroline Crocker, D.O.

Rachel DeLong, M.D.

Nahed El-Hassan, M.D.

Maria Esquivel, M.D.

R. Whit Hall, M.D.

Jessica Jakubowicz, M.D.

Casie James, M.D.

Elizabeth Kim, M.D.

Robert Lyle, M.D.

Ashley Lynch, M.D.

Tonya Marotti, M.D.

David Matlock, M.D.

Matthew Merves, M.D.

Franscesca Miquel-Verges, M.D.

Kristin Mitchell, M.D.

Clare Nesmith, M.D.

Sara Peeples, M.D.

Sarah Perez, M.D.

Ashley Ross, M.D.

Jennifer Rumpel, M.D.

Megha Sharma, M.D.

Zackary Shearer, M.D.

Ankita Shukla, M.D.

John Stack, M.D.

Joanne Szabo, M.D.

Billy Thomas, M.D.

Tara Venable, M.D.

Misty Virmani, M.D.

Candice Walters, M.D.

Gwenevere White, M.D.

Emily Wilson, M.D.

Alexandra Woodle, M.D.

Mateo

NEPHROLOGY

Modeling What it Means to Provide Collaborative, Multidisciplinary Care

The pediatric nephrology team at Arkansas Children's proves that treating complex conditions with coordinated, collaborative care improves the patient experience and leads to excellent outcomes. Our multidisciplinary clinics allow patients to meet with multiple specialists simultaneously to discuss diagnoses and treatment plans.



Leading the Way with Collaborative, Multidisciplinary Clinics

Accurately Diagnosing Hypertension with 24-Hour Ambulatory Blood Pressure Monitoring (ABPM)

The number of patients benefitting from the 24-hour ambulatory blood pressure monitoring (ABPM) program at Arkansas Children's Hospital (ACH) has more than quadrupled since 2017. The Nephrology team is leading the way in a system-wide effort to accurately diagnose hypertension by training other departments and outside pediatric providers in accurate blood pressure measurement and knowing when to refer a patient for ABPM testing. The Arkansas Children's ABPM program has a dedicated coordinator who facilitates communication with referring physicians and patients, reducing response and wait times.

Medicines for treating high blood pressure can have long-lasting adverse side effects, especially on a child's developing body. Furthermore, blood and urine tests and the ultrasounds or echocardiograms required for patients diagnosed with hypertension can be costly. Avoiding unwarranted and potentially harmful medications and expensive procedures provides additional motivation for accurate diagnosis.

Urology + Nephrology = UroNeph Clinic

Arkansas Children's established one of the nation's only combined clinics for Urology and Nephrology (UroNeph), improving patient care for those needing both services. The UroNeph clinic treats patients with posterior urethral valves, vesicoureteral reflux, neurogenic bladder, kidney stones and rarer conditions like Hinman Syndrome, megaureter, and urogenital or cloacal anomalies.

Kidney Stone Clinic

The southeastern region of the U.S. is known as the "kidney stone belt" due to the increased prevalence of adults – and more recently, children – with kidney stones. Arkansas Children's leads regional care with a dedicated kidney stone clinic for pediatric patients. Pediatric patients are more likely to have kidney stones caused by underlying metabolic disorders or urinary tract abnormalities that require a specialized pediatric approach. Lab and urine assessments and unique surgical techniques provide exceptional patient care.

Nephrology + Rheumatology = Vasculitis Clinic

The collaborative multidisciplinary approach also benefits many patients receiving care in our nephrology and rheumatology clinics. Our Vasculitis Clinic meets the needs of children with systemic lupus erythematosus (SLE) and related conditions, including IgA vasculitis, Kawasaki disease and ANCA-associated vasculitis.

Advanced Chronic Kidney Disease Clinic

The advanced chronic kidney disease (CKD) clinic at Arkansas Children's Hospital streamlines communications between specialists and families while allowing for more comprehensive, patient-centered care. The advanced CKD clinic at Arkansas Children's Hospital offers kidney replacement therapies. Patients and their caregivers receive information on treatments such as peritoneal dialysis, hemodialysis and preemptive transplant so they can make informed decisions.



BY THE NUMBERS

Approximately **500** patients evaluated annually using 24-hour ABPM

Kidney transplant program

- **5** kidney transplants in 2022 - 40% preemptive
- **100%** kidney graft survival at 1 and 3 years
- **82.8%** of eligible patients received a kidney within one year (candidates registered between 07/01/2016-06/30/2019)
- **27.6%** of eligible patients received a kidney within 30 days (candidates registered between 07/01/2016-06/30/2019)
- **100%** of transplanted patients live with a fully functioning kidney two-and-a-half years post-surgery (07/01/2019-03/12/2020, 06/12/2020-12/31/2021)

Dialysis program

- Adequacy: **100%** for patients receiving hemodialysis and peritoneal dialysis

Vaccination rates

- **100%** pediatric vaccination rates for Hepatitis B and Pneumococcal (kidney transplant and dialysis patients)

Awards and Achievements

100% of registered nurses in the nephrology section (dialysis, kidney transplant and nephrology SPNs) have achieved national certification

Charlotte



NEPHROLOGY



Jacob

Nephrology Service Chief



Richard T. Blaszk, M.D.

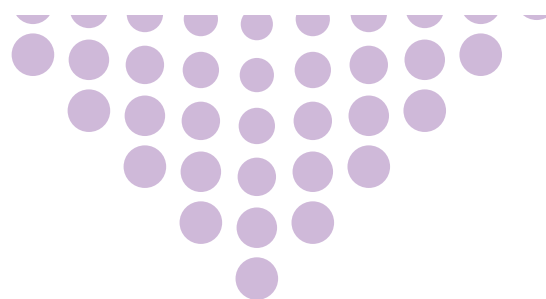


After 23 years, the reasons that I continue to practice pediatric nephrology at Arkansas Children's Hospital are obvious. The patients we serve are extraordinarily humble and grateful, the hospital has state-of-the-art equipment and facilities, there are limitless academic and research opportunities, and most importantly a workplace culture that is best described as inclusive, connected, motivating, rewarding and fun.

— **Richard T. Blaszk, M.D.**

Pediatric nephrologist, Arkansas Children's Hospital
Chief of nephrology
Professor of pediatrics, University of Arkansas for Medical Sciences





CLINICAL LEADERSHIP

Joey Alge, M.D., Ph.D.

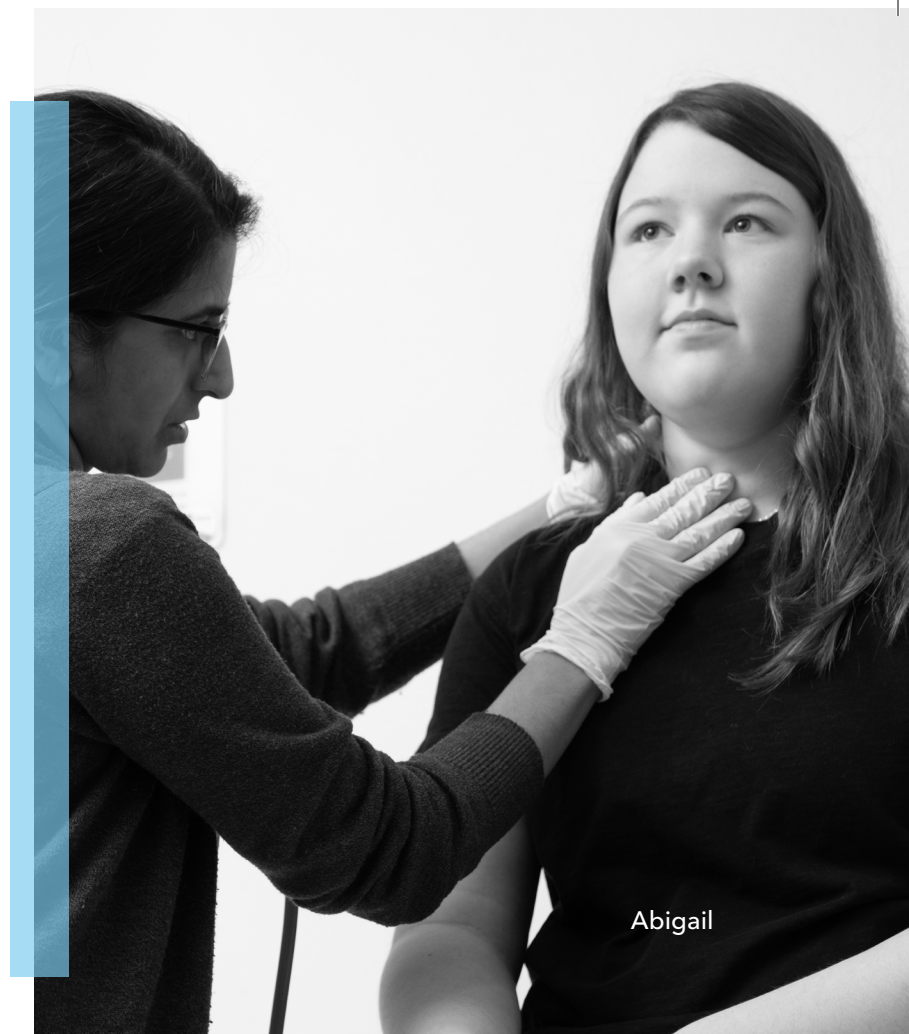
Richard T. Blaszak, M.D.

Brendan Crawford, M.D.

Mohammad Ilyas, M.D.

Rachel Millner, M.D.

Saritha Ranabothu, M.D.



Abigail



Asher

NEUROLOGY AND NEUROSURGERY

Revolutionizing Brain Surgery with Technology

Arkansas Children's neurology and neurosurgery experts are nationally renowned, providing the highest level of care utilizing leading therapies and updated approaches to disease management. Arkansas Children's Comprehensive Epilepsy Program is a Level 4 Epilepsy Center accredited by the National Association of Epilepsy Centers. Our epileptologists have the professional expertise, facilities and technology to provide unmatched medical and surgical evaluation and treatment for patients with complex epilepsy.

**BEST
CHILDREN'S
HOSPITALS**

U.S. News

NEUROLOGY &
NEUROSURGERY
2022-23

Neurosurgery Team Utilizes ROSA ONE Brain to Perform First Deep-Brain Stimulation Implant at Arkansas Children's

Since December 2021, Arkansas Children's Hospital (ACH) neurosurgeons have performed close to 30 surgeries with Robotic Operating Surgical Assistant (ROSA) ONE Brain, a surgical robot allowing for precise placement of electrodes into the brain. On January 23, 2023, the team placed the first deep-brain stimulation (DBS) implant with ROSA.

ROSA and similar technologies are being used more frequently throughout the United States and worldwide, making ACH part of an innovative trend.

ROSA is often used at ACH for stereoelectroencephalography (SEEG), to locate where seizures come from in the brain so medical experts can recommend the best surgical treatment for a patient's epilepsy. ACH neurosurgeons also use it for DBS, responsive neurostimulation (RNS) and soon for the placement of laser ablation fibers to treat epilepsy and tumors.

Gregory W. Albert, M.D., M.P.H., FAANS, FACS, FAAP, chief of pediatric neurosurgery at ACH, and professor of neurosurgery at the University of Arkansas for Medical Sciences (UAMS), used ROSA to perform the first DBS implant on a then-14-year-old patient with drug-resistant epilepsy. Viktoras Palys, a neurosurgeon from UAMS, also assisted with the operation.

"The DBS simulates a specifically targeted area of the thalamus for the treatment of seizures," Albert said. "In this case, we placed the electrodes into the anterior nucleus of

the thalamus bilaterally. Stimulating this area has been shown to have good effect for the treatment of specific types of epilepsy."

Virginia Erin Willis, M.D., chief of neurology at ACH and associate professor of pediatrics in the division of pediatric neurology at UAMS, served as the patient's epileptologist. She explained the pediatric patient was prescribed multiple anti-seizure drugs but continued to have frequent seizures.

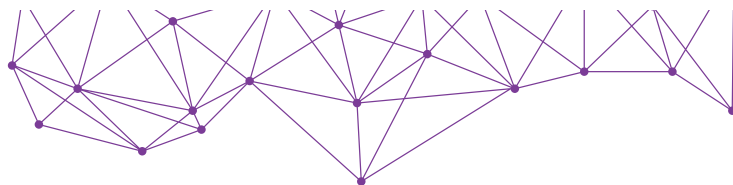
"He underwent phase one epilepsy surgery evaluation to help determine the best treatment for his epilepsy. This showed that he had an increased risk for seizures from multiple areas of his brain," Willis said. "Given this, the surgical epilepsy team felt he was not a good candidate for a resective surgery but would benefit from placement of a DBS to help improve seizure control."

The patient was in the operating room for nearly five hours, including the hour and 45 minutes to set up anesthesia, ROSA, prepping and draping. In addition to surgeons Albert and Palys, the team included neurosurgery resident Will Coggins, anesthesiologists, nurses and a scrub tech. Representatives from DBS-makers Medtronic and ROSA-makers Zimmer-Biomet were also in the OR.

Willis said the patient has already seen decreased seizures since implantation and tolerated it without side effects.

"ROSA provides an accurate, efficient and, importantly, safe way to place electrodes





into the brains of patients. This allows us to offer effective, minimally invasive and novel diagnostic and therapeutic surgeries for epilepsy," Albert said. "DBS is very effective for epilepsy and well-tolerated by patients. As technology advances, we will be able to offer these, and perhaps other surgeries, for patients with epilepsy that does not respond to medication."



Wyatt

BY THE NUMBERS

51 epilepsy surgeries CY22

737 EMU admissions for seizure management

100% of patients who had extra-temporal lobe and focal resective surgeries for epilepsy in CY21 were seizure free after one year

100% of patients who had a hemispherectomy, parietal and temporoparietal resections for epilepsy in CY22 were seizure free after one year

100% surgical survival rate at 30 days post-surgery: brain tumors, craniosynostosis, hydrocephalus patient shunt procedures, medically intractable epilepsy, spinal dysraphism and Chiari I malformation

0% of patients readmitted within 30 days following: Craniotomy, spinal surgery for dysraphism, baclofen pump insertion

170 shunts, **1.2%** surgical site infection rate

Awards and Achievements

Muscular Dystrophy Association Care Center

Clinical trial Pediatric Acute-Onset Neuropsychiatric Syndrome (PANS) and Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (PANDAS)

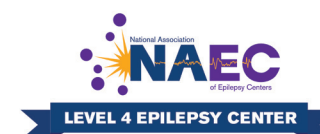
Participation in Neurofibromatosis Clinic Network (NFCN) and Tuberous Sclerosis Complex (TSC) Alliance Clinical Centers

Multidisciplinary neurocritical care program and multidisciplinary neonatal neurocritical care program

Available through telehealth

Groundbreaking gene therapy trials for Duchenne muscular dystrophy

Development of an outpatient infusion protocol for status migrainosus



NEUROLOGY AND NEUROSURGERY



Tatum

Neurology Service Chief



Virginia Erin Willis, M.D.



I practice at Arkansas Children's not only because it is home for me but because I'm surrounded by a team deeply committed to the children we serve. We all strive to ensure families feel confident in the care their child receives. Through this collaboration, I know we are providing excellent, compassionate care every day. I'm proud to have trained here and to be part of this team.

— **Virginia Erin Willis, M.D.**

Pediatric neurologist, Arkansas Children's Hospital

Chief of neurology

John H. Bornhofen, M.D. Endowed Chair in child neurology

Associate professor of pediatrics, University of Arkansas for Medical Sciences



CLINICAL LEADERSHIP

Gregory W. Albert, M.D., M.P.H., FAANS, FACS, FAAP

Kapil Arya, M.D.

Tonya Balmakund, M.D.

Sarah Cobb, M.D.

Paul Drake, M.D.

Diana Escalona-Vargas, M.Sc., Ph.D.

Tara Johnson, M.D., FAAP

Stephen Jones, M.D.

Timothy Koscik, Ph.D.

C. Paul Manbeck, M.D.

Mark McManis, Ph.D.

Eylem Ocal, M.D.

Adrianne Parkey, M.D.

Debopam Samanta, M.D.

Gregory B. Sharp, M.D.

Collin Swafford, D.O.

Tomoko Tanaka, M.D.

Aravindhan Veerapandiyan, M.D.

William D. Walters, M.D., M.P.H.

Virginia Erin Willis, M.D.



Ellie

ORTHOPEDICS

Defining and Refining Pediatric Orthopedic Care

Arkansas Children's orthopedic, spine and sports medicine team provides expert pediatric care for everything from simple sprains to complex congenital orthopedic conditions. Our specialists provide optimal care for acute orthopedic injuries, limb deformities, spine and neuromuscular issues, bone and soft tissue tumors, brachial plexus injuries and conditions involving the upper and lower extremities.



Expert, Niche-based Pediatric Orthopedic Care

Pediatric orthopedic care at Arkansas Children's has transformed over the last decade to provide niche-based care. Each pediatric orthopedic physician is fellowship trained to deliver the most specialized treatment approaches possible from pediatric sports medicine to pediatric spine surgery. With the additional growth, particularly over the past five years, pediatric orthopedic care at Arkansas Children's has expanded to several exciting specialized or multidisciplinary clinics, including:

- Prenatal consultation clinic
- Spinal congenital anomalies clinic
- Pediatric sports medicine
- Skeletal dysplasia clinic
- Skeletal and metabolic bone health clinic
- Brachial plexus clinic

From a multidisciplinary perspective, we also consult in these clinics: spasticity, neurofibromatosis, vascular anomalies, spinal cord disorders and muscular dystrophy.

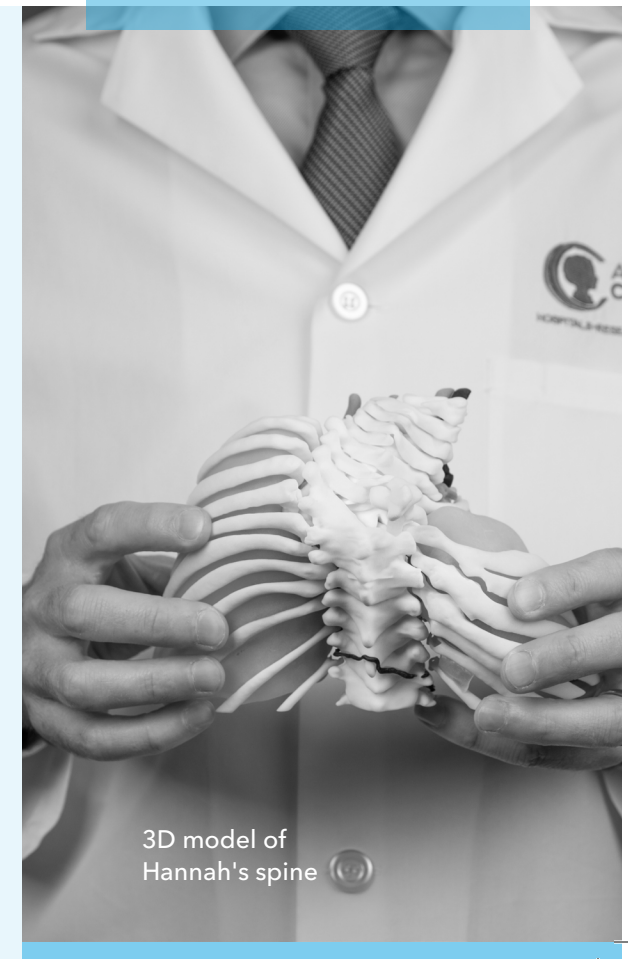
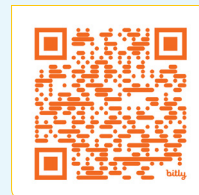
We provide EOS low-dose radiation imaging for orthopedic issues of the spine and lower extremities.



HANNAH'S STORY

Hannah, 8 years old, dances and twirls in a waiting area at Arkansas Children's Hospital in shiny pink boots. Born with severe spina bifida, Hannah's spine and spinal cord didn't develop properly. She was missing five ribs on her right side, had severe scoliosis and tilted hips. "We started seeing a lot of doctors at the hospital where she was born," her mother, Camille, said. "Nobody wanted to touch her. They were afraid that if they operated, she wouldn't make it."

WATCH HANNAH'S AMAZING STORY
by scanning the QR code



3D model of
Hannah's spine

BY THE NUMBERS

150+ patients treated with the Shilla technique, representing every type of early-onset scoliosis

20+ years of pioneering early-onset scoliosis treatments

High-volume early onset scoliosis surgical center

Awards and Achievements

97% of nurses have orthopedic-specific education

On Becker's list of 100 hospitals and health systems with great orthopedic programs | 2023

One of only 12 pediatric Cure SMA (spinal muscular atrophy) centers in the country

One of the only certified Duchenne Care Centers in the southeast



ORTHOPEDICS

Landon



Orthopedic Service Chief



Brant Sachleben, M.D.



From patients to staff, the people of Arkansas are amazing. I've lived in multiple places across the U.S. and spent a year in Canada and have not found a better group of people. They are friendly, loving, kind and genuine. This translates to patient interactions and relationships among team members. It is a pleasure to come to work and realize that I have an entire health care team dedicated to improving pediatric care that is both talented and a joy to be around. My colleagues are here to help kids and help each other. It is truly unique.

Secondarily, Arkansas Children's allows me to care for kids, regardless of their means. I can focus on medicine and healing without worrying about other issues that may take my eye off the goal. I grew up in a small town and have a heart for kids who grew up in rural areas like me. This is one of the few children's hospitals in the country that serves everyone, urban, suburban and rural alike.

— Brant Sachleben, M.D.

Sports medicine and pediatric orthopedic surgeon, Arkansas Children's Hospital
Chief of pediatric orthopedics
Walter G. Selakovich, M.D. Endowed Chair in pediatric orthopedics
Associate professor, University of Arkansas for Medical Sciences



CLINICAL LEADERSHIP

R. Dale Blasier, M.D.

John Bracey, M.D.

David Bumpass, M.D.

Ryan Dewitz, M.D.

Justin Hire, M.D.

Michael Israel, M.D.

Adrienne Koder, D.O.

Matt Landrum, M.D.

Chelsea Mathews, M.D.

Richard McCarthy, M.D.

Sean Morell, M.D.

Brien Rabenhorst, M.D.

Brant Sachleben, M.D.

Scott Schoenleber, M.D.

Mark Tait, M.D.

Theresa Wyrick, M.D.

Alexander

Alexander Enderlin was diagnosed with spinal muscular atrophy in 2016. An 80% curvature in his spine constricted his lungs and spine. Arkansas Children's orthopedic team implanted magnetic rods in 2020. A non-surgical lengthening procedure every three months has allowed him to sit up straight, swallow his food and grow.



PULMONOLOGY

Advancing At-Home Care for Families

Arkansas Children's pulmonology provides award-winning, accredited care to infants and children with complete diagnosis and treatment of acute and chronic lung disease. Our expert care was one of seven specialties from Arkansas Children's ranked in the 2023-2024 U.S. News and World Report. Whether pediatric patients live in Arkansas, regionally or nationally, or if they suffer from common, complex or rare conditions, our recognitions and innovations speak to our high-level care.

**BEST
CHILDREN'S
HOSPITALS**

U.S. News

**PULMONOLOGY
2023-2024**

Advanced Home Ventilator Program Revolutionized with Telehealth

Children on chronic home ventilation face an increased risk of hospitalization, and their families often experience high stress levels.

Arkansas Children's advanced home ventilator program incorporates telehealth and multidisciplinary care to provide education, respiratory assessments and coordinated care to patients at the hospital and home.

The program has three pillars for success: establishing optimal respiratory status at discharge, extensive family education and telehealth.

Interdisciplinary Care

The advanced home ventilator expert team at Arkansas Children's Hospital (ACH) manages the care of children who need various types of respiratory support at home, such as ventilators, bi-level, CPAP, airway clearance devices and/or have a tracheostomy. The team includes:

- Physicians: pulmonology, neonatology, critical care and otolaryngology
- Nurses: pulmonary specialty nurses and advanced practice nurses
- Respiratory therapists
- Social workers
- Dietitians
- Child life specialist
- Psychologists
- Palliative care team
- Other therapists (physical, speech and occupational)

Some common diagnoses of patients benefiting from the advanced home ventilator program include:

- Bronchopulmonary dysplasia
- Cerebral palsy
- Congenital central hypoventilation syndrome
- Neuromuscular disorders
- Muscular dystrophy
- Spinal muscular atrophy
- Diaphragmatic weakness or paralysis
- Spina bifida
- Spinal cord injury
- Traumatic brain injury
- Bronchiectasis (non-cystic fibrosis)
- Interstitial lung disease

Using Telehealth

The program can assess patients remotely, reducing emergency room visits and weaning children off ventilators quicker.

First, providers establish the patient's optimal respiratory status at discharge to ensure patients are safe to discharge on the medical equipment. Establishing this status is critical because patients are essentially taking the ICU home.

Extensive family education is the second step, so they can safely care for a child at home. Telehealth plays a crucial role in the final step toward positive outcomes.

Medical experts assess patients at home to determine if a problem can be solved virtually or if they need to come to the emergency department. Data from the ventilators also helps experts determine how patients are doing.

At ACH, this remote program has reduced the



number of ED visits and lifetime ventilator use. Of the 12 patients initially enrolled, eight have been weaned off ventilators within 12-16 months of initial hospital discharge.

Helping Children Breathe Easy

Clinical-translational research is vital to advanced home ventilator programs. Our clinicians collaborate in local and multi-center studies to examine the disease mechanisms that result in chronic respiratory failure and identify novel therapies.

ACH measures outcomes and regularly reevaluates and enhances the program by participating in multiple quality improvement projects, including high-fidelity simulation exercises in caregiver training, remote home oxygen monitoring and decreasing the duration of narcotic/sedative use in children. A collaborative leader in pediatric pulmonology care, the advanced home ventilator program extends this leadership through participation in the national bronchopulmonary dysplasia collaborative. The team measures readmissions, emergency department visits and decreased ventilator use to keep track of decannulations and preventable death.



BY THE NUMBERS

Increased sleep lab capacity utilization to **90%**

96.9th percentile nationwide for screening for Cystic Fibrosis-related diabetes

74.4th percentile at performing bone densitometry in patients with cystic fibrosis

63.3% of patients with Cystic Fibrosis with 4 visits, 4 cultures, 2 PFTs

Accredited **30-plus years** by the Cystic Fibrosis Foundation

Awards and Achievements

Respiratory therapy received its third APEX Recognition Award from the American Association for Respiratory Care, distinguishing it as the sole program in Arkansas and one of only five children's hospital programs nationwide to achieve this recognition.

Accredited Primary Ciliary Dyskinesia (PCD) center

Pediatrics Sleep Center, accredited by the American Academy of Sleep Medicine (AASM)

Ranked top quartile by National Cystic Fibrosis Foundation Patient Registry Report: Pediatric programs, Cystic Fibrosis-related diabetes, bone density screenings

Specialized care for asthma, bronchopulmonary dysplasia (BPD) and pulmonary complications of Sickle Cell, neurological and neuromuscular disorders

PULMONOLOGY



Kynleigh

Pulmonology Service Chief



John L. Carroll, M.D.



Arkansas Children's Hospital provides the children of Arkansas and their families with expert medical care and cutting-edge research. It's been a joy to work at ACH for the last 23 years and an honor to participate in the care of children who deserve the absolute best medicine has to offer. State-of-the-art facilities, a consistent institutional commitment to the best quality care and incredible medical colleagues make ACH a wonderful place to work.

— **John L. Carroll, M.D.**

Pediatric pulmonologist, Arkansas Children's Hospital
Chief of pulmonology and sleep medicine
James H. Hamlen II Endowed Chair in pediatric pulmonology
Professor of pediatrics, University of Arkansas for Medical Sciences





Christopher

CLINICAL LEADERSHIP

Amit Agarwal, M.D.

Erhan Ararat, M.D.

Samah Awad, M.D.

Ariel Berlinski, M.D.

John Carroll, M.D.

Zena Ghazala, M.D.

Kristel Holmblad, M.D.

Supriya Jambhekar, M.D.

Astryd Menendez, M.D.

Praveen Nandamuru, M.D.

Matthew Pertzborn, M.D.

UROLOGY

Advanced Technology and a Highly Skilled Team Yields Excellent Outcomes for Urology Patients

Arkansas Children's Urology has a long-standing history of caring for children who need improvements in their bladder, kidney and urinary tract. Our program started more than 40 years ago and has grown to include surgeons, advanced practice registered nurses, multiple specialty and clinic nurses. Children from across the state and region depend on the care of the urology services at Arkansas Children's. Whether they need a complex birth defect repaired, assistance with prolonged bed-wetting or help to resolve kidney stones, children receive individualized treatment plans and care.



Educating Caregivers to Promote Peace of Mind Following Urologic Surgeries

Our board-certified, fellowship-trained urologists understand that urologic disorders can be challenging both physically and emotionally. We offer comprehensive support that begins at the first evaluation and continues beyond recovery. Our urologists offer families expertise in noninvasive testing and minimally invasive surgery. They also have special training in a wide range of disorders including hypospadias, dysfunctional voiding and ambiguous genitalia. Arkansas Children's Urology treats large volumes of issues that are mostly seen in the pediatric population – hypospadias, circumcisions, undescended testicles and bedwetting among them. Ongoing research means our pediatric urologists are at the forefront of developments that will give each child the best chances for better urologic function.

Collaboration between pediatric urologists and pediatric nephrologists during evaluation for kidney stone disease is a hallmark of kidney stone care at Arkansas Children's. Patients with nephrolithiasis see physicians from both specialties during a monthly Urology Nephrology (UroNeph) Clinic visit.

Postoperative Education

For families, understanding what the normal post-circumcision or distal hypospadias repair healing process looks like can reduce stress and unnecessary emergency department (ED) visits following these surgeries. Arkansas Children's created postsurgical atlases for these delicate operations to ensure families receive the education they need to move forward with greater confidence and peace of mind.

The post-circumcision atlas – available in print and through our online patient portal – features images

and explanations of normal skin changes that occur at different stages of the healing process. The atlas will also include information about abnormal findings and when to notify the pediatric urologist.

Helping Ease the Burden of Healing Following Hypospadias Repair

At Arkansas Children's Hospital, pediatric urologists perform over 100 hypospadias repair surgeries annually using the most up-to-date, evidence-based techniques. These complex operations often prompt a variety of concerns in families surrounding children's cosmesis, self-esteem, future sexual performance and voiding ability, according to Ashay Patel, D.O., chief of pediatric urology at Arkansas Children's Hospital and associate professor in the Department of Urology at University of Arkansas for Medical Sciences. In addition, parents or guardians must play an active, sometimes stressful role in the healing process.

"In the immediate postoperative period, the burden on families is high because the patients have a catheter that their parents have to take care of, as well as monitor urine output and prevent dislodgement of the catheter at home," Patel said. "In addition, many patients have a wound dressing that parents have to remove at home a couple of days after surgery. Finally, parents have to manage patients' pain at home, which may be higher due to the presence of a catheter. Parents often worry whether the surgical site is healing well and if the changes they're noticing are normal."

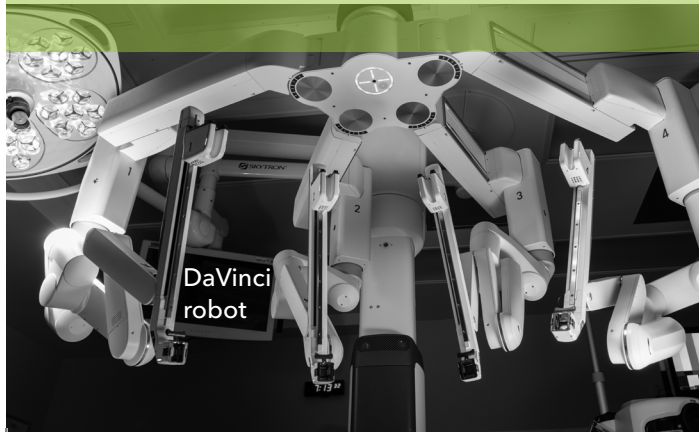
The Arkansas Children's Hospital's hypospadias repair atlas helps alleviate those concerns.

Keegan's Story of Research Participant to Hospital Patient Highlights Teamwork at Arkansas Children's

Arkansas Children's is proud to be home to one of only two research sites in the country focused on pediatric nutrition. The research at the Arkansas Children's Nutrition Center (ACNC) is designed to benefit children in the future, but sometimes the work yields immediate results for participants.

Keegan and his mother consented to share their story. Because Keegan is a patient at Arkansas Children's Hospital (ACH) and a research participant at ACNC, some details of the story have been omitted to maintain the integrity of the research study following Institutional Review Board (IRB) standards.

When Keri Tyler was pregnant with her second child in 2008, she saw a notice from ACNC requesting participants for a research study. She wanted to help future generations of children, so she decided to learn more. What she couldn't have known when she decided to enroll her son Keegan in a nutrition research study was how much being a participant would affect him. During a routine follow-up visit to ACNC when Keegan was five years old, researchers spotted a condition that had gone undetected since birth.



Keegan Tyler: Research Participant

ACNC has around a dozen different research projects running at any given time. Some study pregnant mothers, but most focus on the eating habits of infants and young children.

In Keegan's case, an ultrasound during a follow-up visit to ACNC when he was five years old identified a potentially harmful condition.

Researchers at ACNC followed U.S. Department of Health and Human Services "incidental findings" protocols and informed Keegan's parents.

ACNC and ACH are two separate branches of the Arkansas Children's health system, but the shared core values of safety, teamwork, compassion and excellence made Keegan's transition from research participant to patient seamless.



Keegan Tyler: Patient

Ashay Patel, D.O., chief of urology at Arkansas Children's Hospital, said Keegan's condition occurs in about 3% of boys born full-term (between 37-40 weeks of pregnancy) but usually resolves on its own by the time a child is six months old.

"If left untreated, the condition may have affected his growth in adulthood and also may have increased his risk for cancer," Patel said.

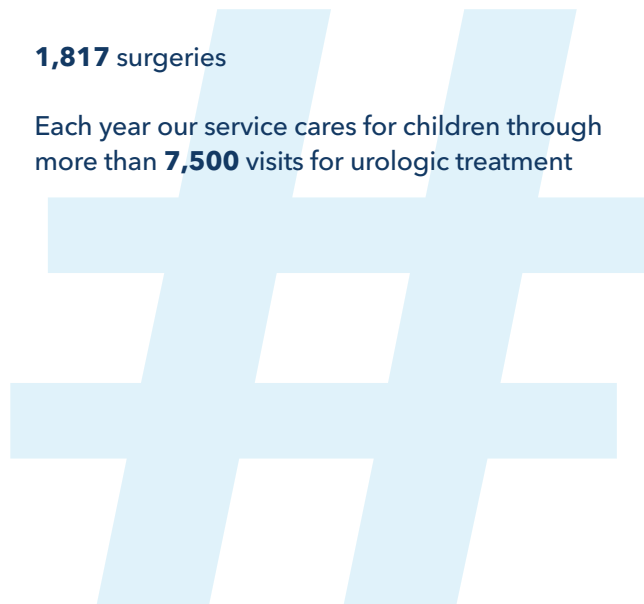
Keegan's treatment involved outpatient surgery. After about a week of recovery time, he was back in school. Arkansas Children's values teamwork at every level, whether it's within individual departments or across branches of the organization, like ACNC and ACH.



BY THE NUMBERS

1,817 surgeries

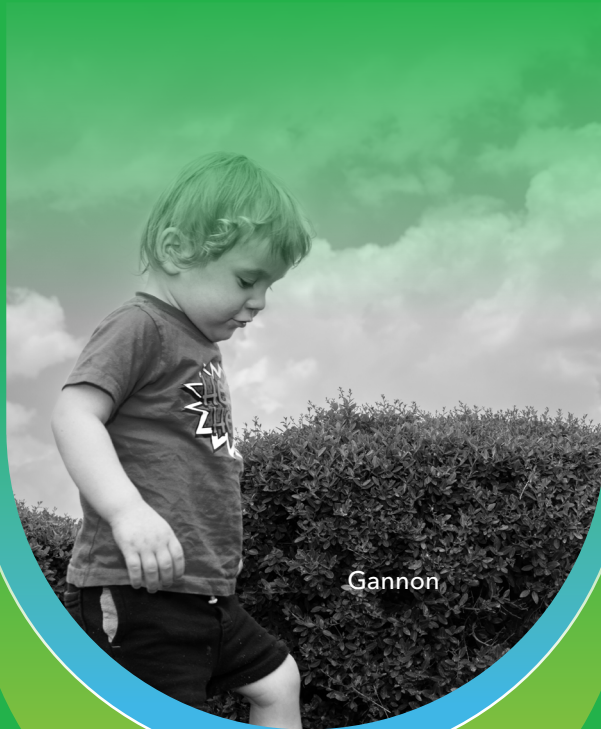
Each year our service cares for children through more than **7,500** visits for urologic treatment



Awards and Achievements

Specially trained surgeons have utilized the daVinci surgical robot for pediatric urology procedures the past 10 years, including 35 laparoscopic cases.

UROLOGY



Gannon

Urology Service Chief



Ashay Patel, D.O.



Working at ACH feels like home. From the moment you walk in, you feel welcomed. We work together as a team with a common goal to provide the best care for your child, no matter how young or old.

— **Ashay Patel, D.O.**

Pediatric urologist, Arkansas Children's Hospital
Chief of urology

Arkansas Children's Hospital Auxiliary - John F. Redman, M.D. Endowed
Chair in pediatric urology

Associate professor of urology, University of Arkansas for Medical Sciences





Reese

CLINICAL LEADERSHIP

Ashay Patel, D.O.

Ismael Zamilpa, M.D.

VASCULAR ANOMALIES

State-of-the-Art Care with an International Presence

With over 30 years of experience treating vascular birthmarks, the Arkansas Children's Vascular Anomalies Center of Excellence leads patient care and research. The high-volume clinic addresses simple and complex vascular anomalies through a 30-member team from 15 disciplines. The center employs multimodal treatment approaches, including laser therapy, sclerotherapy, advanced surgical methods and medical therapy to provide personalized care. The team manages a broad spectrum of conditions, including hemangiomas, tumors and vascular malformations. Renowned for outpatient treatment and expedited therapeutic strategies, the center is also a research pioneer, advancing the field through numerous impactful publications and a dedicated molecular biology program.

Cutting-Edge Laser Therapies Reduce Facial Vascular Anomaly

In the pediatric population, capillary malformations are rare, but one of the most common vascular anomalies treated at Arkansas Children's Hospital's Vascular Anomalies Center of Excellence. The team performs about 500 laser treatments annually on pediatric patients.

Faith Deneffe, 8, was born with a large capillary malformation or "port wine stain" on the left side of her face.

Gresham Richter, M.D., is a professor and vice chair of otolaryngology - head and neck surgery, chief of pediatric otolaryngology, James Hamlen and Robert Seibert Endowed Chair in pediatric otolaryngology and director of Vascular Anomalies Center of Excellence at Arkansas Children's Hospital and the University of Arkansas for Medical Sciences. He has performed about 15 laser therapies on Faith since she was 6 months old. The treatments have reduced the color of the malformation, lightening it to the point where she will eventually only need laser treatments every few years.

"We have a cadre of lasers that allow us to treat a whole variety of different colors, shapes and sizes of vascular malformations," Richter said. "We call this selective photothermolysis, which means we are selectively using laser energy or light to heat up the blood vessels specifically that are abnormal without injuring the surrounding soft tissue."



Two of the state-of-the-art lasers used in Faith's surgeries are:

- **Flash-Lamp Pulsed-Dye Laser:** Used nationally and internationally, the laser works to remove the small, abnormal vessels in the skin gradually.
- **Gentle YAG Laser:** Treats the vessels within the malformation that become bigger and bluer over time. It targets the specific color and size of the blood vessel.

"What we'll do at times is use a double-pass technique where we go over the surface once to get the deep component of the skin and then change the settings just slightly so we can get the superficial part of the skin," Richter said. "So, we're getting two layers of the skin where the capillary malformation is embedded."



Dr. Richter in surgery with his patient, Faith.

BY THE NUMBERS

Vast multidisciplinary team – **15** disciplines

Craniofacial orthodontics

Dermatology

Genetics

Gynecology

Hematology/oncology

Interventional radiology

Nursing

Orthopedic surgery

Otolaryngology

Pathology

Pediatrics

Pediatric surgery

Plastic surgery

Psychology

Radiology

Number of complex patients treated: **636**

Outpatient visits: **1,502**

Outpatient surgeries: **670**

Out-of-state visits from **16** states



Awards and Achievements

Celebrating 30 years of state-of-the-art care

Known worldwide as one of the top programs for minimally invasive outpatient treatment methods

NIH-funded Vascular Biology program and leaders in providing clinical trials

Board members and leaders in the International Society for the Study of Vascular Anomalies (ISSVA)

Annual presenters at the international ISSVA conference to stay current on best practices

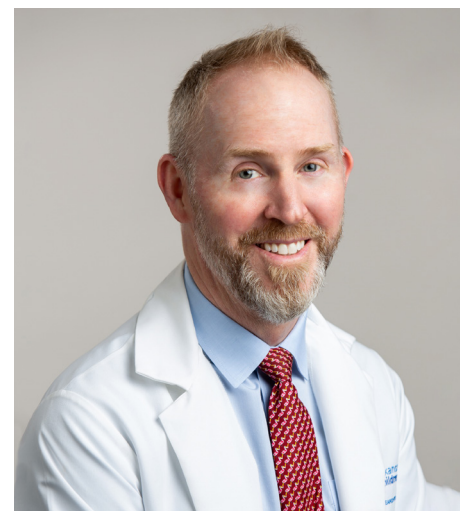
Gresham Richter, M.D., is the editor-in-chief of ISSVA's official journal: "The Journal of Vascular Anomalies"

VASCULAR ANOMALIES



Adrian

Vascular Anomalies Center of Excellence Director



Gresham Richter, M.D., FACS, FAAP

The reasons I practice at Arkansas Children's are many. I love the people, culture and patient-centered care provided by Arkansas Children's. I feel like I am part of an amazing team of providers and ancillary services that truly care about the patients they receive. The coordination of services and kindness provided to our patients is unmatched. It doesn't matter if you have a common, extremely rare or complicated condition. We can handle it at ACH with care, love and hope.

— **Gresham Richter, M.D., FACS, FAAP**

Pediatric otolaryngologist, Arkansas Children's Hospital
Chief of pediatric otolaryngology
James Hamlen and Robert Seibert Endowed Chair in pediatric otolaryngology
Director of Vascular Anomalies Center of Excellence
Professor of otolaryngology, University of Arkansas for Medical Sciences



Dash



Lizzie

CLINICAL LEADERSHIP

Shelley Crary, M.D.	Tiffany Howell, Ph.D.	Joana Mack, M.D.	Scott Schoenleber, M.D.	Alexis Tashima, M.D.
M. Sid Dassinger III, M.D.	Michael Israel, M.D.	Sagar Mehta, M.D.	Kumar Shashi, M.D.	Lindsey Wolf, M.D.
Megan Evans, M.D.	Adam Johnson, M.D.	Gresham Richter, M.D.	Kathryn Stambough, M.D.	
Aixa Gonzalez-Garcia, M.D.	Jay Kincannon, M.D.	Jeremiah Sabado, M.D.	Graham Strub, M.D.	

Expansion

Arkansas Children's Writes a New Chapter for Pediatric Health Care



For more than a century, Arkansas Children's has written the story of cutting-edge pediatric care, expanding access and delivering excellence as we've evolved from an orphanage to a hospital to a pediatric health system. We are building the future together in this next chapter in our story. The result will define excellence and deliver a healthier tomorrow for the children of Arkansas and the region.

— Marcy Doderer, FACHE

President and chief executive officer
at Arkansas Children's



Largest-Ever Expansion at Arkansas Children's to Increase Recruitment, Access and Outcomes

Arkansas Children's embarked on its most ambitious clinical expansion, breaking ground in early 2024, as part of its strategic plan to deliver unprecedented child health in Arkansas. The project focuses on delivering better access, exceptional outcomes and improved on-campus experiences at the state's nationally ranked pediatric health system.

"Pediatric health needs are more complex than ever before, and we are committed to the highest levels

of access and health care quality for the children and families across the state," said Arkansas Children's President and CEO Marcy Doderer, FACHE. "This plan includes recruiting more than 100 new providers and 400 new team members, adding new programs, and building and modernizing facilities."

The growth will happen over the next eight years, and will require nearly \$318 million in investment for construction at Arkansas Children's Hospital (ACH) in Little Rock and Arkansas Children's Northwest (ACNW) in Springdale. The system-wide expansion plan will expand bed capacity, transform inpatient and outpatient surgical approaches with the addition of an ambulatory surgery center, redesign clinical spaces to promote multidisciplinary care and create an inviting and accessible campus experience.

Polk Stanley Wilcox and Cromwell are the architects of record, and Nabholz will serve as the construction manager for the project.

"We will take our time and do this right with our team and with the community," said Jamie Wiggins, Ph.D., M.B.A., R.N., FACHE, Arkansas Children's chief operating officer. "This has always been the state's children's health system, and we will honor our partners in this process."

"For more than a century, Arkansas Children's has written the story of cutting-edge pediatric care, expanding access and delivering excellence as we've evolved from an orphanage to a hospital to a pediatric health system," Doderer said. "We are building the future together in this next chapter in our story. The result will define excellence

and deliver a healthier tomorrow for the children of Arkansas and the region."

The investment comes after significant expansion at the health system's regional clinics since 2018, adding capacity for specialty care in Jonesboro, opening a primary care clinic in Pine Bluff, opening Arkansas Children's Northwest and debuting additional care spaces in Springdale.

In 2022, Arkansas Children's served 169,000 children – more children than ever before – and the need for service continues to grow.

Team members learned about the project directly from Doderer, who showed a video previewing the project during a series of open town halls.

"I've worked in this organization for decades, and I think we have always tried to listen to the community and meet the needs of our patients and families," said Lea Woodrow, a 45-year veteran nurse and team member. "It's hard to put into words how excited I am that we are moving in this direction. It will be such a difference maker."



Arkansas Children's

EXPANSION

Building Our Future Together

DATE 10-22-20
SCALE 1/8" = 1'-0"
JOB NO. 195
SHEET No. 7
SHEET No. 10

BY THE NUMBERS

Groundbreaking **2024**

Largest expansion in **111-year** history

\$318 million investment

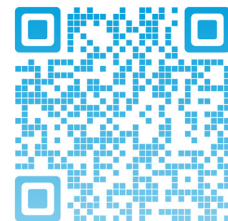
Estimated **265,000** new square feet of facilities and an additional renovation spanning more than **170,000** square feet.

Increase ACH's workforce by **41** percent

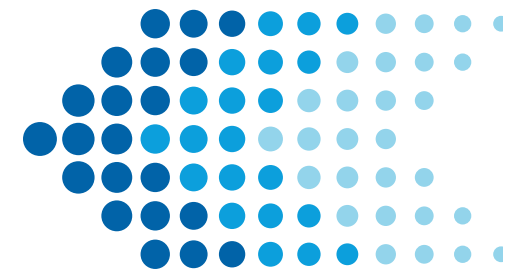
Increase ACNW's workforce by **72** percent

27 service lines enhanced

WATCH HOW ARKANSAS
CHILDREN'S IS "BUILDING
OUR FUTURE TOGETHER." |.....



SCAN ME





Aleia

WE ARE
CHAMPIONS
FOR
CHILDREN



Armani

Accelerating A Healthier Tomorrow



As one of the Southeast region's leading pediatric health systems, we are committed to accelerating a healthier tomorrow for the children of Arkansas and beyond by audaciously pursuing research.

Arkansas Children's Research Institute (ACRI) is engaged in a historic expansion, integrating research and innovation across the organization, aggressively recruiting faculty (15 hired since 2021) and strategically investing in our infrastructure and operational capacity. In 2023, we increased our total research funding by 10%, securing access to four new awards from the National Institute of Health (NIH) totaling \$2,405,518. Additionally, we expanded clinical trial initiatives, and our researchers contributed 296 articles to peer-reviewed scientific journals.

We were awarded \$50 million of opioid settlement funds to establish the National Center for Opioid Research and Clinical Effectiveness (NCOR) on the Arkansas Children's Hospital campus, one of the nation's most ambitious research efforts dedicated to opioid impact on children. This groundbreaking center positions Arkansas as a national leader in understanding the effects of opioids on the fetus, newborn and developing child and deployment of effective, evidence-based treatments that radically improve health and inform policy on a national level.

Research is the gateway to improving child health; we are proud to be leaders in this field.

Sincerely,

A handwritten signature in blue ink, appearing to read 'P. Mourani'.

Peter Mourani, M.D.

President, Arkansas Children's Research Institute

Sr. Vice President & Chief Research Officer, Arkansas Children's

Ross and Mary Whipple Family Distinguished Research Scientist Endowed Chair in honor of Dr. Richard F. Jacobs

Professor of Pediatrics, University of Arkansas for Medical Sciences

Research Clinical Excellence

Advances in pediatric medicine begin with a vision for a future in which all children can grow up to be healthy adults. Arkansas Children's Research Institute (ACRI) researchers share this common vision and have devoted their lives to making it a reality. At ACRI, children are at the center of everything we do. Researchers at ACRI are addressing a broad spectrum of children's health concerns, and research expertise is diverse, ranging from basic science to clinical and community-based research.

We are at the forefront of innovation in child health and life course research by rapidly transforming discoveries into interventions to change the future.

We commit to this work daily by:

- Recruiting and retaining highly qualified scientists
- Providing an exceptional environment for research
- Seeking and obtaining appropriate funding for research
- Managing and leveraging resources to succeed in our mission
- Supporting the transfer of discoveries to industry to create jobs in Arkansas
- Forming productive collaborations with other institutions, especially those in Arkansas
- Promoting a strong research capability to support recruitment of the best possible physicians for the campus
- Serving as a key learning laboratory for various trainees to learn the disciplines and methodologies of research



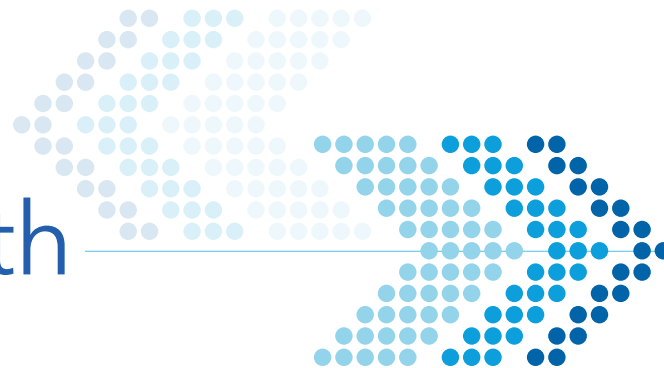
AT ACRI
**CHILDREN
ARE AT THE
CENTER**
OF EVERYTHING
WE DO.

300 Research Studies

\$30M Grants

120 Pediatric Researchers

Changing the Future of Child Health through Research



Arkansas Center for Food Allergy Research through the Consortium for Food Allergy Research (CoFAR) – NIH/NIAID-funded



Principal Investigator:

Stacie M. Jones, M.D., director of the Arkansas Children's food allergy program at Arkansas Children's Research Institute (ACRI), interim chair of rheumatology at Arkansas Children's Hospital and professor of pediatrics at the University of Arkansas for Medical Sciences (UAMS).

Research start/end dates: 2005–present (Current funding cycle ends February 28, 2024, with competitive renewal under review for funding from 2024–2031. Funding announcement will be January 2024.)

Overview: The Arkansas Center for Food Allergy Research (ArCOFAR) is one of five inaugural centers funded since 2005 within the NIH/NIAID-funded Consortium for Food Allergy Research (CoFAR). The center's overarching mission is to provide state-of-the-art clinical care while advancing knowledge and discovery toward therapeutic cure and disease prevention for food allergies and eosinophilic gastrointestinal disorders (EGID). The ArCOFAR team's many research accomplishments have been instrumental in shaping the food allergy and EGID fields, particularly in novel therapeutics and mechanisms/biomarkers of disease and treatment outcomes. CoFAR's innovative and collaborative clinical trials and its new food allergy-targeted birth cohort study, SUNBEAM, are poised to advance science and provide significant clinical impact for patients and families in the future.



Our collaborative work within the Consortium for Food Allergy Research has been a tremendous opportunity for almost two decades for Arkansas Children's. We are on the forefront of discovery in the field while providing innovative treatments to our patients and advancing our understanding of food allergy, mechanisms of disease and future targets for therapeutic intervention and disease prevention. This research will continue to impact patients and families living with food allergy.

— Stacie M. Jones, M.D.



Gene Therapy for Duchenne Muscular Dystrophy



Principal Investigator:

Aravindhan Veerapandiyan, M.D. (Dr. Panda), is a pediatric neurologist at Arkansas Children's Hospital (ACH) and an assistant professor of pediatrics at the University of Arkansas for Medical Sciences (UAMS). He is director of the comprehensive neuromuscular program and the Parent Project Muscular Dystrophy Certified Duchenne Care Center, and co-director of the Pediatric Muscular Dystrophy Association Care Center, all at ACH.

Research start/end dates: Ongoing



Overview: Duchenne muscular dystrophy is the most common muscular dystrophy in children, primarily affecting boys. It is a devastating, progressive neuromuscular disorder causing muscle weakness due to a mutation in the dystrophin gene. Duchenne is a multisystem disease affecting skeletal muscle, cardiac muscle, respiratory muscle, learning and behavior. Boys lose ambulation around 11 to 12 years and develop respiratory dysfunction and cardiomyopathy in their teens. Currently, there is no cure for this disease. A promising approach for treating this life-threatening disease is gene transfer to restore dystrophin expression using a safe, non-pathogenic viral vector. ACH is currently involved in the following cutting-edge gene therapy trials for DMD:

- AFFINITY DUCHENNE: RGX-202 Gene Therapy in Participants with Duchenne Muscular Dystrophy (DMD)
- A Gene Transfer Therapy Study to Evaluate the Safety and Efficacy of Delandistrogene Moxeparvovec (SRP-9001) in Participants with Duchenne Muscular Dystrophy (DMD) (EMBARK)
- A Gene Transfer Therapy Study to Evaluate the Safety and Efficacy of Delandistrogene Moxeparvovec (SRP-9001) in Non-Ambulatory and Ambulatory Participants with Duchenne Muscular Dystrophy (DMD) (ENVISION)
- Study to Evaluate the Safety and Efficacy of PF-06939926 for the Treatment of Duchenne Muscular Dystrophy



There is still unmet need for boys with DMD. Though available treatments such as corticosteroids and newer treatments, such as exon-skipping therapies, can slow down the disease process, no available therapy can halt the condition's progression, or, more optimistically, reverse it. These cutting-edge research therapies have the potential to impact the trajectory of the disease and improve the life span and quality of life for boys with DMD and their families.

— **Aravindhan Veerapandiyan, M.D. (Dr. Panda)**



Research start/end dates: July 20, 2018–ongoing

Overview: Adolescents with asthma are at increased risk of adverse health outcomes, such as hospitalization and death. Prior research has shown that adolescents have poor self-management strategies for chronic illnesses, placing them further at risk for poor outcomes. Smartphone use is prevalent and often cited as a preferred method of communication among adolescents. The project's overall goal is to examine the effectiveness of a personalized, interactive asthma smartphone application in reducing asthma morbidity among adolescents at high risk for poor outcomes.



Guidelines-based asthma care has significantly and consistently proven to improve asthma outcomes, yet these well-established guidelines have not fully translated to the community. This is particularly problematic for high-risk populations such as adolescents. The project promotes guidelines-based asthma self-management and encourages medication adherence that fits with societal trends and preferences of today's adolescents through the use of a smartphone-based application. Should the project prove successful in reducing morbidity and improving the health of adolescent children with asthma, it has the potential to serve as a model for improved asthma care in other high-risk populations and for other chronic diseases.

— **Tamara T. Perry, M.D., FAAP, FAAAAI**



Implementing a Guidelines-Based Health Intervention for High-risk Asthma Patients – NIH-funded



Principal Investigator:

Tamara T. Perry, M.D., FAAP, FAAAAI, is a pediatric allergist and immunologist at Arkansas Children's Hospital (ACH) and a professor of pediatrics and chief of the allergy and immunology division at the University of Arkansas for Medical Sciences (UAMS). She holds the Dr. and Mrs. Leeman King endowed chair in pediatric allergy, is a researcher at Arkansas Children's Hospital Research Institute (ACRI) and medical director of tele-health at ACH.



Changing the Future of Child Health through Research



Arkansas Children's Nutrition Center Work



Mario Ferruzzi, Ph.D., M.S., B.S., is director of the Arkansas Children's Nutrition Center (ACNC) and a professor of pediatrics and chief of the section of developmental nutrition at the University of Arkansas for Medical Sciences (UAMS). He holds the endowed chair in digestive disease and nutrition research.

Overview: Arkansas Children's Nutrition Center (ACNC) is a cooperative effort of the U.S. Department of Agriculture (USDA) Agricultural Research Service, Arkansas Children's, Arkansas Children's Research Institute and University of Arkansas for Medical Sciences. One of six national Human Nutrition Centers, the ACNC is one of two specializing in pediatric/maternal nutrition and metabolic health. In the past year, the ACNC has made many advancements.

Results in the investigation of maternal physical activity demonstrate that higher physical activity during pregnancy is associated with lower lipid levels throughout pregnancy, which are associated with infant size and body composition at age 2 weeks for women with excessive weight. Significant relationships were also indicated between physical activity during the first and second trimester and brain cortical development in newborns, specifically in greater brain cortical thickness, presumably indicating better cortical development.

Excessive weight during pregnancy is associated with infants' microbiome during the first year of life. Results demonstrate that

excessive maternal weight is associated with a relative depletion of specific gut microbes during early infancy, suggesting that overall microbial richness may be reduced in infants from mothers with excessive weight gain during pregnancy.

Energy production in platelets is associated with CVD risk factors in children ages 7-10. Platelet mitochondria of children with high blood pressure and low fitness have decreased ability to use the fuel necessary to produce energy. Mitochondria function in platelets improved with increasing fitness.

Housing temperature alters energy metabolism in rodents, used extensively in biomedical research, which may sometimes fail to model human disease. Investigators find that rodent housing temperature markedly impacts energy expenditure, indicating that housing temperature should be an important consideration for researchers using rodent models to study human disease.



Research at the ACNC continues its history of contribution to the evidence base for national dietary and physical activity guidance. Our scientists drive innovative clinical and preclinical research that advances our understating of how maternal diet and physical activity impact infant development and long-term health.

— Mario Ferruzzi, Ph.D., M.S., B.S.



Environmental Influences on Child Health Outcomes IDeA States Pediatric Clinical Trial Network



Principal Investigator:

Jessica N. Snowden, M.D., M.S., MHPTT, is vice-chair for research in the department of pediatrics and associate director of clinical and translational research at Arkansas Children's Research Institute (ACRI) and executive associate dean of research, chief of pediatric infectious diseases and professor of pediatrics at the University of

Arkansas for Medical Sciences (UAMS). She holds the Horace C. Cabe endowed chair in pediatric infectious diseases. She is the co-principal investigator of the IDeA States Pediatric Clinical Trial Network's Data Coordinating and Operations Center.

Research start/end dates: September 2016-ongoing

Overview: Children living in rural areas are less likely to have a chance to enroll in clinical research. To fill this gap, NIH established the 18-state Environmental Influences on Child Health Outcomes IDeA States Pediatric Clinical Trial Network (ECHO ISPCTN). The network helps address pediatric health disparities by including children from rural or underserved populations in clinical trials, and by building pediatric research capacity. ECHO ISPCTN performs studies on critical pediatric issues, including childhood obesity, breathing disorders, COVID-19 vaccine uptake and opioid exposure. Arkansas is home to an ECHO ISPCTN site and the Data Coordinating Operations Center. It is also the coordinating hub for a 14-state group of ECHO ISPCTN sites in the NIH RECOVER study, designed to understand, treat and prevent long COVID.



Children and families in rural states like Arkansas deserve the opportunity to participate in high-quality clinical trials, so that they have access to cutting-edge care and so that we can identify solutions to the issues most relevant for families that are often missed in clinical research.

— **Jessica N. Snowden, M.D., M.S., MHPTT**



Invasive Fungal Infections Consortium



Principal Investigator:

William J. Steinbach, M.D., is a pediatric infectious diseases specialist and pediatrician-in-chief for Arkansas Children's Hospital (ACH) and professor and department chair in the department of pediatrics and associate dean for child health at the University of Arkansas for Medical Sciences

(UAMS). He holds the Robert H. Fiser Jr. M.D. endowed chair in pediatrics. He is the founder and director of the International Pediatric Fungal Network (IPFN).

Research start/end dates: Ongoing

Overview: Invasive fungal infections are the leading cause of death in cancer patients and transplant recipients after relapse or rejection. Invasive fungal infections are the most complicated to diagnose and hardest to treat, leading to the greatest mortality. The IPFN is a first-of-its-kind global consortium of 55 centers dedicated to the study, diagnosis and treatment of pediatric invasive fungal infections for the last 15 years. Arkansas Children's Research Institute and the Children's Hospital of Philadelphia serve as the coordinating centers for the IPFN.

The group has conducted numerous unique studies to define the epidemiology and best diagnostic and therapeutic approaches to invasive fungal infections in children, offering some of the first details about how these infections differ in children. This consortium has led four different multi-national R01-funded studies.

- PEACE (Pediatric Antifungal Comparative Effectiveness) prospectively defined, for the first time, the optimal antifungal therapy for pediatric invasive candidiasis through enrolling 750 patients.
- BIOPI (Biomarkers for Pediatric Invasive Candidiasis) prospectively enrolled 500 pediatric patients at risk for developing invasive candidiasis to study four new molecular biomarkers to determine the optimal diagnostic strategy. This study is the largest fungal infection biomarker study ever completed in any age group.

- DOMINIC (Non-invasive Diagnosis of Pediatric Pulmonary Invasive Mold Infections) is enrolling up to 300 patients and focuses on diagnosing and empirically treating an immunocompromised high-risk patient with pulmonary lesions found on a chest CT and possible invasive infection.
- COUNT (Short Course Versus Standard Course Antifungal Therapy for Uncomplicated Candidemia in Children and Adolescents: A Multi-Center Randomized Controlled Trial) is enrolling up to 400 patients to compare 7 days versus 14 days of therapy following guideline-approved initial therapy.



The group has conducted numerous unique studies to define the epidemiology and best diagnostic and therapeutic approaches to invasive fungal infections in children, offering some of the first details about how these infections differ in children.

— **William J. Steinbach, M.D.**



Exceptional Highlights

Reaching Beyond the State with Regional Care

Parents and caregivers bring their children to Arkansas Children's for one reason: exceptional care. **Scan to watch** team members and families share more about the programs and providers that brought them to Arkansas.



Winter Weather Heart Transplant

Winter weather is a rarity in Arkansas, but our team is committed to delivering excellent care regardless of the circumstances.

As ice and snow became certainties in the forecast in February 2023, the Cardiovascular Surgery team faced a dilemma – dangerous weather and a donated heart were forecast to arrive at nearly the same time. Timing is crucial with organ transplants, and the donated heart was coming from out of state. If ice and snow had arrived earlier than expected, it could have delayed safe delivery of the organ to the hospital.

"Safety was the top priority," said Stephanie Rockett, director of patient care services in the department of cardiovascular surgery.

Once the team knew the heart and those transporting it could make it safely via plane and ambulance to the hospital, they discussed how best to adjust to the weather.

"They were looking at every step of the trip to minimize downtime and get the team back as quickly as possible," Rockett said.

One critical decision the team made was keeping the plane in a hangar instead of on the runway while waiting for the heart. Not needing to de-ice the plane saved valuable minutes.

The careful planning and communication paid off. The team returned safely with the donated heart. The transplant team worked through the night, and the transplant was a success.

Transporting Care to Patients

Sleet in Little Rock and snow in Springdale didn't stop the nationally recognized Angel One patient transport team from delivering specialized pediatric care. For the Angel One team, a day at work usually means getting patients to Arkansas Children's Hospital while providing critical care in a helicopter or ambulance. When winter weather descended on the state, plans had to be rapidly adjusted.

A patient in acute respiratory distress needed care, but the three-hour ambulance drive from Little Rock was too icy when the call for transport came. An Angel One physician took action, providing specific guidance on intubating a child via telemedicine. The stabilized patient was safely retrieved by Angel One as soon as the roads were passable.

Remote collaboration was critical for another patient in northwest Arkansas who was too ill to be transported to ACNW with snow on the roads. Diabetic ketoacidosis (DKA), a life-threatening complication of diabetes, is treated differently in kids than adults. When the child experiencing DKA couldn't be taken to our pediatric specialists, an Angel One PICU physician worked remotely with the referring physician to lower the child's blood sugar. After the PICU team handled the immediate threat, ACH endocrinologists worked with physicians at ACNW to create a plan for continuing care.

"It was really an excellent display of collaboration. Everything done was above and beyond anyone's expectations," said Kirsten Johnston, director of patient care services in the department of Transport Services.

Constant commitment to our core values – safety, teamwork, compassion and excellence – ensure bad weather days don't delay the delivery of the exceptional care all children deserve.



Recruiting the Largest Nurse Cohort in our 111-Year History

Arkansas Children's family-centered approach to caring for pediatric patients attracted 125 new nurses in July 2023, the largest cohort in the health system's 111-year history despite a nationwide nursing shortage.

There are 1,524 nurses employed across the health system, including Arkansas Children's Hospital (ACH), Arkansas Children's Northwest (ACNW), Arkansas Children's Care Network (ACCN) and Arkansas Children's Research Institute (ACRI). Each nurse receives extensive training to help them provide the best care to patients and families. Nurse orientation time is 20 to 22 weeks (about five months), depending on the specialty, with individualized orientation plans based on experience.

In addition to the Pursuit of Excellence Pathway onboarding and specialized training, new nurses participate in professional nursing orientation day, a two-day orientation program followed by area-specific EPIC training. Orientation day includes presentations on clinical ethics, creating a healthy work environment, patient experience, safety and other topics to prepare nurses for their new roles. Three nursing cohorts made up the ACH residency in February, July and October 2023. The July cohorts have historically been the largest, with last year's attracting about 60 nurses.

"I think being able to experience what nursing is like in an ICU versus an emergency department or med-surg unit is

huge because they're going to probably spend a very long time there. Making sure they are able to pick where they feel like they can best share their nursing knowledge and skills and be able to take care of patients, I think, is really, really important," said Heather Cherry, D.N.P., M.H.A., R.N., N.E-B.C., senior vice president of patient care services and chief nursing officer, who joined ACH in April 2023. "Being able to match people where they belong; that's what really sets us apart here at Arkansas Children's. It's done different ways across the nation, and it allows that opportunity where nurses can try things out before deciding, 'This is where I want to start as a nurse.'"

Isaiah Fay Pineda, a nurse on the special staffing team, joined the July cohort after participating in the ACH student nurse internship program the past year, gaining experience in pediatrics while still in nursing school.

"Something that really drew me into Arkansas Children's was, of course, the core values, especially excellence. For me, as soon as I walked through the door, I just see excellence in motion," he said. "From the security and the support staff at the front entrance giving you a smile, greeting you, telling you where you need to go from walking through those halls and seeing the doctors and different physicians and nurses; everyone is here to champion children. And that was the biggest thing for me moving forward and ultimately choosing Arkansas Children's as my home."

Opioid Research



The opioid crisis has devastated Arkansas families, and we see the impact in our NICU, clinics and ER every day. By creating this center, we are accelerating a healthier future for the children of Arkansas. The brilliant capacity of the team already on the ground and those we will recruit will create a better today and healthier tomorrow for the unbelievable number of children who suffer in the opioid crisis' wake.

— **Marcy Doderer, FACHE**
President and chief executive officer at
Arkansas Children's



Groundbreaking \$70 Million Center to Focus on Opioids' Impact on Children

Arkansas Children's is pioneering one of the nation's most ambitious research efforts dedicated to opioids' impact on children with a \$70 million National Center for Opioid Research & Clinical Effectiveness (NCOR). Arkansas' Attorney General recently announced a \$50 million grant from the state's share of the national opioid settlements would go toward NCOR.

NCOR will position Arkansas as a national leader in understanding the impacts of the opioid crisis on fetuses, newborns and developing children. It will also accelerate development of effective evidence-based treatments that radically improve child health and inform state and national policy efforts. Research published in the Journal of Pediatrics this year shows opioids are the leading cause of poisoning deaths in children under age 5 across the nation.

The facility plans include cutting-edge infrastructure, equipment and technology to directly support the clinical, social work and outreach teams tackling the crisis.

The state's nationally ranked pediatric health system will build the center around brain imaging technology, better-equipping experts in fetal and neonatal neuroimaging to study

how opioids affect children's developing brains. Enhanced imaging capability will help scientists better understand which parts of the brain are at play so they can design innovative prevention methods and therapies.

The center will host collaborative space to lead multicenter clinical trials, offer trailblazing telehealth capabilities and build an advanced analytics and informatics infrastructure focused on statistical analysis and machine learning. Arkansas Children's will also use toxicology capabilities to refine techniques to quickly detect opioids, including newer synthetic opioids, which now escape detection of many testing platforms.

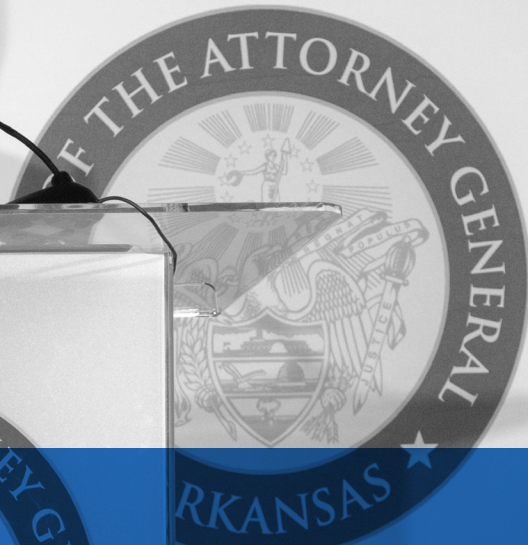
Intentional opioid use continues to rise among Arkansas youth, deeply affecting pregnant women and their newborns. Babies exposed to opioids before birth are more likely to experience abnormal neurodevelopment, have learning impairments and face behavioral health challenges. These children are also much more likely to struggle with substance abuse as they grow up.

Centers for Disease Control and Prevention studies show Arkansas has the second-highest dispensing rate for opioids in the nation.

Another threat children face is neonatal abstinence syndrome, a series of withdrawal symptoms babies struggle with after their mothers use drugs during pregnancy. Babies with these symptoms are more likely to have birth defects and experience a host of complications. Nationally, these withdrawal symptom rates continue to climb, and Arkansas Department of Health research found a 433 percent increase in the condition over a 10-year period.

Arkansas Children's will draw on an existing network of partnerships and collaborations to move what is learned at the center directly into the community to decrease opioid use and abuse. This will include an electronic game-based adolescent prescription drug prevention program delivered through schools, community outreach programs and other venues. Scientists will work closely with the Arkansas Children's Research Institute and Arkansas Children's Nutrition Center, one of six National Human Nutrition Centers funded through the USDA-ARS.

RESEARCH



HOSPITALS • RESEARCH • FOUNDED

BY THE NUMBERS

Project will cost an estimated **\$70 million** in funding

Construction planned for **2024**

45,000-square-foot facility housed in the Arkansas Children's Research Institute corridor

Care Even Closer to Home

Health care can be complicated, so Arkansas Children's makes it easy to access primary and specialty care across the state. With two hospital locations in Little Rock and Springdale, and clinic locations in southwest Little Rock, west Little Rock, Jonesboro, Pine Bluff and Rogers, we bring care close to home, wherever home may be.



NURSERY ALLIANCE



SPRINGDALE



ROGERS



JONESBORO



Jonesboro Clinic



HOSPITALS • RESEARCH • FOUNDATION



PINE BLUFF



Pine Bluff Clinic

SW LITTLE ROCK



Southwest
Little Rock Clinic

W LITTLE ROCK



West
Little Rock Clinic



HOSPITALS • RESEARCH • FOUNDATION

CHAMPIONS FOR CHILDREN

1 Children's Way • Little Rock, AR 72202 • (501) 510-6922 | archildrens.org/champions

The information provided is valid through Dec. 31, 2023.