This past year has been a year like none before it. From a global pandemic to continued efforts to end racism and support health equity, Nationwide Children’s has stood with our patients, families and staff as we face these challenges together. We’ve also grown our team, welcoming a nationally renowned expert in quality and safety as our new chief medical officer, among many other talented new faculty.

In the last decade, Nationwide Children’s Hospital has grown in all dimensions – in clinical care and outcomes, in research and innovation, and in our commitment to social justice and health equity. Join us as we share our achievements from the past year, highlight a decade of transformation and look toward our future.

Remarkable Decade of Transformation
HONORS AND ACHIEVEMENTS:

ONCE AGAIN NAMED TO THE HONOR ROLL OF BEST CHILDREN’S HOSPITALS AND RANKED IN ALL 10 SPECIALTIES BY U.S. NEWS & WORLD REPORT

MORE THAN
1.6 Million
PATIENT VISITS
PER YEAR

LEADING THE COUNTRY IN QUALITY AND SAFETY

83% reduction in serious safety events
(2009-2019)

64% reduction in actual harm
(2009-2019)

38% drop in hospital mortality
(2009-2019)

• America’s largest, neonatal network and provider of pediatric surgery*

• Patients from all 50 states and 54 foreign countries travel to Nationwide Children’s for care

• More than 104,400 donors contributed nearly $62 million to support the hospital’s mission

• Four-time American Nurses Credentialing Center Magnet® designation for nursing excellence

• Provide more than $194 million in charity care and community benefit services annually

• Fully accredited by the Association for the Accreditation of Human Research Protection Programs

* Based on CHA survey of utilization and financial indicators

Photographed in the new Nationwide Children’s Hospital Conference Center

NATIONALCHILDREN’S HOSPITAL
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After a Decade of Achievement, Looking Forward

Tim Robinson, CEO of Nationwide Children’s Hospital

The 2019-2020 academic year was always going to be a critical one at Nationwide Children’s Hospital. We were opening the largest and most comprehensive facility of its kind in the United States, the Big Lots Behavioral Health Pavilion. We were ending a decade of astonishing growth, surpassing more than 1.6 million annual patient visits from around the globe and expanding an already a thriving research institute, now among the pediatric leaders in National Institutes of Health funding and technology commercialization. We were (and are) approaching the final stages of an organization-wide strategic plan, Journey to Best Outcomes.

With all of this momentum, our eyes were on the next phase. Transformational members of our executive team were retiring, and new leaders — some of our architects of the future — were joining us. This was also my first full year as CEO of Nationwide Children’s, and I could see our nearly limitless potential.

We were motivated for a new era, positioned to take on any challenge a new decade had for us.

Then came 2020. There were the COVID-19 pandemic and the tragic loss of life that accompanied it; financial worries across the United States; a potential change in the health care services paradigm as telehealth expanded; and an overdue national reckoning on issues of race and health equity, compounded by the disparities that COVID-19 highlighted.

No one expected the new decade to begin like this, and yet it has proven what we believed: Nationwide Children’s can not only navigate difficult times; we can be agile through them, aligning our response to actually accelerate our efforts to improve child health and wellbeing. In fact, in some important ways, we made significant headway this year.

We went from having a smattering of telehealth appointments in 2019 to 2,000 per day in April and May. Approximately half of those visits came in Behavioral Health, because our deep investments in those services over the last decade, highlighted by the new Pavilion opening this past February, allowed us to quickly pivot to the new technology. Even when the pandemic ends, it’s clear telehealth will benefit our patients far into the future.

Our nearly 15 years of national leadership in pediatric quality and safety gave us the processes and tools to protect our patients and staff from infection, and to safely resume services when it was appropriate. Our recently retired chief medical officer, Richard Brilli, MD, pioneered the pediatric quality field at Nationwide Children’s; our new CMO, Rustin Morse, MD, is a nationally prominent safety leader poised to take us even further. Longtime Chief Nursing Officer Linda Stoverock, DNP, RN, also retired this year after guiding us to the prestigious American Nurses Credentialing Center’s Magnet Recognition four times; Lee Ann Wallace, RN, MBA, NEA-BC, chief nursing officer, has already become a passionate advocate for nurses and families as our new CNO.

Extensive research and lab capabilities allowed us to quickly develop in-house COVID-19 testing facilities and to begin studies to inform treatments for the coronavirus. Because our research programs continue to expand, Nationwide Children’s work on population health and health equity issues has never seemed more vital. Our accountable care organization, Partners For Kids®, which improves health care access and quality for 325,000 children in south central and southeastern Ohio, expanded in 2020 to the state’s west central region and an additional 94,000 children with the collaboration of Dayton Children’s Hospital. Healthy Neighborhoods Healthy Families, our nationally recognized community partnership to revitalize the South Side of Columbus, has moved into another neighborhood, Linden, to begin creating housing, educational opportunities and workforce development programs.

The events of 2020 have convinced us, however, that we must do even more to fight disparity and inequities. Our new hospital-wide initiative, Stand Against Racism. Stand For Health Equity, will help us improve the outcomes of children everywhere and guide our efforts to create a more equitable world for our staff, our community and the families we serve.

Our entire team knows there is a great deal of work remaining, but I am incredibly proud of what we have accomplished at Nationwide Children’s this year. We have done more than weather a challenge. We have continued to seize opportunities to improve the lives of children through care, research and advocacy – and we are more optimistic than ever for the future.

Timothy C. Robinson

Architects of the Future

Pictured, left to right: John A. Barnard, MD, chief of Pediatrics and president of the Abigail Wexner Research Institute; Rustin B. Morse, MD, chief medical officer; Olejnik O. Olutoye, MD, PhD, surgeon-in-chief; Olivia W. Thomas, MD, chief diversity and health equity officer; Lee Ann Wallace, RN, MBA, NEA-BC, chief nursing officer

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DEAR FRIENDS:

Though it seems modest today, Nationwide Children’s Hospital set what was an audacious goal not all that long ago: no child would ever need to leave central Ohio to receive the best medical care. We wanted to give this community’s children access to the highest quality care, right here.

Over the past decade we achieved that goal — and set new, higher ones.

Today Nationwide Children’s is an international destination pediatric medical center. Life-changing discoveries occur at the Abigail Wexner Research Institute. Our trailblazing commitment to pediatric behavioral health is a national model for treating the whole child. We have become a model for how to improve the health of an entire population.

Over the last extraordinary decade Nationwide Children’s has, quite simply, changed what it means to be a children’s hospital by continually looking outside our walls to work for the good of all children.

And yet, we have never been more connected to our hometown. The transformational philanthropy of central Ohio’s signature business leaders and companies, including Nationwide and Big Lots, has helped drive our progress. Strong partnerships with our state, county, city and community leaders, and community members themselves have allowed us all to improve housing, education, job opportunities and health care access. Children are safer and healthier because of it. And in this year of COVID-19, work with local public health authorities has brought our infectious disease and epidemiology expertise to school administrators as they navigate the pandemic.

At the heart of everything are the people who choose to work at Nationwide Children’s, whose professionalism, compassion and commitment to care has been unwavering. They are an inspiration.

Over the last decade, Nationwide Children’s Hospital has firmly established itself as a preeminent pediatric health care and research center because of how deeply rooted we are in central Ohio, and I look forward to so much more in the decade to come.

ALEX R. FISCHER
Chair
Nationwide Children’s Hospital Inc.
Nationwide Children’s Hospital Board of Directors
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194 STEVE AND CINDY RASMUSSEN INSTITUTE FOR GENOMIC MEDICINE

[Photography in this report involves images from 2019-2020, those not reflecting masks or social distancing were taken pre-COVID-19.]
Milestones of a Decade
Our Journey

Nationwide Children’s Hospital has been committed to the *Journey to Best Outcomes* — the official name of our strategic plan — for the better part of the last decade. Through that journey, we dedicate ourselves to health equity, cutting-edge science and research, quality and safety and much more as we strive to fulfill our promise of best outcomes for all children.
Stand Against Racism, Stand For Health Equity.

Racism and inequity have been part of the fabric of our society for far too long. This year, we have experienced a collective call to the urgent need to come together to stand against racism and stand for health equity.

At Nationwide Children’s commitment to diversity, inclusion and equity is now further strengthened by our commitment to fight racism in all its forms.

The graphic below represents the intentional actions of our Stand Against Racism, Stand For Health Equity. Each part is comprised of a working group led by our senior leadership and faculty. This work will expand our vision of diversity, inclusion and health equity for the patients, families and communities we serve, and for our faculty and staff.

In 2020, Nationwide Children’s was the first hospital in our region to ensure that every employee earns a minimum of $15 per hour — a commitment to equitable wages for all.

Our health equity research continues to reveal the challenges under-represented children and families face. One example is a startling study from our Department of Anesthesiology and Pain Medicine that showed seemingly healthy Black children are significantly more likely to die after surgery than seemingly healthy white children. Our health equity research and quality improvement work are focused on identifying these hidden disparities and leading us to solutions and better outcomes.

Just as we care for the whole child — physically, behaviorally, socially and economically — we are addressing racism and inequity holistically. These issues are interconnected and interlocking, and our actions here will ultimately help us better serve children and families.

Read the full story about race and surgical outcomes at PediatricsNationwide.org/Race-Surgery-Outcomes

Olivia W. Thomas, MD
Chief Diversity and Health Equity Officer

Two Nationwide Children’s Faculty Elected to the Prestigious National Academy of Medicine

In October 2019, Elaine R. Mardis, PhD, co-executive director of the Steve and Cindy Rasmussen Institute for Genomic Medicine at Nationwide Children’s Hospital, was elected to the prestigious National Academy of Medicine (NAM). Election to NAM is considered one of the highest honors in the fields of health and medicine and recognizes individuals who have demonstrated outstanding professional achievement and commitment to service.

One year later, Jerry R. Mendell, MD, principal investigator in the Center for Gene Therapy at the Abigail Wexner Research Institute at Nationwide Children’s Hospital, was also elected to NAM.

New members are elected by current members through a process that recognizes individuals who have made major contributions to the advancement of the medical sciences, health care and public health. A diversity of talent among NAM’s membership is assured by its Articles of Organization, which stipulate that at least one-quarter of the membership is selected from fields outside the health professions — for example, from such fields as law, engineering, social sciences and the humanities.

“These newly elected members represent the most exceptional scholars and leaders whose remarkable work has advanced science, medicine and health in the U.S. and around the globe,” says Victor J. Dzau, president of NAM. “Their expertise will be vital to addressing today’s most pressing health and scientific challenges and informing the future of health and medicine for the benefit of us all. I am honored to welcome these esteemed individuals to the National Academy of Medicine.”

Dr. Mardis, who is also the Steve and Cindy Rasmussen Nationwide Foundation Endowed Chair in Genomic Medicine, and a professor of pediatrics at The Ohio State University College of Medicine, joined Nationwide Children’s in 2016. She has authored more than 350 articles in prestigious peer-reviewed scientific and medical journals and has written book chapters for several medical textbooks.

Honored with the Morton K. Schwartz award from the American Association for Clinical Chemistry in 2016, Dr. Mardis has been listed since 2013 as one of the most highly cited researchers in the world by Thompson Reuters.

Dr. Mardis has been a member of the American Association for Cancer Research (AACR) since 2007, was elected as a Fellow of the Academy of the AACR in 2019 and served AACR president in 2019.

A world-renowned researcher, Dr. Mendell has been a pioneer in the care of neuromuscular diseases for more than 40 years. He was the first to standardize and publish on corticosteroid treatment of Duchenne muscular dystrophy (DMD) that preserved ambulation in affected boys. In 2007, he led the first-ever phase 1 clinical trial using AAV, a viral-based gene therapy approach in children with muscular dystrophy, paving a path for this promising approach. More recently, he demonstrated in the first exon-skipping clinical trial in North America, an alternative method to overcome the gene defect in a specific variant of DMD. A prolific author of nearly 400 publications, Dr. Mendell recently co-edited the book, Muscle Gene Therapy – Second Edition, published in 2019.

“Dr. Mendell led the phase 1/2 clinical trial, which was the first effective gene therapy for SMA type 1, the most severe form of SMA that typically results in death by age 2. The study, published in the New England Journal of Medicine, was the People’s Choice for Science Magazine’s 2017 Breakthrough of the Year. In May 2019, the Food and Drug Administration (FDA) approved Zolgensma® for spinal muscular atrophy (SMA) for pediatric patients less than 2 years of age, including those who are pre-symptomatic, recognized by newborn screening. To date, Zolgensma has treated more than 600 children with SMA worldwide.”

Victor J. Dzau, President of NAM
In July 2020, following an extensive national search, Nationwide Children’s welcomed renowned quality and safety expert Rustin Morse, MD, as chief medical officer. He will lead key operational areas in clinical care and medicine, as well as guiding the future of our nationally acclaimed quality and safety program, Zero Hero.

Dr. Morse, who is also a faculty member at The Ohio State University College of Medicine, currently serves on the national Clinical Steering Committee for Solutions for Patient Safety and the Quality and Safety Committee of the Board of Trustees for the Children’s Hospital Association. He is a board-certified pediatric emergency medicine physician who has continued to practice emergency medicine throughout his career and has an outstanding track record leading and advancing quality and safety programs in pediatric health care.

Q: What excites you about joining Nationwide Children’s Hospital?
A: While I’ve admired Nationwide Children’s from afar and the quality and safety program established by my predecessor Rich Brilli, MD, throughout my interviews, I was impressed by the culture here. The genuine commitment to and interest in quality and safety came through in every conversation. And the One Team culture was palpable — even before I learned about the One Team values, they were evident.

Q: How did you become interested in pediatric quality and safety?
A: I started my career as a pediatric emergency medicine physician and aspired to one day run an emergency department. I was in a leadership role very early in my career and was addressing issues, improving processes and systems, and improving outcomes, long before I realized one could have a career focused on quality and patient safety. Through a series of fortuitous opportunities and excellent mentorship, my interest in quality and safety strengthened and my career trajectory changed. I’ve been very fortunate and grateful for the opportunities I’ve had to grow in different positions in quality and safety work. And I’m absolutely thrilled to be bringing that experience to Nationwide Children’s to lead the outstanding program here.

Q: What is our organizational responsibility to make quality and safety a priority?
A: We owe it to our patients and their families to provide a safe place for them to get the best possible care. We owe it to our staff to provide the safest place for them to work. No one should come to work and get hurt — whether that’s from slipping on a wet floor or being injured by a patient or harassed by a family member. Ensuring safety is at the core of Zero Hero and what we do here at Nationwide Children’s. And we'll continue to make that a priority.

Additionally, we need to evolve and grow quality beyond safety. We owe it to our community and our patients — whether they are from around the corner or across the globe — to continue to be one of the best children’s hospitals in the United States. We must continue to study and refine care delivery, further strengthen our population health activities, and do our part to address racism and health inequities to ensure the best outcomes for all children.

Rustin Morse, MD
Opened March 2020: An Inside Look at the Big Lots Behavioral Health Pavilion
America’s Largest Pediatric Behavioral Health Hospital and Research Center

The Big Lots Behavioral Health Pavilion is nine stories, 386,000 square feet. It uniquely integrates acute behavioral health services with intensive outpatient programs. The Pavilion prioritizes patient safety in a colorful, friendly environment for those dealing with severe behavioral health concerns.

It’s transformational. It’s innovative. It’s stigma-breaking.

SEVENTH FLOOR:
- Inpatient Units

THIRD FLOOR:
- Youth Crisis Stabilization Unit (YCSU)
- Behavioral Health Administrative Offices
- Faculty Offices

LOWER FLOOR:
- Cafeteria
- Gift Shop
- Conference/Training Rooms

SECOND FLOOR:
- Mood and Anxiety Program
- Family Based Intensive Therapy (FBIT)
- Center for Suicide Prevention and Research
- Outpatient Psychiatry Clinic

FIFTH FLOOR:
- Partial Hospitalization Program
- Ronald McDonald Family Room
- Courtyards

EIGHTH FLOOR:
- Inpatient Units

NINTH FLOOR:
- Gym
- Outdoor Play Deck

Construction of the Big Lots Behavioral Health Pavilion required 22.5 million pounds of concrete - the equivalent of 540 fully loaded school buses.

The roof is designed with conservation in mind, holding a water reserve of 1,195,237 gallons. This measure is good for the environment, holding the equivalent of 10,865 bathtubs of water for landscape irrigation.

The Big Lots Behavioral Health Pavilion has 610 workstations.

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The Growing Pipeline from Discovery to Commercialization — Nationwide Children’s Office of Technology Commercialization

Nationwide Children’s Hospital has a remarkable track record of moving discoveries into the marketplace. The hospital’s Office of Technology Commercialization facilitates the transfer of new technologies, research and innovations to outside partners to benefit patients, the local community and the general public.

The Office of Technology Commercialization supports clinicians and researchers alike. Discoveries and inventions ranging from new therapeutics — including the recently approved, first-of-its-kind gene therapy Zolgensma — to biomarkers, diagnostic tools and clinical tools — such as the Comfort Collar, designed to prevent pressure wounds around tracheostomy tubes — are supported through the expert team.

“People might not intuitively think of a nonprofit hospital like Nationwide Children’s as a hotbed for technology commercialization,” says Matthew McFarland, RPh, PhD, vice president, Commercialization and Industry Relations at Nationwide Children’s. “They should. Just like universities, we make substantial investments in commercialization of new discoveries and create job-producing startup companies. But even more importantly, we’re able to expand the benefits of innovation to improve the care and lives of children who may never set foot in our hospital.”

Technology Commercialization at Nationwide Children’s: By the Numbers

- Licensing deals in 2019 (combined between start-ups and industry) 29
- Clinical inventions developed from idea to commercially available 3
- Startups launched in 2020 based on Nationwide Children’s inventions 3
- U.S. patent applications filed in 2019 101
- Foreign patent applications filed in 2019 97
- Patents issued in 2019 25
- Disclosures submitted to our office from 31 different departments/centers in 2019 88
- Awarded internally to inventors in 2019 to fund 4 projects on the commercialization path 230,000
- Licensing revenue received in 2019 by the Office of Technology Commercialization 37 million

Nationwide Children’s Active Start-Up Companies

Please note the following start-ups have been acquired: AveXis by Novartis, Myonexus by Sarepta, and Celenex by Amicus.
The national Hearst Health Prize for Excellence in Population Health is awarded to an institution that demonstrates population health impact by measurable improvement; use of evidence-based interventions and best practices; promotion of communication, collaboration and engagement; scalability and sustainability and innovation. The award comes with a $100,000 cash prize which will be used to further the HNHF mission.

In 2009, Nationwide Children’s joined with community partners to launch Healthy Neighborhoods Health Families. The initiative, composed of faith-based organizations, community development organizations, youth-serving nonprofit and local public schools, seeks to create positive health outcomes in the community. HNHF’s focus began on Columbus’s South Side, the area around the hospital, where it has improved community, family and individual well-being. The initiative has now expanded to the Linden area. The HNHF initiative targets five impact areas: affordable housing, education, health and wellness, community enrichment and economic development.

“This honor is validation of what can be accomplished when a community comes together,” says Tim Robinson, CEO of Nationwide Children’s. “It is a vitally important part of our mission to not only provide high quality care to our patients and families, within the hospital’s walls, but also address the social determinants of health in the community, as well. We wouldn’t have been able to do it without strong partnerships with Community Development for All People, the United Way, Franklin County and its Commissioners, the City of Columbus and Mayor Andrew Ginther and others, and this prize is as much theirs as ours. We’re grateful for their teamwork and collaboration.”

Since its creation in 2009, HNHF has seen the following major achievements:

- More than 370 homes were impacted, including full-gut renovations, new builds, and grants to current residents through the Home Repair Program.
- The Residences at Career Gateway provides 58 units of apartments and townhomes along with on-site career development training.
- Neighborhood vacancy rates fell from 25% to 6%, and owner-occupied home sale volumes increased by 50% in the Southern Orchards neighborhood.
- Early childhood programs have driven kindergarten readiness scores from 32% to 96% for participants, and graduation rates increased from 64% in 2013 to 79% in 2017.
- Children who are Medicaid-eligible have experienced decreases in emergency department use and probability of inpatient admission.
- In surveys, residents report feeling safer and a stronger sense of community.

“We have demonstrated that equitable community development leads to positive outcomes for children and families,” says Kelly Kelleher, MD, MPH, vice president of Community Health and Community Health Services Research at Nationwide Children’s Hospital, who accepted the Hearst Health Prize today. “To be recognized for this important work is one step closer to addressing social determinants of health on a larger scale.”
FACULTY HONORS AND GRANTS

Childhood Cancer Research Team Awarded $10.2 Million Cancer Moonshot Grant
The National Cancer Institute at the National Institutes of Health announced it has awarded one of its Cancer Moonshot grants to Timothy Cripe, MD, PhD, chief of the Division of Hematology, Oncology & Blood and Marrow Transplant, and Elaine Mardis, PhD, co-executive director of the Steve and Cindy Rasmussen Institute for Genomic Medicine at Nationwide Children’s Hospital. The multiyear grant supports multiple ongoing projects led by the Pediatric Ohio-New York Cancer (Peds-ONC) Immunotherapy Center. The team includes collaborators at The Ohio State University, the New York College of Medicine and the University of Minnesota. This is the second Cancer Moonshot grant awarded to researchers at Nationwide Children’s.

Elaine Mardis, PhD

Jeff Bridge, PhD, Receives Nationwide Foundation Endowed Chair of Innovation in Behavioral Health Research
In 2020, the Nationwide Foundation Pediatric Innovation Fund supported the creation of the Nationwide Foundation Endowed Chair of Innovation in Behavioral Health Research. This chair is awarded to Jeff Bridge, PhD, director of the Center for Suicide Prevention and Research at Nationwide Children’s Hospital. This honor recognizes Dr. Bridge’s pioneering work in suicide prevention at the Abigail Wexner Research Institute at Nationwide Children’s. His research focuses on the epidemiology of suicidal behavior in young people and on improving the quality of care for suicidal youth and adolescents who have attempted suicide.

Jeff Bridge, PhD

$3 Million Grant Awarded to Children’s Hospitals in Ohio, Michigan to Establish Regional Disaster Center of Excellence
The Assistant Secretary of Preparedness and Response of the U.S. Department of Health and Human Services recently awarded a $3 million grant that will establish The Eastern Great Lakes Pediatric Consortium for Disaster Response as a Center of Disaster Excellence. The consortium, which Nationwide Children’s Hospital is a part of, is led by University Hospitals’ Rainbow Babies and Children’s Hospital and is accompanied by four other children’s hospitals in Ohio and Michigan. Rachel Stanley, MD, MHSA, chief of Emergency Medicine at Nationwide Children’s will lead the consortium team at Nationwide Children’s along with Ellen McManus, MD, attending Emergency Medicine physician.

Rachel Stanley, MD

Ellen McManus, MD

Deena Chisolm, PhD, Receives Nationwide Foundation Endowed Chair of Health Equity Research
In 2020, the Nationwide Foundation Pediatric Innovation Fund supported the creation and funding of the Nationwide Foundation Endowed Chair of Health Equity Research. This chair is awarded to Deena Chisolm, PhD, director of a Center of Emphasis dedicated to health equity research and vice president of Health Services Research at Nationwide Children’s Hospital. Dr. Chisolm is an epidemiologist whose research is focused on measuring and improving the effectiveness, efficiency and equity of pediatric health care in at-risk communities.

Deena Chisolm, PhD

National Pancreas Foundation Center of Excellence Designation
Nationwide Children’s Hospital has been named a National Pancreas Foundation (NPF) Center of Excellence. In alignment with Nationwide Children’s vision of delivering multidisciplinary care to support best outcomes, the NPF selects hospitals based on their ability to provide a comprehensive pediatric health care delivery system for the treatment of pancreatic disease. Cheryl Gariepy, MD, is the director of the Pancreas Center at Nationwide Children’s. The recognition is a credit to the physicians and staff and the center’s capacity to provide comprehensive care and advanced procedures that put us at the forefront of care and outcomes.

Cheryl Gariepy, MD

Nationwide Children’s Hospital Joins Four Other Top Research Institutions in Joint Initiative Focused on Single Ventricle Heart Defects
The Abigail Wexner Research Institute (AWRI) at Nationwide Children’s Hospital is the recipient of a $1 million Innovation Fund, endowed by the nonprofit foundation Additional Ventures. In receiving this funding, AWRI will join four other research institutions — including Children’s Hospital of Philadelphia, the Gladstone Institutes, Lucille Packard Children’s Hospital Stanford and The Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University — in a large-scale coordinated research effort centered on identifying new avenues to functionally cure patients with single ventricle heart defects. These funds will be used to extend research platforms to include more high-risk, high-reward projects that are often challenging to fund through more traditional grant mechanisms.

Rachel Stanley, MD

Ellen McManus, MD

Cheryl Gariepy, MD
NEW APPOINTMENTS

Rustin Morse, MD, Chief Medical Officer

Rustin Morse, MD, joined Nationwide Children's Hospital as chief medical officer in August 2020. Dr. Morse is a nationally recognized leader in pediatric quality and safety and currently serves on the national Clinical Steering Committee for Solutions for Patient Safety and the Quality and Safety Committee of the Board of Trustees for the Children's Hospital Association. He is a sought-after thought leader on pediatric quality and safety and is regularly recognized by Becker's Hospital Review as one of "50 Experts Leading the Field of Patient Safety." A board-certified pediatric emergency room physician who has continued to practice emergency medicine throughout his career, Dr. Morse has a successful track record leading and advancing quality and safety programs in pediatric health care.

Dr. Morse received his medical degree from the State University of New York Health Science Center at Upstate Medical University. He then completed his pediatric residency at Children's Hospital of Pittsburgh and his pediatric emergency medicine fellowship at Ann & Robert H. Lurie Children's Hospital of Chicago. He obtained a master's degree in Medical Care Administration from the University of Findlay. Wallace was instrumental in growing Nationwide Children's Neonatal Services. In 2012, Wallace joined the team at Nationwide Children's as the Neonatology service line administrator, and in 2016 was promoted to vice president of Neonatal Services at Nationwide Children's Hospital, where she has led the Neonatology service line since then.

Lee Ann Wallace, RN, BSN, NEA-BC, Chief Nursing Officer

Following a national search, Lee Ann Wallace, RN, MBA, NEA-BC, former vice president of Neonatal Services at Nationwide Children's Hospital, was selected senior vice president and chief nursing officer (CNO). Wallace began her career as a staff nurse at the University of Kentucky Children's Hospital in 1978. Prior to Nationwide Children's, she gained nearly three decades of experience as a clinical nurse manager, educator, service line leader and director of women's and children's services at four different health systems. In 2012, Wallace joined the team at Nationwide Children's as the Neonatology service line administrator, and in 2016 was promoted to vice president of Neonatal Services. She earned a bachelor of science in nursing from the University of Kentucky and obtained her master's in business administration in health care administration from the University of Findlay. Wallace was instrumental in growing Nationwide Children's Neonatal Network, now nationally recognized as the largest in the country.

Manmohan K. Kamboj, MD, Division Chief of Endocrinology

Manmohan K. Kamboj, MD, has been named chief of the Division of Endocrinology at Nationwide Children's Hospital. Dr. Kamboj is a nationally recognized figure in pediatric endocrinology quality and safety. Under her leadership, Nationwide Children's was named one of 10 sites in the National Type 1 Diabetes Exchange Quality Improvement Collaborative. She has various leadership roles in the Pediatric Endocrine Society (PES), including participation on multiple Education Committee initiatives and work as co-chair of the PES Drugs and Therapeutics Committee. Dr. Kamboj, who is also a professor of Pediatrics at The Ohio State University College of Medicine, has authored more than 65 manuscripts, book chapters and peer-reviewed articles. She has co-edited three books. She received her medical degree from Christian Medical College in India and completed her residency in pediatrics and fellowship in pediatric endocrinology at New York University Medical Center.

Maryam Fouladi, MD, MSc, FRCP, Co-Executive Director Neuro-Oncology Program

Maryam Fouladi, MD, MSc, FRCP, is a pediatric neuro-oncologist, co-executive director of the pediatric neuro-oncology program at Nationwide Children's Hospital, and a professor of Pediatrics at The Ohio State University College of Medicine. Dr. Fouladi is an internationally recognized expert in pediatric brain tumors and is renowned for her work in phase I clinical trials. She is the founding director of CONNECT, an international consortium focused on developing and testing novel therapies in early phase clinical trials. In addition to her roles at Nationwide Children's and The Ohio State University Wexner Medical Center, Dr. Fouladi serves as the chair of the Collaborative Network for Neuro-Oncology Clinical Trials and CNS Committee of the Children's Oncology Group. She is a pediatric neuro-oncology fellowship training at St. Jude Children's Research Hospital followed by additional training in the Molecular Pharmacology Department at St. Jude.

Katherine J. Deans, MD, MHSc, Chief Clinical Research Officer

Katherine J. Deans, MD, MHSc, a pediatric surgeon and co-founder and former director of the Center for Surgical Outcomes Research at Nationwide Children's Hospital, has been named the first chief clinical research officer at the Abigail Wexner Research Institute at Nationwide Children's. In her new role, she will focus on the development and oversight of clinical research operations across Nationwide Children’s, with an overall goal of facilitating impactful clinical research throughout the organization. Dr. Deans will oversee the full life cycle of the clinical research process, with an emphasis on increasing quality, compliance and efficiency along with promoting a culture of excellence among investigators and clinical research staff.

During her career, Dr. Deans has published more than 190 peer-reviewed papers, book chapters and abstracts and has received over $10 million in research funding. She received her medical degree from Dartmouth Medical School and her master’s of health science from the Duke University School of Medicine. She completed residencies at Massachusetts General Hospital, held clinical and research fellowships at the National Institutes of Health and a clinical fellowship at Children’s Hospital of Philadelphia.
DEPARTMENT OF PEDIATRICS

The mission of the Department of Pediatrics at Nationwide Children’s Hospital and The Ohio State University is to achieve excellence in teaching, research, academics, advocacy and administrative service. With great energy and enthusiasm, we promote the well-being of children, discover new knowledge to bring to bear on optimal child health and provide evidence-based, efficient and compassionate medical care to our patients and their families.

The department comprises 27 clinical divisions, the Steve and Cindy Rasmussen Institute for Genomic Medicine and 13 research centers of emphasis in the Abigail Wexner Research Institute. Department of Pediatrics faculty members have formal appointments in The Ohio State University College of Medicine.

Our faculty has an unwavering commitment to excellence and aspires to the highest levels of professionalism, humanism, diagnostic acumen, clear communication and compassion. We educate and mentor more than 350 third- and fourth-year medical students from The Ohio State University and train approximately 300 residents and subspecialty fellows each year. Our Center for Faculty Development oversees a robust program that strives to engage, support and educate our more than 500 faculty. An important mission of our department and hospital is the discovery and dissemination of new knowledge related to child health and health care delivery. This discovery mission is supported by more than $105 million in research funding and we are ranked sixth among free-standing children’s hospitals in NIH funding.

Carol Bradford, MD, Newly Appointed Dean of The Ohio State University College of Medicine

In August, The Ohio State University announced that strong academic leader and well-known physician-scientist in the field of otolaryngology — head and neck surgery will lead its College of Medicine beginning in October.

Carol R. Bradford, MD, FACS, will be the 15th dean of the medical college and vice president for Health Sciences at The Ohio State University Wexner Medical Center, and will hold the Leslie H. and Abigail S. Wexner Dean’s Chair in Medicine.

Dr. Bradford comes to Ohio State from the University of Michigan, where she was the executive vice dean of academic affairs and the chief academic officer for Michigan Medicine. She oversees education, global initiatives, faculty affairs, faculty development, diversity, equity and inclusion and regulatory affairs. A Michigan faculty member since 1992, she also served as chair of the Department of Otolaryngology — Head and Neck Surgery, co-director of the Head and Neck Oncology program for Michigan’s Rogel Cancer Center and principal investigator of a major project on the specialized program for research excellence in head and neck cancer. Her many awards include being inducted into the National Academy of Medicine in 2014, a Distinguished Service Award from the American Academy of Otolaryngology — Head and Neck Surgery (AAO-HNS) in 2007 and a listing in Best Doctors since 2001. She became president of AAO-HNS in September.

Photo taken before COVID-19 pandemic.
Dear Colleagues:

The Department of Pediatrics promotes child health by providing comprehensive, state-of-the-art care for children in Ohio and worldwide. Our vibrant training programs provide among the most diverse and preeminent educational experiences in pediatrics available in the United States. And our outstanding research programs are changing futures for children ourselves.

As we work to advance optimal health in children, we do not insulate ourselves from real-world issues that confront modern society. In response to the spirit of the Black Lives Matter movement and Nationwide Children’s stand against racism, the Department of Pediatrics is aggressively confronting racism as a public health crisis.

Along with many other initiatives at our hospital, we are working hard to increase year-over-year the number of underrepresented minority faculty and trainees in our Department. Through hard work by many people, we have made great progress in our residency program. Every Grand Rounds presentation must address some aspect of health equity and racism germane to the topic of the day. And we have a rich didactic curriculum and a variety of innovative experiential learning platforms that focus on diversity, equity and inclusion – all uniquely designed for our faculty.

I hope you enjoy the pages that follow and please expand the depth of our commitment to achieve best outcomes for children everywhere.

Sincerely,

John A. Barnard, MD

Ann I. Wolfe Chair in Pediatric Research President, Abigail Wexner Research Institute at Nationwide Children’s Hospital and Chair, Department of Pediatrics The Ohio State University College of Medicine

2019 – 2020 Nationwide Children’s Residency Program
Nationwide Children’s Hospital | The Ohio State University College of Medicine

DEPARTMENT OF PEDIATRICS VICE CHAIRS

Kristina Reber, MD Vice Chair, Department of Pediatrics
Linda Cripe, MD Vice Chair, Academic Affairs
Rebecca Wallihan, MD Vice Chair, Education
Dennis Durbin, MD Vice Chair, Research

PEDIATRICS RESIDENCY PROGRAM DIRECTOR
Rebecca G. Wallihan, MD

INTERNATIONAL MEDICINE/PEDIATRICS RESIDENCY PROGRAM DIRECTOR
Margaret Chau, MD

ASSOCIATE PROGRAM DIRECTORS

PEDIATRICS
Mary Kay Kuma, MD
Alexander T. Rakowsky, MD
Sanne M. Resd, MD
Chris A. Stewart, MD

INTERNATIONAL MEDICINE/PEDIATRICS
Lucas McKnight, MD
Allison Rossom, MD

PEDIATRICS RESIDENTS
CHIEF RESIDENTS
Dr. Hanhoch J. Ekwe
Dr. Taylor H. Jentak
Dr. Shara M. Sihovel
Dr. Megan E. Yancey
Dr. Becky Zhao

PL-2
Dr. Collin J. Abbott
Dr. Rusd D. Abreu
Dr. Kaethly Akoukhouni
Dr. Ahha A. Adhade
Dr. Erika L. Bland
Dr. Brauna N. Brown
Dr. Amanda R. Campbell
Dr. Sarah M. Chen
Dr. Christian M. Colota
Dr. Zachary D. Daniels
Dr. Jonathan A. Digby
Dr. David W. Down
Dr. Megan M. Foundell
Dr. Christopher Gabie
Dr. John M. Gokas
Dr. Raes Leontrapan
Dr. Monica L. Hahn

PL-3
Dr. Karen M. Allen
Dr. Zoeyah S. Asensio
Dr. Brin A. Ballard
Dr. Angelika E. Bontonisnek
Dr. Kyle B. Bughgraff
Dr. Lauren N. Carfoni
Dr. Alka L. Co.
Dr. kale L. Cunningham
Dr. Laura M. Delcroma
Dr. Maxson M. Faust
Dr. Nathaniel H. Fuiman
Dr. Naga Gal
Dr. Sarah J. Gauthier
Dr. James B. Gasikhone
Dr. Lauren M. Gudeman
Dr. Eric W. Jones
Dr. Shelby C. Jordan
Dr. Aary S. Kori
Dr. Jared A. Kuusa

PL-4
Dr. April N. Lehman

Dr. Ashleigh J. Slomew
Dr. Cody A. Shepel
Dr. Christena Tomasson-Sorensen
Dr. Mark J. Wells
Dr. Bianca Zapata

PL-1
Dr. Nadine-Solea E. Ackerajag
Dr. Molly J. Austen
Dr. Nimotha Baij
Dr. Megan N. Baricoft
Dr. Toror R. Boulenger
Dr. Kaia D. Camaday
Dr. Michael T. Clark
Dr. Nicole M. Dotson
Dr. Samantha J. Dinhao
Dr. Sabina J. Eiad
Dr. Mariana H. Fan
Dr. Ryan M. Halaway
Dr. Gabriela T. Gonzalez
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Dr. Emily M. Grand
Dr. Elizabeth M. Grogan
Dr. Muhammad T. Guandt
Dr. Eaniki D. Harman
Dr. Ann M. Koehler
Dr. Laura K. Lambert
Dr. Sara D. Lanneton
Dr. Rafael Lomas
Dr. Aaron Miko
Dr. Corinna C. Mccabe
Dr. Sarah M. Menashe
Dr. Jessica A. Nash
Dr. Samir Mishra
Dr. Corinne C. Mccabe
Dr. Rebecca N. Schneider
Dr. Rachel E. Pratt
Dr. Melonie A. Phillips
Dr. Rachel R. Pratt
Dr. Joshua J. Prual
Dr. Stephanie L. Renne
Dr. Alexander E. Sorvicos
Dr. Matthew T. Smith
Dr. Brandon S. Stone
Dr. Kristin L. Sandy-Boyke
Dr. Rachel L. Thompson
Dr. Charles C. Trotten
Dr. Jessica E. P. Williams
Dr. Mariell J. Wright
Dr. Jared J. Wuem
Dr. Guillermo J. Yeps Jempana

PL-5
Dr. Christopher W. Brouche

Dr. Dalia F. Brouche
Dr. Pascale F. Brouche
Dr. Denise F. Brouche
Dr. Jennifer F. Brouche
Dr. Alain F. Brouche
Dr. Michael J. Brouche
Dr. Alexander F. Brouche
Dr. Robin F. Brouche
Dr. Samuel F. Brouche
Dr. Stacie F. Brouche

Dr. Matthew E. Perisa
Dr. Haley B. Pearlstein
Dr. Aishwarya S. Navalpakam
Dr. Kyle B. Burghgraef
Dr. Karen M. Allen
Dr. Megan M. Fredwall
Dr. Michael D. Harman
Dr. Joanne T. Kelleher
Dr. Laura R. Lammers
Dr. Violeta C. Macaluso
Dr. Viviana C. Macaluso
Dr. Kristin D. Maletsky
Dr. Nina J. Ma
Dr. Celia E. Legosyear
Dr. Jack G. Macaluso
Dr. Thomas E. Mariscal
Dr. John P. Mariscal
Dr. Isma B. Shah
Dr. Hector A. Saucedo
Dr. Philip ‘Bucky’ Ribbeck
Dr. Aubrey K. Pizza
Dr. Kortney J. Pifher
Dr. Jacqueline M. Nicodemo
Dr. Rachel C. Nash
Dr. Claudia A. Mosquera Vasquez
Dr. Abigail J. McGinnis
Dr. Megan K. MacGregor
Dr. Antonia T. Kopp
Dr. Megan A. King
Dr. Kelly M. Irwin
Dr. Anneliese R. Huntzinger
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Dr. Rae Leonor Gumayan
Dr. John M. Grisham
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Dr. David W. Drees
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Dr. Zachary D. Daniels
Dr. Sarah M. Chen
Dr. Amanda R. Campbell
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Dr. Aaron Miko
Dr. Corinna C. Mccabe
Dr. Sarah M. Menashe
Dr. Jessica A. Nash
Dr. Samir Mishra
Dr. Corinne C. Mccabe
Dr. Rebecca N. Schneider
Dr. Rachel E. Pratt
Dr. Melonie A. Phillips
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Dr. Brandon S. Stone
Dr. Kristin L. Sandy-Boyke
Dr. Rachel L. Thompson
Dr. Charles C. Trotten
Dr. Jessica E. P. Williams
Dr. Mariell J. Wright
Dr. Jared J. Wuem
Dr. Guillermo J. Yeps Jempana

DEPARTMENT OF INTERNAL MEDICINE

CHIEF RESIDENTS

Dr. Matthew R. Emery
Dr. Mary J. Ryan

PGY-4
Dr. Karthika F. Ernst
Dr. Matthew J. Lyons
Dr. Sarah M. Dowdall
Dr. Lucy E. Roesserham
Dr. Britany S. Sheffler
Dr. Carey A. Toochek
Dr. Alekhy B. Vijayaram
Dr. Sush A. Xavier

PGY-3
Dr. Philip Chang
Dr. Anuska Delstem
Dr. Michelle Gillopkie
Dr. Bobbi Gormer
Dr. Audrey Hilmstein
Dr. Austin Meyer
Dr. Michelle Moore Paullis
Dr. Nathaniel Skorrier

PGY-2
Dr. Nabobha Alnoud
Dr. Kristin Cooper
Dr. Rachel D’Arcoo
Dr. Michael Duvart
Dr. Mary Kolo
Dr. Rachel Mangus
Dr. Timothy Faan
Dr. Daniel Schmitz
Dr. Savarath Smith
Dr. Andja J. Whiten

PGY-1
Dr. Colle Bredehoeft
Dr. Donovan Campbell
Dr. Jennifer DeSalvo
Dr. Cole Bredehoeft
PGY-2
Dr. Aisha J. White
Dr. Savannah Smith
Dr. Daniel Schmitz
Dr. Rachael Mangdus
Dr. Mary Hanks
Dr. Michael Diesntbach
Dr. Nabeeha Ahmad
Dr. Kristin Cooper
Dr. Rachel D’Arcoo
Dr. Michael Duvart
Dr. Mary Kolo
Dr. Rachel Mangus
Dr. Timothy Faan
Dr. Daniel Schmitz
Dr. Savarath Smith
Dr. Andja J. Whiten

PGY-1
Dr. Colle Bredehoeft
Dr. Donovan Campbell
Dr. Jennifer DeSalvo
Dr. Cole Bredehoeft
ADOLESCENT MEDICINE
The Section of Adolescent Medicine at Nationwide Children's Hospital provides general and specialty care for adolescents. The staff includes experts in all aspects of health care for adolescents, with an emphasis on comprehensive primary care, reproductive health care, eating disorders, LGBTQ youth, substance abuse, health for incarcerated youth, and adolescents with complex health problems.

FACULTY
Andrea E. Bonny, MD
Elise D. Berlan, MD, MPH
Gayathri Chelvakumar, MD, MPH
Casey B. Cottrill, MD, MPH
Fareeda W. Haamid, DO
Cynthia M. Holland-Hall, MD, MPH
Steven C. Matson, MD
Erin R. McKnight, MD, MPH
The Adolescent Medicine Clinic is located in the Livingston Ambulatory Center on our Columbus campus. Primary care is offered, as are consultative clinics for adolescents with reproductive health needs and those who need treatment for addiction. The Medical Clinic at the Franklin County Juvenile Detention Facility provides health care for detained youth. The Eating Disorders Program is a multidisciplinary team involving Adolescent Medicine physicians, a psychiatrist, behavioral health therapists, nurses and dietitians. Three levels of care are available: partial hospitalization, intensive outpatient therapy and coordinated outpatient visits. The Medication-Assisted Treatment for Addiction Program has been treating adolescents and young adults with opioid addiction using substitution therapy since 2007. The Young Women’s Contraceptive Services Program, also known as BC4Teens, increases accessibility to long-acting reversible contraception. The THRIVE Program provides comprehensive care to transgender and gender-nonconforming youth. Physicians in the Section of Adolescent Medicine provide ongoing and consultative care for adolescents admitted to Nationwide Children's with diverse medical problems, such as gynecological conditions and complications from eating disorders. An Accreditation Council for Graduate Medical Education Fellowship in Adolescent Medicine has been in place since 2010.

Our faculty members actively participate in research and national leadership. Erin R. McKnight, MD, MPH, and Andrea E. Bonny, MD, are co-investigators on a National Institutes of Health grant, developing new statistical approaches for estimating county-level rates of opioid misuse to target areas of highest priority. The grant-funded research of Gayathri Chelvakumar, MD, MPH, explores the association between quality of life and menstrual suppression in gender minority youth. Cynthia M. Holland-Hall, MD, MPH, was elected to the Executive Committee of the American Academy of Pediatrics Section of Adolescent Health, and Elise D. Berlan, MD, MPH, served on the board of directors for the North American Society for Pediatric and Adolescent Gynecology.

SELECTED PUBLICATIONS
Stull SW, McKnight ER, Matson SC, Bonny AE. Immunity to Hepatitis B is Undetectable in the Majority of Adolescents and Young Adults Seeking Outpatient Medication Treatment for Opioid Use Disorder. The Journal of Addiction Medicine. 2020 Jun 12. [Epub ahead of print].
ALLERGY AND IMMUNOLOGY

The Division of Allergy and Immunology at Nationwide Children’s Hospital provides comprehensive services for the diagnosis and treatment of patients with allergic and immunologic diseases from birth through age 21. Clinical activity includes an active outpatient clinic, several multispecialty clinics, an urgent referral clinic and inpatient consultation services. The division is also actively involved in both basic science and clinical research.

This past year, the Division of Allergy and Immunology opened the Food Allergy Treatment Center. This center provides comprehensive evaluation, diagnosis and management of food allergies, and is the only center in central Ohio performing high-risk oral food challenges. In addition to our food allergy focus, we remain a World Allergy Organization Center of Excellence, and continue to be a Jeffrey Modell Foundation for Primary Immunodeficiencies Diagnostic and Research Center of Excellence.

Our providers manage all allergic conditions, including asthma, allergic and nonallergic rhinitis, chronic sinusitis, hives, eczema, angioedema, drug and food allergies, latex allergy and stinging insect allergy. We provide allergy skin testing, allergen immunotherapy, asthma education, pulmonary function testing, comprehensive food allergy management (including oral food challenges) and drug allergy testing. We evaluate children with recurrent or unusual infections and provide complete evaluation and management for primary immunodeficiencies. Faculty participate in the Complex Asthma and 22q11 clinics and in multidisciplinary clinics with Hematology/Oncology, Otolaryngology (ENT) and Gastroenterology. We provide inpatient consultation and immediate assistance for health care providers through the physician consult transfer center.

A wide array of basic and clinical research is performed by division faculty, ranging from mechanisms driving the development of asthma and allergies to clinical studies of eosinophilic esophagitis, food allergy, use of technology to improve patient outcomes, transition of care, primary immunodeficiencies, asthma, and allergic and nonallergic rhinitis.

The Allergy and Immunology faculty provide clinical and didactic instruction for the Nationwide Children’s Hospital Allergy and Immunology Fellowship Program and Pediatric Residency Program along with students from The Ohio State University College of Medicine. Faculty and fellows have leadership positions in national allergy and immunology organizations and are invited speakers at local, regional, national and international conferences.

SELECTED PUBLICATIONS


Individuals listed above are not necessarily updated due to the large number of research projects being carried out.

FACULTY

Mitchell H. Grayson, MD
Division Chief
Rebecca Scherzer, MD
Section Chief
Elizabeth A. Erwin, MD
Irene J. Mikhail, MD
Peter J. Mustillo, MD
Benjamin Prince, MD
Margaret Redmond, MD
Kasey Strothman, MD
David R. Stukus, MD

Department of Pediatrics

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

ALLERGY & IMMUNOLOGY

Bash Kohabebi, MD
Monica Krull, MD
Dylsik Timbakala, MD
Jennifer Yenikof, MD
The Heart Center

Cardiomyopathy in Mothers of Boys With Muscular Dystrophy

Female carriers of the genetic defect that causes muscular dystrophy in boys show evidence of cardiac fibrosis. An interdisciplinary team from Nationwide Children’s Hospital reports about half of women who carry the genetic defect responsible for muscular dystrophy show evidence of cardiac fibrosis. The study, published in the International Journal of Cardiology, suggests that cardiac muscle, not skeletal muscle, is predominantly affected in this population.

Duchenne and Becker muscular dystrophies are progressive, neuromuscular diseases caused by mutations in the DMD gene, which encodes the protein dystrophin. About two-thirds of affected boys inherit the mutation in an X-linked recessive pattern from their mothers.

It was thought that female carriers of this mutation would be protected from expressing the disease due to the normal copy of the DMD gene on their second X chromosome. However, some mothers of boys with muscular dystrophy have reported symptoms of muscle weakness and cardiac issues.

In the study, researchers from the departments of cardiology, neurology and psychology collaborated to define this disease and estimate its prevalence. They performed a battery of tests, including cardiac magnetic resonance imaging (MRI) and cardiopulmonary exercise testing, on three groups of women: mothers of sons with muscular dystrophy who were genetically confirmed to carry the mutation, mothers of sons with muscular dystrophy who did not have the mutation and healthy women.

Cardiac MRI revealed that 49% of the genetic carriers had cardiac fibrosis, as opposed to 5% of the noncarriers and none of the healthy controls.

There were no differences between the genetic carriers and the other two groups on treadmill testing, suggesting the genetic defect predominantly affects cardiac muscle and not skeletal muscle in this population.

The researchers also found that, despite cardiomyopathy, the functional capacity of genetic carriers’ heart muscles was maintained.

May Ling Mah, MD, and Kan Hor, MD, cardiology investigators at The Heart Center at Nationwide Children’s, say the findings highlight the importance of genetic testing for mothers of boys with Duchenne and Becker muscular dystrophies.

“We recommend these mothers get gene tested,” Dr. Mah says. “Then, genetically confirmed carriers should have a cardiac MRI by their third decade, and more importantly, a third of them can be reassured.”

This study is part of a larger, longitudinal project funded by a grant from Parent Project Muscular Dystrophy. Dr. Mah says that, together, findings from neuromuscular, cognitive and cardiac tests will provide a detailed picture of this disease, as well as its trajectory. Such research could impact mothers and boys with muscular dystrophy.

“What we learn in one of these patient populations can help the other,” she says. “With these moms who are carriers, we have the opportunity to study the same gene defect in a different way.”

THE HEART CENTER
The Heart Center at Nationwide Children’s Hospital combines all clinical and research disciplines under one umbrella in order to meet our mission: to improve outcomes by discovering the causes of heart disease and develop novel therapies for our patients, focusing on each as an individual and providing the state-of-the-art care that all patients deserve, regardless of age. We support the mission of Nationwide Children’s to provide our services in a safe environment focused on family-centered care.

**FACULTY**

- Aimee K. Armstrong, MD
- Carl H. Backes, MD
- Darren P. Berman, MD
- Brian A. Boe, MD
- Jessica L. Bowman, MD
- Elisa A. Bradley, MD
- Sergio A. Carrillo Melendez, MD
- Steven C. Cassidy, MD
- John P. Cheatham, MD
- Manco Corridore, MD
- Linda H. Cope, MD
- Clifford L. Cua, MD
- Curt J. Daniels, MD
- Stephen M. Drahan, MD
- Timothy F. Feltes, MD
- Richard P. Fernandez, MD
- Jill A. Finch, MD
- Robert J. Gajarski, MD, MHSA
- Jennifer Gauvin, MD
- Stephen A. Hart, MD
- Don Hayes, MD, MS, MEd
- Kan N. Hoi, MD
- Anna N. Kamp, MD, MPH
- John Kelly, MD
- Naomi J. Kernea, MD
- Omar M. Khalid, MD
- Sarah Khan, MD
- John P. Korachkin, MD
- Rajesh Krishnamurthy, MD
- Lauren Lastinger, MD
- Anthony Y. Lee, MD
- Simon Lee, MD

- Kaitlin E. L’Helien, MD
- Eric A. Lloyd, MD
- May Ling Mah, MD
- Patrick I. McConnell, MD
- Christopher T. McKer, DO
- Aymen N. Naguib, MD
- Debinjan Nandi, MD
- Kathryn D. Nandell, MD
- Julie C. O’Donovan, MD
- Christina M. Phillips, MD
- Sautahl Rajpal, MD
- Kerry L. Rosen, MD
- Daniel G. Rowland, MD
- Aarthi Sabanayagam, MD
- Yoshinari Shinoka, MD, PhD
- Janet M. Simsic, MD
- Cory A. Strier, MD
- Karen M. Texter, MD
- Andrew Tran, MD
- Peter D. Winch, MD, MBA
- Andrew R. Yates, MD
- Cody M. Young, DO

**NATIONAL AND INTERNATIONAL REPUTATION**
**Highlights**

- Continued outstanding surgical outcomes, with overall surgical mortality 2% or less for last two years
- Implemented new protocols, leading to significant decrease in bloodstream infections associated with central intravenous lines in cardiac inpatients
- Hosted the national 6th Summit on Transparency and Public Reporting of Pediatric and Congenital Heart Disease Outcomes
- Successfully implemented telemedicine visits to support clinical services during the pandemic
- Returned to full outpatient clinical volume in May 2020, maintaining infection control practices, with a record number of referrals in June 2020

- Expanded regional outreach adult congenital clinics
- Funded 10 intramural projects and obtained $2 million in extramural grant funding from National Institutes of Health and Foundation
- One of five institutions in nation awarded Innovation Funds through Additional Ventures to study single ventricle heart disease

The Heart Center continues to grow in both volume and capabilities with record numbers of outpatient visits and diagnostic studies in 2019.

Our heart failure/transplant section, which has been renamed the Pediatric & Adult Advanced Cardiac Therapies (PAACT) program, saw a nearly 75% increase in transplant referrals in the last year and completed five heart transplants. We implanted six ventricular assist devices (VAD) as a bridge to recovery or heart transplant and successfully supported an infant over five months before transplant using the Berlin EXCOR VAD, our longest infant support to date. We anticipate continued VAD program growth, meeting the needs of an increasing population of older pediatric and young adult patients with congenital heart disease. We continue to grow a novel cardio-oncology program to provide ongoing cardiac care to long-term survivors of childhood cancers at risk for or developing cardiomyopathy.

Our cardiac catheterization and interventional therapies team participates in multiple device trials, including self-expanding transcatheter pulmonary valves (Harmony and Altura) to broaden nonsurgical valve replacement options for many patients. The team has organized the first multi-center, prospective, randomized trial for PDA device occlusion versus medical management in the premature neonate. Additionally, our catheterization team continues to participate in preclinical research, and has worked to refine the first fully bioabsorbable, tissue-engineered pulmonary valve in an animal fetus and implanted a fully absorbable ASD occluder in a sheep. Through a collaboration among cardiology, interventional radiology and hematology, the lymphatic disorder program is growing, performing diagnostic and interventional procedures for patients with lymphatic disorders. Lastly, the interventional team performed the first heart catheterization in the Midwest guided solely by magnetic resonance imaging (MRI).

As part of a busy clinical arrhythmia service, our electrophysiologist (EP) faculty staff a collaborative, inherited arrhythmia clinic, combining the expertise of specialists in cardiology, psychology and genetic counseling. They have developed appropriate use criteria...
The Congenital Heart Collaborative remains active and is one of few centers that has performed intervention in a fetus with pulmonary atresia with intact ventricular septum.

The Non-Invasive Imaging team initiated an AutoScan program for detailed echocardiographic evaluation of ventricular function and a Program of Care Ultrasound 

The Fetal Cardiology program continues to grow, with over 200 patients, including 4,500 outpatient visits (largest in the country), expanded to Zanesville, Ohio, (our fifth ACHD outreach location) and maintained surgical and cardiac catheterization outcomes significantly better than published national benchmarks. Academically, the ACHD program published 28 articles this past year including studies in COVID-19 in ACHD patients. They are primary investigators on 14 grants including industry, intramural and NIH funded studies, and have developed national registries to study the impact of COVID-19 in ACHD patients, pulmonary hypertension and athletes. Finally, one of our ACHD faculty and ACHD fellows also developed a national teaching series to provide education for ACHD patients, pulmonic stenosis and athletes. Finally, one of our ACHD faculty and ACHD fellows also developed a national teaching series to provide education for ACHD fellows nationwide during the COVID-19 surge.

Cardiothoracic Intensive Care Unit (CTICU) physicians are principal or co-investigators on four externally funded grants and one intramural grant. In the last academic year, they authored 19 manuscripts published in peer-reviewed journals. Twelve of the coauthored manuscripts were part of national emergency airway registry for children (NEARKiD). Therapeutic Hypothermia After Pediatric Cardiac Arrest (THAPAC), a national organization in the PICU (PCCP-PICU) and Collaborative Pediatric Critical Care Research Network (CPCRN). Additionally, eight abstracts were presented at national and international conferences.

The Fetal Cardiology program continues to grow, with over 120 visits in 2019 at four sites throughout the region. Within the Ohio Fetal Medicine Collaborative, the team has developed standard-of-care protocols for fetuses, with bradycardia, tachycardia and enhanced collaboration with the Perinatal Palliative Care team. They have been active in the field of fetal medicine, and development of a hospital-wide multidisciplinary Fetal Medicine Program.

The Heart Center and Center for Cardiovascular Research continue to be involved in multiple NIH and industry-funded clinical trials. We participate in multiple interventional cardiology clinical trials and are currently conducting studies involving four types of transcatheter pulmonary valves. In addition, we actively collaborate with Dr. Breuer in the Center for Regenerative Medicine for the tissue-engineered vascular graft clinical trial for our patients with single ventricle heart disease. Lastly, we have several collaborations with scientists in the Abigail Werner Research Institute studying the genetics of congenital heart disease, physical activity in congenital heart disease patients, and the extent of myocardial injury and complications in symptomatic and asymptomatic pediatric COVID-19 patients.

Center for Cardiovascular Research: See page 182 for information about this center in the Abigail Werner Research Institute at Nationwide Children’s.

G RANTS AWARDED TO HEART CENTER AND CARDIOVASCULAR RESEARCH FACULTY

JULY 1, 2019 – JUNE 30, 2020

$2,902,971

SELECTED PUBLICATIONS


The Heart Center at Nationwide Children’s is one of the nation’s top programs for diagnosis and treatment of congenital and acquired heart conditions in children. From fetal diagnosis and intervention, to long-term adult congenital care, our program has remained dedicated to providing the highest quality of comprehensive care.

**CARDIOLOGY**

Cardiology is a Section of the Department of Pediatrics and an integral part of The Heart Center at Nationwide Children’s Hospital. See page 40 for complete details.

**FACULTY**

Aimee K. Armstrong, MD
Carl H. Backes, MD
Darren P. Berman, MD
Brian A. Boe, MD
Jessica L. Bowman, MD
Elisa A. Bradley, MD
Steven C. Cassidy, MD
John P. Cheatham, MD
Linda H. Cripe, MD
Clifford L. Cua, MD
Curt J. Daniels, MD
Timothy F. Felixa, MD
Richard P. Fernandez, MD
Jill A. Fitch, MD
Vidu Garg, MD
Jennifer Gauntt, MD
Saurabh Rajpal, MD
Kerry L. Rosen, MD
Andrew R. Yates, MD

**GRANTS AWARDED TO HEART CENTER AND CARDIOVASCULAR RESEARCH FACULTY**

**JULY 1, 2019 – JUNE 30, 2020**

$2,302,971

**SELECTED PUBLICATIONS**


**A Decade of Remarkable Transformation**

The Heart Center at Nationwide Children’s is one of the nation’s top programs for diagnosis and treatment of congenital and acquired heart conditions in children. From fetal diagnosis and intervention, to long-term adult congenital care, our program has remained dedicated to providing the highest quality of comprehensive care.
2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM


2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

ADULT CONGENITAL HEART DISEASE

Arunadip Doleja, MD

Marc Lee, MD

ADVANCED NONINVASIVE CARDIAC IMAGING

Carmen Kiper, MD

PEDIATRIC CARDIOLOGY

Jeffrey Bennett, MD

Jason Cole, MD

Tyler W. Cunningham, MD

Christina M. Fink, MD

Emily Hayes, MD

Brittney Hills, DO

Hannah Jacobs, DO

Erin Nealon, MD
CHILD AND FAMILY ADVOCACY

The Section of Child and Family Advocacy housed within the Center for Family Safety and Healing at Nationwide Children’s Hospital is home to a team of board-certified child abuse pediatricians and advanced-practice nurse practitioners who are nationally recognized child maltreatment experts with an emphasis on physical abuse, sexual abuse and medical child abuse. The Center for Family Safety and Healing is a multidisciplinary organization that provides coordinated and comprehensive services in the prevention, diagnosis and treatment of family violence. As a national leader in this important work, a team of more than 120 professionals representing medicine, behavioral health, social services, law enforcement, prosecution and children services are co-located at the center to address the complex issues of family violence.

FACULTY

Megan M. Letson, MD, MEd
Chief

Faith W. Brink, MD

Kristin G. Crochton, DO, MPH

Catherine M. Huber, MD

Jennifer J. Tscholl, MD

The Section of Child and Family Advocacy provides comprehensive evaluation and management of child maltreatment, offering inpatient and outpatient services. Key services include the Child Assessment Center, Fostering Connections Program, Non-Accidental Traumatic Brain Injury Clinic and inpatient consultations.

The Child Assessment Center offers a coordinated response to family violence for families through partnerships with law enforcement, children services and a range of community resources. Through a collaborative effort with the Emergency Department, we provide suspected child abuse assessments after clinic hours by using on-call forensic interviewers and pediatric sexual assault nurse examiners in the emergency department setting.

As a clinical partnership with Franklin County Children Services, the Fostering Connections Program is offered at three different locations and serves as a medical home for children in out-of-home placement.

The section remains committed to providing quality educational experiences for trainees, including medical student and pediatric resident electives. Under the direction of Megan M. Letson, MD, MEd, the Child Abuse Pediatrics Fellowship is an Accreditation Council for Graduate Medical Education-accredited program and continues to attract excellent trainees. Additionally, in collaboration with Pediatric Emergency Medicine, we are one of a few programs nationally to offer a combined four-year Child Abuse Pediatrics and Pediatric Emergency Medicine Fellowship.

Members of the section continue to be recognized nationally, including representation on the American Board of Pediatrics Sub-board on Child Abuse Pediatrics and on multiple Ray Helfer Society committees. Additionally, faculty continue a tradition of national speaking engagements, including the Huntsville International Symposium on Child Abuse. During the past year, faculty work has been presented at the American Academy of Pediatrics National Conference and Exhibition, American Public Health Association, Society for Pediatric Radiology Annual Meeting, and the Ray Helfer Society Annual Meeting.

SELECTED PUBLICATIONS


GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

$2,585,946
The Division of Clinical Informatics at Nationwide Children’s Hospital aims to transform health care through design, implementation and optimization of information and communication systems. Our goal is to enhance patient care activities with safe and reliable information systems, improve individual and population health outcomes through the use of technology and digital tools, enable innovation and research across the institution, and empower our patients and families with the tools they need to engage effectively with their health care team and our health care system.

FACULTY

Jeffrey M. Hoffman, MD
Chief
Aarti R. Chandawarkar, MD
Juan D. Chaparro, MD, MS
Jennifer A. Lee, MD
Simon Lin, MD, MS, MBA
Kathryn E. Nuss, MD
Laura Rust, MD, MPH

The faculty and fellows in the Division of Clinical Informatics work to enhance the effectiveness of our clinical information systems and to provide expert consultation to operational leaders, clinicians and investigators across the institution. We collaborate with other divisions and disciplines to improve tools for clinical documentation, patient management, population health, quality improvement and research.

No doubt 2020 will be a year to be remembered. In the face of a pandemic, our division worked tirelessly with our colleagues to provide the best patient care and the safest working environment possible. Within a few weeks, we had conducted over 100,000 telehealth visits across a wide array of specialties and services.

At the same time, we provided the new Big Lots Behavioral Health Pavilion staff with technology and tools to address their unique patient needs. We continued to refine our pediatric sepsis detection model, which the software company Epic adopted as their standard predictive model, offered free of charge to other children's hospitals across the country. We revamped our influenza vaccination decision support tools, which led to 5,000 more vaccinated children this season than last. Overall, despite these unprecedented times, we have many great accomplishments to celebrate this year, not the least of which is our most recent fellowship graduate, Dr. Jennifer Lee, who will be joining our division permanently.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
$72,100

SELECTED PUBLICATIONS


COMMUNITY PEDIATRICS

The Section of Community Pediatrics at Nationwide Children’s Hospital includes community physicians in pediatrics and internal medicine/pediatrics who are affiliated with Nationwide Children’s. Many of these physicians participate in the Pediatric Education in Community Sites (PECS) program. This provides residents with a very different kind of outpatient experience than that of a traditional hospital-based practice. Beginning in their first or second year, each resident is assigned to an additional half-day continuity experience in a private practice. This offers thorough exposure to general pediatric practice and reinforces the relationship between Nationwide Children’s and the community physicians.

Gary J. Lukes, MD
Chief

Robert W. Snyder, MD
Chief

NATIONAL CHILDREN'S HOSPITAL

Cynthia J. Black, MD
Stephen R. Bauer, DO
Heather A. Battles, MD
Steven M. Bass, DO
Courtney R. Bartsch, MD
Ryan M. Barson, MD
Brent M. Barson, DO
Lauren C. Bar-Lev, MD
Taylor A. Ballenger, MD
Jennifer E. Bachman, MD
Mary S. Applegate, MD
Lacey J. Althausen, MD
Benjamin P. Almasanu, DO
Ilona B. Albrecht, DO
Nikola T. Al-ain, MD
Wahida B. Abaza, MD
Chief
Robert W. Snyder, MD

reinforces the relationship between Nationwide Children's and the community physicians. This offers thorough exposure to general pediatric practice and

continuity experience in a private practice. This provides residents with a very different kind of outpatient experience than that of a traditional hospital-based practice.

The Section of Community Pediatrics at Nationwide Children's Hospital includes community physicians who are affiliated with Nationwide Children's. Many of these physicians participate in the Pediatric Education in Community Sites (PECS) program.

Beginning in their first or second year, each resident is assigned to an additional half-day continuity experience in a private practice. This offers thorough exposure to general pediatric practice and reinforces the relationship between Nationwide Children's and the community physicians.
**COMPLEX CARE**

The Division of Complex Health Care at Nationwide Children’s Hospital provides comprehensive, coordinated and holistic care to children and adults with neurodevelopmental disabilities. For some patients with complex issues, we are their primary care doctor and “medical home.” For others, we partner with their medical home and specialists to provide expert neurodevelopmental care. Our services include the comprehensive Cerebral Palsy Program, and the comprehensive Feeding and Swallowing Program. Our faculty participate in the interdisciplinary Spinal Muscular Atrophy Clinic, the Early Developmental Clinic, the Adult Down Syndrome Clinic at the Nisonger Center, and provide medical care to the residents of the Heinzerling Foundation.

**FACULTY**

Garey Noritz, MD  
Chief

Laurie Glader, MD  
Section Chief

Rukshana Ahmed, MD  
Wendy Burdo-Hartman, MD  
Derek Fletcher, MD  
Elizabeth Lucas, MD  
Katharine Stringas, MD  
Joy Walton, MD

This year, we welcomed Laurie Glader, MD, as our section chief and medical director of the Cerebral Palsy program. She is an internationally recognized expert in the medical care of children with cerebral palsy and other disabilities.

The comprehensive Cerebral Palsy Program at Nationwide Children’s is the lead site for the Cerebral Palsy Research Network. By linking 28 centers in the United States and Canada, we are working to improve treatments and outcomes for people with cerebral palsy through high-quality clinical research and quality initiatives. In partnership with the nationally recognized Early Development Clinic, where early diagnosis of cerebral palsy is a priority, we have improved the clinical transition for patients with cerebral palsy from infancy through childhood. We also run one of the few adult cerebral palsy clinics in the United States.

The comprehensive Pediatric Feeding and Swallowing Program at Nationwide Children’s provides evaluation and treatment of complex feeding disorders and is one of only a handful in the country to offer an intensive feeding program. One of the major outcomes is reduction in the need for enteral tube feeding. Other outcomes focus on increased enjoyment in eating, family stress reduction and nutritional optimization.

Our faculty continue to be a sought-after resource for mentoring and education, with invited lectures locally, nationally and internationally. Our non-physician staff are leaders in training their colleagues in nursing, nutrition, pharmacy, social work and allied therapies in the provision of family-centered care for children and adults with disabilities.

Members of our faculty have leadership positions at leading national organizations, including the American Academy of Pediatrics, the Society for Developmental and Behavioral Pediatrics, the Pediatric Feeding Consortium and the American Academy for Cerebral Palsy and Developmental Medicine.

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**FAST FACTS**

July 2019 through June 2020

<table>
<thead>
<tr>
<th>Inpatient Discharges:</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation and Outpatient-in-a-Bed Discharges:</td>
<td>160</td>
</tr>
<tr>
<td>Total Discharges:</td>
<td>241</td>
</tr>
<tr>
<td>Average Length of Stay*:</td>
<td>5.6</td>
</tr>
</tbody>
</table>

*Excludes observation and outpatient-in-a-bed patients.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

CLINICAL FELLOWSHIP IN QUALITY & SAFETY LEADERSHIP

Tara Congreves, MD  
Veronica M. Minn, MD  
Anja Zane, MD
CRITICAL CARE MEDICINE

The Section of Critical Care Medicine at Nationwide Children’s Hospital provides in-house faculty coverage of the Pediatric Intensive Care Units (PICUs) 24 hours a day and is dedicated to the care of children who have, or are at risk for, life-threatening illnesses across the spectrum of pediatric disease. This service also contributes actively to the vital missions of research and advanced training in the field of pediatric critical care medicine. This service cares for approximately 3,000 patients per year, covering up to 54 PICU beds at Nationwide Children’s and contributing to the coverage of the 20-bed cardiothoracic ICU. Therapies such as extracorporeal membrane oxygenation, high frequency oscillatory ventilation, and continuous renal replacement therapies are available at all times. We continue to boast one of the lowest rates of hospital-acquired infection and preventable harm of any PICU in the country. We also staff the Assessment and Consultation Team, a multidisciplinary rapid response team, and the Pediatric Analgesia and Sedation Service.

FACULTY

Mark W. Hall, MD, FAAP, FCCM
Division Chief

Nadeem Khan, MD, FAAP
Section Chief

Onsy S. Ayad, MD, FAAP
Richard J. Brilli, MD, FAAP, MCCM
Margaret A. Chase, MD
Melissa G. Chung, MD
Megan C. Daniel, MD
Maria H. Estrada, DO, FAAP
Jill A. Fitch, MD
W. Joshua Frazier, MD
Jennifer M. Gauntt, MD
Samantha W. Gee, MD, FAAP
Todd J. Karsies, MD, MPH
Jennifer A. Muszynski, MD, MPH, FCCM
Nicole F. O’Brien, MD
Danna W. Qunibi, MD
Claire A. Stewart, MD, MEd
Markita L. Suttle, MD
Joseph D. Tobias, MD
Andrew R. Yates, MD

SELECTED PUBLICATIONS


FAST FACTS

July 2019 through June 2020

Inpatient Discharges: .................................................... 349
Observation and Outpatient-in-a-Bed Discharges: ........ 46
Average Length of Stay*: ............................................ 6.90
Average Daily Census*: ............................................. 6.56

Patient Days*: .......................................................... 2,395
Inpatient Consults: ..................................................... 43
Complex Health Care Clinic Visits: ............................... 6,775
*Excludes observation and outpatient-in-a-bed patients.

Department of Pediatrics
clinical trials of immunostimulation in the setting of pediatric critical illness and injury in 2019. Examples of other areas of research focus for the pediatric critical care medicine faculty include *Staphylococcus aureus* microbe pathology (Montgomery), cerebral malaria and global health (O’Brien), transfusion science (Mauzy), respiratory infections (Karais), anesthesiology (Tobias), resuscitation (Yang), and quality and safety (Brilli, Ayad). With this broad scientific portfolio, an in-situ research laboratory within the PICU, and four divisional research coordinators, the section remains at the forefront of innovation in the field.

Our Accreditation Council for Graduate Medical Education-approved Pediatric Critical Care Medicine Fellowship provides rigorous clinical and academic training for the next generation of ICU faculty, accepting four fellows per class in our three-year program. The Critical Care Medicine faculty participate in instruction for the pediatric and surgical residency programs, as well as multiple other fellowship programs. A PICU elective is also provided for fourth-year medical students.

**SELECTED PUBLICATIONS**


**GRANTS AWARDED**

**JULY 1, 2019 – JUNE 30, 2020**

$1,128,271

**SELECTED PUBLICATIONS**


**FAST FACTS**

**2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM**

**PEDiatric CRITICAL CARE MEDICINE**

<table>
<thead>
<tr>
<th>Fast Facts</th>
<th>July 2019 through June 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICU Admissions:</td>
<td>3,216</td>
</tr>
<tr>
<td>Average Length of Stay*:</td>
<td>4</td>
</tr>
<tr>
<td>Average Daily Census*:</td>
<td>33</td>
</tr>
<tr>
<td>Total Patient Days*:</td>
<td>12,167</td>
</tr>
<tr>
<td>Inpatient Discharge*:</td>
<td>3,207</td>
</tr>
<tr>
<td>Number of Beds*:</td>
<td>54</td>
</tr>
</tbody>
</table>

*Excludes observation and in-patient patients.

**DERMATOLOGY**

The Section of Dermatology at Nationwide Children’s Hospital sees outpatients from birth through age 21 for both common and rare disorders of the hair, skin and nails.

**FACULTY**

Patricia M. Witman, MD

Chief

Ezechiem Nwosu-Geoffard, MD

**SELECTED PUBLICATIONS**


**FACULTY**

**SELECTED PUBLICATIONS**

Joy Lynn Mosser-Goldfarb, MD

Chief

Other highlights of the 2019-2020 academic year include the acquisition of an excimer laser for our phototherapy program, providing another treatment option for families with vitiligo and psoriasis.

Additionally, the division began offering treatment with the CO2 laser, a useful treatment for scars and some birthmarks.
DEVELOPMENTAL AND BEHAVIORAL PEDIATRICS

The mission of the Division of Developmental and Behavioral Pediatrics at Nationwide Children’s Hospital is to achieve best outcomes for children with developmental and behavioral needs through evidence-based, family-centered, interprofessional practice. Outpatient services include comprehensive care delivered by developmental and behavioral pediatricians and advanced nurse practitioners in partnership with pediatric psychology and other health care professionals. Areas of expertise include the evaluation and management of complex ADHD, Autism Spectrum Disorders and developmental delay. Additional focus areas include myelomeningocele, neonatal follow-up, Down syndrome and Williams syndrome. The division often provides care in collaboration with programs through Nationwide Children’s Hospital’s Behavioral Health Services.

FACULTY

Amy Newmeyer, MD
Interim Chief

Lindsay Bartram, DO
Daniel L. Coury, MD
Anita R. Narayanan, MD
Patricia L. Nash, MD
Katherine Steingass, MD
Jennifer Walton, MD, MPH

The Division of Developmental and Behavioral Pediatrics at Nationwide Children’s is led by Amy Newmeyer, MD. A visiting associate professor of pediatrics at The Ohio State University College of Medicine, Dr. Newmeyer serves on the American Board of Psychiatry and Neurology NDD Committee and as the Nationwide Children’s site medical co-director for the Autism Learning Health Network.

Faculty in the division contribute at the local and national levels to improve clinical outcomes and reduce avoidable harm. Daniel L. Coury, MD, holds multiple national administrative and research roles, including medical directorship of the Autism Treatment Network. Rebecca Baum, MD, also holds multiple roles on national committees related to pediatric mental health. Anita R. Narayanan, MD, leads the division’s quality improvement efforts to reduce environmental stressors faced by Developmental and Behavioral Pediatrics patients and reduce missed appointments. Lindsay Bartram, DO, leads a QI initiative to improve transition to adult care for DBP patients. Jennifer Walton, MD, MPH, is co-director of the Nationwide Children’s Williams Syndrome Clinic and chair of the pediatric section of the National Medical Association. Katherine Steingass, MD, serves as medical director of the Nationwide Children’s Myelomeningocele Clinic and as a PI on the National Spina Bifida Patient Registry. Patricia L. Nash, MD, serves as medical director of the Nationwide Children’s Down Syndrome Program.

The division continues to support a robust fellowship program led by Dr. Katherine Steingass. The fellowship is integrated with The Ohio State University’s Leadership Education in Neurodevelopmental Disabilities program at the Nisonger Center, with Dr. Walton serving as the program’s associate director.

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020
$279,778

SELECTED PUBLICATIONS


Department of Pediatrics

EMERGENCY MEDICINE

The Emergency Department at Nationwide Children's Hospital is one of the nation's highest-ranked and busiest pediatric emergency departments (based on Children's Hospital Association benchmarking data and Parents magazine). Emergency Medicine features a Level I Pediatric Trauma Center and ED staffed by board-certified/eligible pediatric emergency medicine subspecialists 24 hours a day.

FACULTY

Bema Bonsu, MD
Alan Bleiberg, MD
Deborah Blackwell, MD
Berkeley Bennett, MD
Robert Baun, MD
Terry Barber, MD
Brett Ballard, MD
Srikanth Aravapalli, MD
Barbara Amakye, MD
Alana Albano, MD
Section Chief
Michael Stoner, MD
Division Chief
Rachel M. Stanley, MD, MHSA

Michael Stoner, MD
Section Chief
Alana Alhano, MD
Barbara Amakye, MD
Adjua Andoh, MD
Srikanth Aravapalli, MD
Brett Ballard, MD
Tony Bao, MD
Robert Baun, MD
Brekeley Bennett, MD
Luciana Berg, MD
Deborah Blackwell, MD
Alan Blieberg, MD
Bema Bonu, MD
Traci Bouchard, MD

Brian Bowden, MD
Mary Bowman, MD
Bertha Bubolz, MD
Michael Claus, MD
Cullen Clark, MD
Berth Claxton, MD
Daniel Cohen, MD
Melanie Copenhaver, DO
Carrrie DeHoff, MD
Lori Deschme, MD
Meghan Dichong, MD
Michael Dunn, MD
Meika Ely, MD
Emile Elshammam, MD
Joelle Farlow, MD
Rachel Feldkamp, MD
Aarit Gaglani, MD
Adam Garlock, MD
Yaffa Gaferia, MD
Delia Gold, MD
Angela Harris, MD
Kara Hausenberger, MD
Todd Holman, MD
Daniela Humphrey, MD
Maya Iyer, MD
Irvin Jaffari, MD
Chris Jones, DO
Simmi Dogra Kulkarni, MD
Catherine Lambert, MD
Mare Ledet, MD
Julie Leonard, MD
Rachel Levine, MD
Celia Ligowski, DO
Seth Limakis, MD
Julia Lloyd, MD

Manuel Lugo, MD
Timothy Meckung, MD
Ellen McManus, MD
Jennifer Melvin, MD
Leah Middelberg, MD
Lede Mihales, MD
Jennifer Mistman, MD
Rustin Morse, MD
Jennifer Mouzak, MD
Kathy Nuss, MD
Nikiruka Ojaia, MD
Jimisha Patel, MD
Michael Patrick, MD
Jun Perry, MD
JonathanPRI, MD
Shelia Rao, MD
Maegan Reynolds, MD
Laura Rust, MD
Mary Ryan, MD
Daniel Schetter, MD
Benza Schmeler, MD
Emily Semmian, MD
Babar Shihabuddin, MD
John Somos, MD
Sandra Spencer, MD
Gregory Stewart, MD
Kristin Strakis, MD
Jerry Sultz, MD
Kathleen Sugrue, MD
Bethany Uhl, MD
Rishi Verma, MD
Tracey Wagner, MD
Jordie Wells, MD
Jessica Wilson, MD
Morgan Wurtz, MD
Jennifer Wyse, MD
Anita Yalamanchi, DO

The Emergency Department provides expertise in pediatric advanced life support and resuscitation, as well as evaluation and treatment in every area for acute medical and surgical conditions. Off-site urgent care services are provided at Nationwide Children's Close To Home (CTH) Centers in Cambridge, Dublin, East Columbus, Hilliard, Marysville and Westerville. The Emergency Department is a hub for medical education in the acute care of children, adolescents and selected adults. Medical students and more than 300 residents from Emergency Medicine, Family Practice, Internal Medicine/Pediatrics and Pediatrics programs are educated in all aspects of pediatric emergencies. In addition, Nationwide Children's has a large, vibrant Pediatric Emergency Medicine Fellowship program. Members of the Section of Emergency Medicine are active leaders and participants in the residency program at Nationwide Children's and at The Ohio State University College of Medicine.

The Department of Emergency Medicine was integral in the successful opening of the Psychiatric Crisis Department at the Big Lots Behavioral Health Pavilion (BHP) in 2020. Concurrently with the BHP opening, Emergency Medicine successfully navigated the challenges presented by COVID-19 by playing a significant role in the implementation of a drive-up COVID-19 testing facility.

In addition to providing clinical, operational and educational excellence, Emergency Medicine has a strong history of clinical research. We lead the federally funded Great Lakes node of the Pediatric Emergency Care Applied Research Network (PECARN), a large 18-hospital research network. We have developed research collaborations with the Columbus Division of Fire and other emergency medical service agencies regionally and nationally. The section is committed to the ongoing improvement of health care delivery in the Emergency Department and in clinical outcomes.

GRANTS AWARDED

July 1, 2019 – June 30, 2020

$1,806,663

SELECTED PUBLICATIONS


2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC EMERGENCY MEDICINE

Bridget Bonaventura, MD
Crista Cerrone, MD
Courtney Cork, MD
Kieran Du, MD
Nathaniel Fournier, MD
Michelle Gavone, DO
Nina Gupu, MD
Lisa Hemsman, MD
Yamin Jadcherla, MD
Chelsea Kadish, MD
Jennifer Nystrom, MD
Alan Potts, MD
Jason Toews, MD
Kellya Ubokudom, DO
Taylor White, MD

FAST FACTS

July 2019 through June 2020

ED Visits (Includes All Visits Regardless of Disposition): 84,852

Urgent Care Visits

Main Campus Urgent Care: 42,109
Canal Winchester Urgent Care: 13,649
Dublin Urgent Care: 8,712
East Broad Urgent Care: 20,377
Hilliard Urgent Care: 15,113
Marysville Urgent Care: 9,311
Westerville Urgent Care: 24,598
Total Urgent Care Visits: 134,869
Using Metrics to Improve the Delivery of Optimal Care for Children With Type 1 Diabetes

Pediatric type 1 diabetes (T1D) necessitates a coordinated, multidisciplinary effort to deliver optimal standards of diabetes care, as outlined by the American Diabetes Association (ADA) and International Society for Pediatric and Adolescent Diabetes (ISPAD).

Tracking care delivery can identify shortfalls and encourage specific interventions to improve delivery of quality care.

Kathryn Obrynba, MD, a pediatric endocrinologist at Nationwide Children’s Hospital, and her research team designed a novel T1D care index (T1DCI) to track the delivery of optimal T1D care within the hospital’s diabetes program.

“An overall improvement was observed by tracking the index,” Dr. Obrynba says, “meaning there were fewer missed opportunities to deliver care.”

Using ADA and ISPAD guidelines, Dr. Obrynba and her team first identified 11 elements of optimal diabetes care, then grouped the elements into three categories: patient-centered multidisciplinary care, monitoring for co-morbidities/preventive screening, and psychosocial support.

For the study’s baseline period (January to December 2017), the research team reviewed the electronic medical records (EMR) of patients with T1D to tally the number of missed opportunities to deliver optimal diabetes care. During the intervention period (January to December 2018), the cumulative number of missed opportunities was tallied for each care element each month.

By the end of the intervention period, there was a 26% overall reduction in the number of missed care opportunities.

“Tracking opened our eyes to how care processes were being implemented to provide optimal care,” Dr. Obrynba says.

Several care elements demonstrated marked reductions during the intervention period. The largest reduction (74%) was observed with clinic accessibility, attributed to automatically scheduling follow-up appointments at check-in. The second-largest reduction (53%) was observed with the after-clinic summary, attributed to autopopulating the summary in the EMR.

Some missed opportunities increased during this period, however. For example, missed opportunities for depression screenings increased by 129% because of a shortage of social workers to perform the screenings.

“Near the end of intervention period, we instituted a process change to flag when patients were due for their depression screenings,” Dr. Obrynba says.

These patients completed the screening at check-in, independent of a social worker. Several high-level changes were also implemented such as an electronic dashboard within each patient’s EMR to track delivery of care.

Although not all 11 care elements demonstrated a reduction in missed opportunities, Dr. Obrynba says that the index’s real success was the ability to track delivery of care and identify these missed opportunities.

REFERENCE:

“Tracking opened our eyes to how care processes were being implemented to provide optimal care.”
– Kathryn Obrynba, MD
ENDOCRINOLOGY

The Section of Endocrinology at Nationwide Children's Hospital provides comprehensive primary and consultative services for the diagnosis and treatment of endocrine/hormone disorders and diabetes mellitus in children and adolescents. These include, but are not limited to, type 1 and type 2 diabetes mellitus, prediabetes, obesity, metabolic syndrome, hypoglycemia, polycystic ovarian syndrome, disorders of growth and puberty, thyroid gland disorders, thyroid nodules and cancers, adrenal gland disorders, disorders of bone metabolism, genetic syndromes with hormone disturbances, diabetes insipidus, and differences of sexual development and gender identification.

FACULTY

Mammoth K. Kamboj, MD
Division Chief
Saigarn A. Bowden, MD
Monika Chaudhari, MD
Kajal Gandhi, DO
Rohan K. Henry, MD, MS
Leena Mamilly, MD
Leena Nahata, MD
Kathleen Obyrne, MD
Juan F. Soto, MD (Emeritus)
Aurelia C.H. Wood, MD

The Section of Endocrinology currently has 11 active pediatric endocrinologists, five advanced practitioners and four pediatric endocrinology fellows. The section presently conducts 15,000 outpatient appointments per year. In 2019, there were over 330 patients diagnosed with new-onset diabetes, and over 2,000 patients with diabetes mellitus being followed at Nationwide Children's on a regular basis.

The section collaborates closely with other disciplines with diabetes mellitus being followed at Nationwide Children's on a regular basis.

Include Metabolic Bone Disease, Cystic Fibrosis-Related Diabetes, Prader-Willi Syndrome Clinic, Bone Marrow Transplant Long-term Follow-up Clinic, Muscular Dystrophy Clinic, Thyroid Nodule/Cancer, Type 2 Diabetes clinics, fertility consultations, Sickle Cell Clinic, Young Adult Diabetes Transition Clinic, and the TTHRIVE program (differences of sexual development). The section maintains a robust quality improvement portfolio that includes over 15 active projects designed to achieve best outcomes for patients with diabetes mellitus and endocrine disorders. As a member of the National T1D Exchange Quality Improvement Collaborative, the section participates in initiatives to further expand the reach of quality improvement best practices nationally.

The Section of Endocrinology is a major referral center for children and adolescents in and beyond central Ohio and is a consultative resource for the Ohio Department of Health Newborn Screening Program for congenital hypothyroidism and congenital adrenal hyperplasia.

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

534,567

SELECTED PUBLICATIONS


2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC ENDOCRINOLOGY

Cecilia Dardans, MD
Alina M. Guzman, MD
Noha Paul, MD

A Decade of Remarkable Transformation

ENDOCRINOLOGY

Over the last 10 years, Endocrinology has expanded to provide comprehensive programs for pediatric and adolescent endocrine care including Prader-Willi disease, fertility, gender diversity, and differences of sex development. The division has also become a national leader in diabetes quality improvement initiatives by joining the T1D Exchange Quality Improvement Collaborative.
Comparing Treatments for Intractable Functional Constipation

Most kids respond to traditional treatments for constipation, including behavioral interventions and laxatives, but a sizable number continue to have problems with intractable constipation that can lead to fecal incontinence.

For these children, treatment options include minimally invasive surgical procedures such as antegrade continence enemas (ACE) and sacral nerve stimulation (SNS). However, there is little data comparing these procedures and guidelines for their use are lacking, leading to variation in treatment practices.

In a new study, researchers compared the efficacy and safety of ACE and SNS in children with intractable functional constipation. The objective was to compare the treatments to help clinicians better decide on the best option for each patient.

The team, led by Peter Lu, MD, MS, a pediatric gastroenterologist at Nationwide Children’s Hospital, found that both ACE and SNS led to durable improvement of functional constipation in children, although the two treatments had different effects on specific symptoms.

“It was clear from our data that SNS works well for stool accidents, even though it did not make a huge difference for other factors, like bowel movement frequency and abdominal pain,” says Dr. Lu, also an assistant professor of Clinical Pediatrics at The Ohio State University College of Medicine. “ACE helped with stool accidents, though not to the same degree as SNS, but was better for making bowel movements more regular and decreasing abdominal pain.”

Dr. Lu and his colleagues say this study is the first step toward being able to decide on an ideal treatment option based on a child’s symptoms.

“Our takeaway from this study is that if the child’s main symptom is fecal incontinence, and especially if they have urinary symptoms too, SNS may be a good option,” Dr. Lu says. “Whereas if fecal incontinence is secondary to not being able to go and having a lot of pain, ACE may be the better option.”

Dr. Lu says that larger, randomized, prospective studies are needed to gather more evidence for the optimal uses of these two treatments. Future studies could also examine other treatment options considered for these patients, such as surgically removing part of the colon.

“This research is only possible with a multidisciplinary team like the one here at Nationwide Children’s, comprised of people from gastroenterology, surgery and urology who are passionate about these problems and understand the impact they can have,” Dr. Lu says. “These are kids who deserve our attention and care.”

REFERENCE:
GASTROENTEROLOGY, HEPATOLOGY AND NUTRITION

Consistently ranked as a top 10 digestive disorders program by U.S. News & World Report, the Division of Gastroenterology, Hepatology and Nutrition at Nationwide Children’s Hospital provides comprehensive care for a broad range of gastrointestinal, liver, pancreatic and nutritional problems. The division strives for excellence in research, teaching and clinical care and maintains a team of physician-scientists committed to the creation of new knowledge in the discipline. Our physicians work with pediatric nurse practitioners to diagnose and treat gastrointestinal, pancreatic and liver disorders while collaborating with other specialists, such as dietitians, behavioral and developmental psychologists and surgeons to provide comprehensive, coordinated care for each child.

FACULTY

Monique Goldschmidt, MD
Jennifer Lee, MD
Peter Lu, MD
Ross Malitz, MD
Hilary Michel, MD
Ethan Mensoff, MD
Carol Porter, MD
John M. Rasso, MD
Ala K. Shahiduddin, MD
Karla K. Vaz, MD
Rajitha Venkataram, MD
Alex Weimann, MD
Kent C. Williams, MD
Frederick W. Woodley, PhD
Deshale Yasob, MD

The Division of Gastroenterology, Hepatology and Nutrition at Nationwide Children’s provides comprehensive care through multiple multidisciplinary clinics and services for children from all over the world. It has consistently been ranked among the top 10 programs in the country for the past 10 years by U.S. News & World Report, and is nationally recognized for its expertise in a number of gastrointestinal disorders.

The Motility Center remains a national leader in caring for children with neuro-gastrointestinal and functional disorders. The center’s medical director is Alex Weymann, MD, and includes hepatologists, Monique Goldschmidt, MD, Carol Porter, MD, and Cheryl Gasteyer, MD, and a highly-skilled surgeon, Ken Washburn, MD. The Pancreas Center is accredited by the National Pancreas Foundation and is directed by Cheryl Gasteyer, MD. It provides state-of-the-art multidisciplinary care for infants, children and teens suffering from diseases of the pancreas. The division also provides specialized care with dedicated clinics for children with esophageal eosinophilic disease, autism and gastrointestinal disorders, muscular dystrophy, congenital heart diseases, cystic fibrosis and aero-digestive disorders.

FAST FACTS

<table>
<thead>
<tr>
<th>July 2019 through June 2020</th>
</tr>
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<tbody>
<tr>
<td>Inpatient Discharges:</td>
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<tr>
<td>Observation and Outpatient-in-a-Bed Discharges:</td>
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<tr>
<td>Total Discharges:</td>
</tr>
<tr>
<td>Average Length of Stay*:</td>
</tr>
<tr>
<td>Average Daily Census*:</td>
</tr>
<tr>
<td>Patient Days*:</td>
</tr>
<tr>
<td>Total Surgical Procedures:</td>
</tr>
<tr>
<td>Dublin Gastroenterology Clinic Visits:</td>
</tr>
</tbody>
</table>

GI Allergy Clinic Visits: | 63 |
Gastroenterology Clinic Visits: | 15,137 |
Mansfield Gastroenterology Clinic Visits: | 296 |
Schrck Road Gastroenterology Clinic Visits: | 132 |
Westerville Gastroenterology Clinic Visits: | 1,276 |
Lima Gastroenterology Clinic Visits: | 293 |
Total GI Clinic Visits: | 18,459 |

*Excludes observation and outpatient-in-a-bed patients.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC GASTROENTEROLOGY

Zeyad Abdulkader, MD
Maddie Cohan, MD
Colleen Faliko, MD
Shirvan Gupta, MD
Kathryn Hanna, MD
Grant Minut, MD

MD, and Jennifer Dotson, MD, is a leader in providing standardized care for children with Crohn’s disease and ulcerative colitis and boasts one of the highest remission rates in the country. The Intestinal Rehabilitation Service, led by Molly Dienst, MD, and Ethan Mensoff, MD, follows a large cohort of children with intestinal failure and has some of the best outcomes in the country in the care of children with short bowel syndrome. The Celiac Disease Center, led by Tracy Edgins, MD, and Section Chief Irv Hill, MD, is a leader in providing more standardized care to improve long-term outcomes for children with celiac disease. In addition, Steven Erdman, MD, is a world leader in the care of children with polyposis syndrome. A Comprehensive Liver Disease Center, including a liver transplant program, is led by Alex Weymann, MD, and includes hepatologists, Monique Goldschmidt, MD, Carol Porter, MD, and Cheryl Gasteyer, MD, and a highly-skilled surgeon, Ken Washburn, MD. The Pancreas Center is accredited by the National Pancreas Foundation and is directed by Cheryl Gasteyer, MD. It provides state-of-the-art multidisciplinary care for infants, children and teens suffering from diseases of the pancreas. The division also provides specialized care with dedicated clinics for children with esophageal eosinophilic disease, autism and gastrointestinal disorders, muscular dystrophy, congenital heart diseases, cystic fibrosis and aero-digestive disorders.

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

$70,053

SELECTED PUBLICATIONS


FAST FACTS

<table>
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<th>July 2019 through June 2020</th>
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<tr>
<td>Inpatient Discharges:</td>
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<td>Average Length of Stay*:</td>
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GI Allergy Clinic Visits: | 63 |
Gastroenterology Clinic Visits: | 15,137 |
Mansfield Gastroenterology Clinic Visits: | 296 |
Schrck Road Gastroenterology Clinic Visits: | 132 |
Westerville Gastroenterology Clinic Visits: | 1,276 |
Lima Gastroenterology Clinic Visits: | 293 |
Total GI Clinic Visits: | 18,459 |

*Excludes observation and outpatient-in-a-bed patients.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC GASTROENTEROLOGY

Zeyad Abdulkader, MD
Maddie Cohan, MD
Colleen Faliko, MD
Shirvan Gupta, MD
Kathryn Hanna, MD
Grant Minut, MD

Sahara S. Saba, MD
Raúl Sanchez, MD
Monica Shaikh-Udowara, MD
GI MOTILITY

Nancy Swider, DO
The past decade has seen expansion in advanced neuromodulation therapies (gastric pacing, modulation of sacral, posterior tibial and auricular nerves) to help children with multiple types of functional and motility problems. The division has also instituted more than 20 quality improvement initiatives aimed at improving outcomes and has published results for many of them.
GENETIC AND GENOMIC MEDICINE

The mission of the Division of Genetic and Genomic Medicine at Nationwide Children's Hospital is to deliver compassionate, family-centered care via genetic/genomic diagnostic and therapeutic services while providing counseling, education, research and advocacy to improve the lives of individuals with genetic conditions. We treat inborn errors of metabolism and genetic conditions across the ages from preconception and prenatal through childhood and well into adulthood. Clinical services are supported partly by the Ohio Department of Health as a Regional Genetics Center of the state of Ohio, Region IV. Research partners include the Steve and Cindy Rasmussen Institute for Genomic Medicine and Centers for Gene Therapy and Cardiovascular Research.

FACULTY

Kim L. McBride, MD, MS
Division Chief

Dennis W. Bartholomew, MD
Section Chief

FULL-TIME NATIONWIDE CHILDREN’S FACULTY

Bimal Chaudhari, MD, MPH
Sorri E. Hickey, MD
Stephen G. Kaler, MD
Kandamasures (Murugp) Manickam, MD
Matt Mori, MD
Koines Trust, MD

PART-TIME NATIONWIDE CHILDREN’S FACULTY

Britton D. Rank, MD

Our division has had an excellent year and notable achievements in all our core mission areas. Services and counseling continue to grow. We welcomed two academic physicians to the division: Dr. Bimal Chaudhari (also in Neonatology and IGM) and Dr. Stephen Kaler (Gene Therapy). Our solid group of genetic counselors was recently rounded out to include 10 in genetics, one in cardiology, one in developmental pediatrics, two in neurology, one in neuromuscular, and two shared with the Steve and Cindy Rasmussen Institute for Genomic Medicine. We also launched a new clinic for Menkes disease by nationally known Dr. Kaler. Education continues for genetic counseling students. We had an excellent year for our genetics residency, graduating two and recruiting three new residents for 2020, and we were successful in adding a Medical Biochemical Genetics Fellowship to our program (directed by Dr. Bartholomew, Dr. Hickey and Dr. Mori). Our group continues to influence the field at the national level through the creation of practice guidelines on exome sequencing (Hickey), management of phaeoelmelasmia (PKU) in pregnant women (Rink) and guidance on treatment of Hunter syndrome (McBride), in addition to leading efforts in genome sequencing of neurofibromatosis (Hickey), management of phaeoelmelasmia (PKU) in pregnant women (Rink) and guidance on treatment of Hunter syndrome (McBride), in addition to leading efforts in genome sequencing of neurofibromatosis (Hickey). Our division and the Institute’s Rare Disease Program has had success in both describing new manifestations of genetic disorders and also describing novel mechanisms of disease, best exemplified by a publication on Wilson disease that brought together our newest faculty, existing geneticists and Institute faculty. Finally, we continue to advocate and lobby at the state and federal level for recognition of genetic counselors as Centers for Medicare & Medicaid Services providers.

GRANTS AWARDED TO CLINICAL AND RESEARCH FACULTY

JULY 1, 2019 – JUNE 30, 2020

$465,698

SELECTED PUBLICATIONS


Bimal Chaudhari, Britton Rank, Scott Hickey, Mari Mori, Kandamurugu (Murugu) Manickam, Britton Rank, Mari Mori, Kandamurugu (Murugu) Manickam, Britton Rank, Mari Mori, Kandamurugu (Murugu) Manickam.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

MEDICAL GENETICS

April Lehman, MD
Bianca Zapata, MD

FAST FACTS

July 1, 2019 – June 30, 2020

Inpatient Discharges: 27
Observation and Outpatient-in-a-Bed Discharges: 19
Total Nationwide Children’s Discharges: 46
Average Length of Stay*: 3.7
Average Daily Census*: 0.3
Patient Days*: 101
Inpatient Consults: 230

*Excludes observation and outpatient-in-a-bed patients

NATIONWIDE CHILDREN’S HOSPITAL


Childhood Cancer Research Team Awarded $10.2 Million Moonshot Grant

The National Cancer Institute at the National Institutes of Health awarded one of its Cancer Moonshot grants to Timothy Cripe, MD, PhD, chief of the Division of Hematology, Oncology & Blood and Marrow Transplant and Elaine Mardis, PhD, co-executive director of the Steve and Cindy Rasmussen Institute for Genomic Medicine at Nationwide Children’s Hospital, Nationwide Foundation Endowed Chair of Genomic Medicine at Nationwide Children’s and professor of pediatrics and investigator with the Pelotonia Institute for Immuno-Oncology at The Ohio State University. This is the second Cancer Moonshot grant awarded to researchers at Nationwide Children’s.

“We are extremely grateful and honored to receive this grant, as it enables us to continue advancing important work to one day find a cure for cancer,” says Dr. Cripe, who is also a Gordon Teter Endowed Chair in pediatric cancer at Nationwide Children’s, and a professor of pediatrics and an investigator in the Pelotonia Institute for Immuno-Oncology at Ohio State. “Our work is never finished until there is a cure.”

Dr. Cripe’s project aims to deepen the understanding of how an oncolytic (or tumor-targeting) virus interacts with a tumor’s “immune system” to develop treatments that make tumors more susceptible to these viruses.

“Dr. Cripe, Dr. Mardis and their talented team are pioneers in the field of cancer immunotherapeutics,” says John Barnard, MD, president of the Abigail Wexner Research Institute (AWRI) at Nationwide Children’s. “This grant will accelerate their momentum in developing more effective treatments for pediatric cancers.”

The Moonshot grant will also provide funding to two other Nationwide Children’s research projects led by Kevin Cassady, MD, clinical virologist and principal investigator in the Center for Childhood Cancer and Blood Diseases at AWRI, and Dean Lee, MD, PhD, director of the joint Cellular Therapy and Cancer Immunology Program at Nationwide Children’s and Ohio State’s Comprehensive Cancer Center, DiMarco Family Endowed Chair in Cell Based Therapy at Nationwide Children’s and professor of pediatrics at Ohio State.

Dr. Cassady is investigating modifying a next generation oncolytic herpes simplex virus (oHSV) to express known, tumor-selective cell surface proteins to convert an anti-viral immune response into an anti-tumor immune response. Dr. Lee’s project focuses on natural killer (NK) cells, known as the “executioner” cell of the immune system, and how they are attracted to tumors.

“This grant will accelerate their momentum in developing more effective treatments for pediatric cancers.”

– Timothy Cripe, MD, PhD
patients with cancer and blood diseases are cared for by fully integrating research, cutting-edge therapies and the Wexner Research Institute’s Center for Childhood Cancer and Blood Diseases, the Steve and Cindy Adams Foundation for our patients, families and care teams. Through research, patient care and psychosocial support, the Division of Hematology, Oncology & Blood and Marrow Transplant provides a strong foundation for our patients, families and care teams. For seven straight years, we’ve ranked in the top 10 of U.S. News & World Report. Our discoveries, clinical trials and new treatments offer new hope for patients and families, not only at Nationwide Children’s but around the world.

In 2019, we realized almost two-fold growth in international referrals. We anticipate continued program growth, with Maryam Fouladi, MD, recently named the co-executive director of the Neuro-Oncology Program at Nationwide Children’s Hospital. Dr. Fouladi will continue her extensive work on diffuse intrinsic pontine gliomas (DIPGs) alongside Jeffrey Leonard, MD, co-executive director of the Neuro-Oncology Program and chief of the Department of Pediatric Neurosurgery at Nationwide Children’s. Dr. Fouladi is the founding director of the Collaborative Network for Neuro-Oncology Clinical Trials (CONNECT), an international consortium that works to develop and test novel therapies in early phase clinical trials. Dr. Fouladi is also the founding chair of the International Diffuse Intrinsic Pontine Glioma (DIPG) and Diffuse Midline Glioma (DMG) registries and has served as the chair of CONNECT and the CNS Committee of the Children’s Oncology Group. Through our clinical and research work, driven by the best and brightest physicians and staff, we vow to remain on the cutting edge of solutions for our patients worldwide.

Center for Childhood Cancer: See page 183 for information about the Center for Childhood Cancer in the Abigail Wexner Research Institute at Nationwide Children’s Hospital.

**FELLOWS**

First Year
- Eman Abdelghani, MD
- Nicole Kendel, MD
- Laura Tyrell, MD

Second Year
- Ashleigh Kusman, MD
- Lynda Villagomez, MD

Third Year
- Jennifer Bidelity, DO
- Kyle Davis, MD
- Brian Tallius, MD

Fourth Year (BMT)
- Margaret Lamb, MD
- Fourth Year (Hematosis & Thrombosis)
- Penelope Sandiford, MD

Fourth Year (Neuro-Oncology)
- Margaret Shafara, MD

Fourth Year (Sarcoma)
- Ajay Gupta, MD

Through research, patient care and psychosocial support, the Division of Hematology, Oncology & Blood and Marrow Transplant provides a strong foundation for our patients, families and care teams. For seven straight years, we’ve ranked in the top 10 of U.S. News & World Report. Our discoveries, clinical trials and new treatments offer new hope for patients and families, not only at Nationwide Children’s but around the world.

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The Division of Hematology, Oncology & Blood and Marrow Transplant at Nationwide Children’s Hospital treats patients with any one of a full array of blood diseases, cancers, immunodeficiency disorders, bone marrow failure syndromes and inherited metabolic storage diseases. Our clinical team oversees the comprehensive evaluation, multidisciplinary diagnosis, treatment and long-term management of children, adolescents and young adults with blood diseases and cancer, as well as other diseases treated by cellular therapies or aprexis. In addition to clinical care, through our integrated programs within the Abigail Wexner Research Institute’s Center for Childhood Cancer and Blood Diseases, the Steve and Cindy Rasmussen Institute for Genomic Medicine, and the Biopathology Center, we seek to transform the way patients with cancer and blood diseases are cared for by fully integrating research, cutting-edge therapies and multidisciplinary teams.
HOSPITAL PEDIATRICS AND ADULT HOSPITAL MEDICINE

The Section of Hospital Pediatrics at Nationwide Children’s Hospital, which also includes newborn and adult hospital medicine, is home to a diverse group of physicians who specialize in the care of hospitalized newborns, children, adolescents and adults. The section supports Nationwide Children’s commitment to providing the highest-quality care to all children and their families regardless of ability to pay, and specifically aims to set the standard in the provision of high-value, quality infant care, the intentional and thoughtful education of future generations of doctors, and the production of useful and influential clinical, educational and quality-improvement research.

FACULTY

Ryan S. Bode, MD
Chief
Seth Ayegman-Berko, PA
Joshua D. Black, MD
Jessica Barcinski, MD
Carrie Casipoppo, MD
Sharon Clark, MD
Vignesh Doraiswamy, MD
Emily Graham, MD
Kelly Granman, MD
Rahul Gupta-Basuyar, MD
Cara Harasuki, MD
Allison C. Hensock, MD
Shawn Jacobson, MD
Rena Kanick, MD
Jillian S. Kumar, DO
Stephanie Kwon, DO
Stephanie Lauden, MD
Kristina Lehman, MD
Kristin S. Lewis, MD
Nancy N. Liao, MD
Beth W. Liston, MD, PhD
Jamie A. Mcllmi, MD
Kathleen Matic, MD
Daniel J. McFarlane, MD
Gerd B. McGregor, MD, PhD
Lucas V. McNulty, MD
Christy Mulligan, MD
Mohammed Naja, MD
Sujithya Perera, MD
Michael Perry, MD
Laura Plachta, MD
Charles R. Redman, MD
Allison Rossetti, MD
Christine A. Schmenger, MD
Shauna Schoed, MD
Eric R. Schumacher, DO, MBA
Claire Serns, MD
Catherine C. Sinclair, MD
Melissa L. Skag, MD
Isaac Spears, MD
Anudeep Splinter, MD
Anuja Srivastavanwar, MD
Matthew Suer, MD
Devon Swick, DO
Kimberly M. Tartaglia, MD

The Section of Hospital Pediatrics and Adult Hospital Medicine provides inpatient care across the continuum to patients and families at Nationwide Children’s. Newborn hospitalists manage full-term and late preterm newborns and the associated common conditions, including hyperbilirubinemia, feeding and nutrition, infections, neonatal abstinence syndrome, and newborn screening and anticipatory guidance. Pediatric hospitalists provide inpatient care...
for common pediatric illnesses such as bronchiolitis, asthma and failure to thrive, as well as undifferentiated and/or multisystem diseases, coordinating and facilitating care, and ensuring a safe transition back to primary care providers. In addition, in conjunction with the Section of Child Psychiatry, hospitalists work collaboratively to provide medical care for children and adolescents facing acute mental health crises including in the new Big Lots Behavioral Health Pavilion. Internal medicine-trained adult hospitalists serve as consultants for adult patients with congenital and childhood-onset chronic illnesses admitted to Nationwide Children’s.

The section experienced significant growth and program development in all facets — clinical, educational, safety, quality improvement and research. Clinical encounters and average daily census increased over the prior academic year by approximately 20%. We continued to recruit new and talented faculty. Publications have increased by 40% each of the past three years.

Pediatric Hospital Medicine has recently been recognized by the American Board of Pediatrics as a board-certified specialty. Our Pediatric Hospital Medicine Fellowship Program began in July 2018. This past year, we were successful in obtaining Accreditation Council for Graduate Medical Education (ACGME) program accreditation and graduated our first fellow.

The section is involved in a multitude of patient safety, quality improvement and research initiatives with demonstrated outcomes that include:

- Patient Centered Outcomes Research Institute (PCORI) funded grant investigating the safety and efficiency of hospital direct admissions versus Emergency Department admissions
- Agency for Healthcare Research and Quality (AHRQ) funded grant investigating the unnecessary utilization of pulse oximetry in hospitalized bronchiolitis patients
- Clinical pathway development using evidence-based practice leading to improved patient outcomes
- Identifying and eliminating diagnostic errors
- Enhanced patient safety, including 24/7 inhouse attending coverage and the innovative “Safety Officer and Watchstander Program” leading to a decrease in unrecognized clinical deterioration on the floor, ICU transfers and patient mortality

We are dedicated and committed to the education of future pediatricians with an emphasis and excellence in the clinical teaching for both medical students and family practice and pediatric residents. Faculty serve as important mentors for these learners in their educational, clinical and professional development. Our faculty continue to get recognized on an annual basis with prestigious teaching awards, including being ranked as the No. 1 inpatient rotation this past academic year by the pediatric residents.

### SELECTED PUBLICATIONS

- Kongah RE, Shu X, Perrin E, Perry M, Reis L, Reis L, Kuhn A, Huang X, Liu Y, McErlean E, Sehgal H, Kuhn A, Alex T. Enhanced patient safety, including 24/7 inhouse attending coverage and the innovative “Safety Officer and Watchstander Program” leading to a decrease in unrecognized clinical deterioration on the floor, ICU transfers and patient mortality.

### FAST FACTS

**July 2019 through June 2020**

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<thead>
<tr>
<th>Inpatient Discharges</th>
<th>2,788</th>
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<td>Observation Discharges</td>
<td>3,109</td>
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<tr>
<td>Total Discharges</td>
<td>5,893</td>
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<td>Average Length of Stay*</td>
<td>3</td>
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<td>Average Daily Census*</td>
<td>23</td>
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<tr>
<td>Patient Days*</td>
<td>8,317</td>
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<tr>
<td>Complex Care Clinic Visits</td>
<td>3,407</td>
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</tbody>
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*Excludes observation and inpatient-stay patients.

**2019 – 2020 NATIONWIDE CHILDREN'S FELLOWSHIP PROGRAM**

**HOSPITAL MEDICINE FELLOWSHIP**

Hilary Lu, MD
Melanie Marsh, MD
Infectious Diseases

Revealing Clinical Phenotypes in Infants With Respiratory Syncytial Virus Infection Through Systems Analyses

RSV disease severity is influenced by innate immune responses, viral loads and patient age.

Respiratory syncytial virus (RSV) is a leading cause of hospitalization in children, although most cases result in mild disease. A better understanding of the different clinical, immunologic and virologic factors present in infants with mild versus severe RSV disease will enable the development of effective antivirals and vaccines.

In a new study funded by the National Institute of Allergy and Infectious Diseases, researchers at Nationwide Children's Hospital sought to identify the “safe and protective” immunoprofile induced by natural RSV infection that might protect infants from developing severe disease.

Using a systems analysis approach, the researchers integrated blood transcriptional profiling and immune cell phenotyping with measurement of viral loads and clinical data from infants and young children with RSV infections of varying severity.

“We identified complex interactions among RSV viral loads, the innate immune response and patients’ age influencing disease severity,” says Asuncion Mejias, MD, PhD, senior author of the study, infectious disease specialist and principal investigator in the Center for Vaccines and Immunity at Nationwide Children's and associate professor of Pediatrics at The Ohio State University College of Medicine.

Dr. Mejias and her colleagues demonstrated that children with mild disease, managed as outpatients, had higher RSV loads measured in the upper respiratory tract. Those with more severe disease were managed as inpatients and had increased numbers of poorly activated monocytes. Older children with mild disease showed greater expression of interferon genes compared with inpatients with severe disease, who showed greater activation of inflammation genes irrespective of age.

“Our data suggest that mild RSV infection is characterized by robust interferon expression, adequate monocyte activation and higher viral loads,” says co-senior author Octavio Ramilo, MD, chief of Infectious Diseases and principal investigator in the Center for Vaccines and Immunology at Nationwide Children’s.

Dr. Ramilo, also the Henry G. Cramblett Chair in Medicine and professor of Pediatrics at The Ohio State University College of Medicine, says their findings show the importance of both disease severity and age in children with RSV infection.

“A robust interferon response appears to play a protective role, while an uncontrolled inflammatory response is detrimental,” he says.

Drs. Mejias and Ramilo hope their findings can be used to help design and evaluate new vaccines and antivirals directed against RSV and inform research into other infectious diseases.

REFERENCE:

The Division of Infectious Diseases continues to expand clinical activities to patients with complex infections in different settings across the hospital, including the specialized Infectious Diseases inpatient unit, the Infectious Diseases consult service, and in a number of specialized outpatient clinics (General ID, Host Defense, HIV, Neonatal Infectious Disease, Tuberculosis, Kawasaki and PANDAS). With plans to add an additional faculty member and a nurse practitioner, we continue to expand our team to optimize the preventive and therapeutic care of immunocompromised children through our Host Defense Program. Plans to open a Vaccine Clinic specifically designed for these patients were placed on hold because of the COVID-19 pandemic.

The COVID-19 pandemic brought challenges to the Section of Infectious Diseases in early 2020. However, these challenges presented opportunities to improve patient care. Our five-bed Special Pathogens Unit was activated and has been caring for those patients admitted to Nationwide Children’s with confirmed SARS-CoV-2 infection. This unit offers an environment that affords the best possible care for these patients in the safest manner possible for their hospital caregivers. Seriously ill patients requiring ventilatory assistance are cared for in this protected environment by our Pediatric Intensive Care Unit (PICU) staff. We have also developed an outpatient COVID-19 clinic so that these patients can be followed in an outpatient setting that facilitates their participation in research. We continue to maintain our strong research collaborations with colleagues in the Center for Microbial Pathogenesis and the Center for Vaccines and Immunity in the Abigail Wexner Research Institute at Nationwide Children’s Hospital, as well as national and international collaborators.

The specialists in the Division of Infectious Diseases at Nationwide Children’s Hospital provide expertise in the diagnosis and management of children with all types of acute and chronic infections in both immune-competent and immune-compromised children. Our physicians provide direct care for patients admitted to the Nationwide Children’s Infectious Diseases Unit and clinical consultation for patients with complicated infectious diseases throughout the hospital, in close partnership with their primary care teams.

We have developed close clinical and research collaborations with physicians in Hematology/Oncology & Bone Marrow Transplant, Pediatric Critical Care, Cardiology, Lung, Heart and Liver Transplantation, Neonatology and the various surgical departments in order to optimize the infectious diseases-related care of patients. Patients are also evaluated in the ambulatory setting following referral to the Infectious Diseases, Tuberculosis, Neonatal Infectious Disease, Host Defense, PANDAS, and the Family AIDS Impact Database (FAIDES) Program Clinics located on the Nationwide Children’s main campus. Additionally, our division offers consultation to external providers and their patients through the Nationwide Children’s Hospital Physician Consult and Transfer Center. Research is conducted through the division and in collaboration with our colleagues from the Clinical Microbiology Laboratory, the Center for Microbial Pathogenesis, the Center for Vaccines and Immunity and other centers in the Abigail Wexner Research Institute at Nationwide Children’s Hospital.

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<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Discharges</td>
<td>2,577</td>
</tr>
<tr>
<td>Observation and Outpatient-in-a-Bed Discharges</td>
<td>547</td>
</tr>
<tr>
<td>Total Discharges</td>
<td>3,099</td>
</tr>
<tr>
<td>Average Length of Stay*</td>
<td>3</td>
</tr>
<tr>
<td>Average Daily Census*</td>
<td>18</td>
</tr>
<tr>
<td>Patient Days*</td>
<td>6,577</td>
</tr>
<tr>
<td>Inpatient Consults</td>
<td>619</td>
</tr>
<tr>
<td>Infectious Disease Clinic Visits</td>
<td>2,076</td>
</tr>
<tr>
<td>Immunodeficient Clinic Visits</td>
<td>1,247</td>
</tr>
</tbody>
</table>

### Tuberculosis Clinic Visits

- Dublin Tuberculosis Clinic Visits: 15
- Hilltop Tuberculosis Clinic Visits: 7
- Northland Tuberculosis Clinic Visits: 16
- Sharon Woods Tuberculosis Clinic Visits: 10
- Tuberculosis Clinic Visits: 506

*Excludes observation and outpatient-in-a-bed patients.

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## 2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

### PEDiatric INFECTIOUS DISEASES

- Alejandro D. Diaz, MD
- Shaina Hecht, MD
- Ana Quiroz, MD
- Rodin Jayghe, MD
- Stephanie Smith, MD
- Jeannette Taveras, DO
Neonatology

How a Network of Hospitals Reduced Average Age at Cerebral Palsy Diagnosis to 9.5 Months

A network of hospitals, led by Nationwide Children’s Hospital, reduced the average age of diagnosis from 19.5 months to 9.5 months after less than a year of guideline implementation work.

More than 50% of all eventual cerebral palsy (CP) cases spend time in the Neonatal Intensive Care Unit, making early CP evaluation a crucial element of any hospital’s high-risk follow-up program. When children are diagnosed early, they may also have early access to evidence-based interventions, which can improve CP-related developmental outcomes substantially. In the United States, the average age of diagnosis for CP has been about 2 years, compared to the target of 12 months of age or younger.

Now, five hospital systems in the United States have become the first in the world to successfully implement, in clinical practice, international CP diagnosis guidelines that were released in 2017. After just nine months of guideline implementation work, their efforts resulted in improving the average age at diagnosis from 19.5 months to 9.5 months.

The endeavor was proposed and funded by the Cerebral Palsy Foundation. The lead institution — Nationwide Children’s Hospital, which had participated in the development of the international guidelines and was the first hospital to implement the guidelines clinically — trained and collaborated with experts at four other institutions eager to reduce age at CP diagnosis: UCLA Mattel Children’s Hospital, Los Angeles; the University of Texas Health Science Center at Houston; University of Utah Health, Salt Lake City; and Kennedy Krieger Institute, Baltimore.

“Working as a network made this effort much more impactful,” says Nathalie Maitre, MD, PhD, director of the NICU Follow-Up Program at Nationwide Children’s and principal investigator on the network project. “Everyone has been transparent, communicative and respectful, allowing us all to learn from each other and see how others navigate guideline implementation with their unique cultures and resources.”

The guidelines involve neonatologists, developmental pediatricians, therapists and other developmental specialists. Dr. Maitre says neurologists were also instrumental in successfully implementing and evaluating the assessments and neuroimaging for early diagnosis. All institutions required significant training to implement the guideline-based neuroimaging and neurologic screenings, which were combined with motor function assessments, biomarkers and clinical history to determine a diagnosis.

Now, Dr. Maitre and Rachel Byrne, executive director of the Cerebral Palsy Foundation, are developing systematic engagement and education efforts for primary care providers and hospitals in underserved communities. Dr. Maitre believes that network-based propagation and widespread implementation of the guidelines is the first step toward globalized clinical detection of CP during infancy — with the follow-up goal that ever-improving early intervention efforts will then become the new standard of CP care.

REFERENCES:

NEONATOLOGY

Nationwide Children’s Hospital is home to one of the largest networks of clinical neonatal care in the United States. The Section of Neonatology at Nationwide Children’s is an integral component of the neonatal program, which includes a full range of family-centered newborn care and innovative clinical and translational research programs, conducted through the Division of Neonatology and in collaboration with the Center for Perinatal Research in the Abigail Wexner Research Institute at Nationwide Children’s.

FACULTY

Leif D. Nelin, MD
Division Chief

Kristina M. Reber, MD
Associate Division Chief

Edward G. Shepherd, MD
Section Chief

Sudarshan Jadcherla, MD
Associate Division Chief for Academics

Valencia P. Walker, MD, MPH
Associate Division Chief for Health Equity and Inclusion

FULL-TIME NATIONWIDE CHILDREN’S FACULTY

Leigh G. Altmann, MD
Jennifer Haase, MD
Jason Jackson, DO
J. Wells Logan, MD
Nathalie Maire, MD, PhD
Daniel Malleske, MD
Craig A. Nankervis, MD
Mary L. Neel, MD
Ahmed Osman, MD
Leanne Pavlek, MD
Pablo J. Sanchez, MD
Amy L. Schlegel, MD
Ruth B. Seabrook, MD
Vanessa A. Shanks, MD
Jonathan L. Slaughter, MD, MPH
Michelle R. Stenges, MD
Christopher J. Timan, MD
Jennifer T. Trottier, MD, MPH
Sudarshan Jadcherla, MD

COMMUNITY-BASED FACULTY

Craig W. Anderson, MD
Gary Bixler, MD
Sarah J. Corriveau, MD
Ene Fairchild, MD
Angela Firestine, MD
Joshua H. Goldberg, MD
Barry Halpern, MD
Nancy B. Hansen, MD
Juli Kern, MD
Jeffrey S. Keyes, MD
Michelle Lash, MD
Juli Kern, MD
Jeffrey S. Keyes, MD
Michelle Lash, MD
Corin Cozzi Limsey, MD
Wendy A. Luce, MD
Maclain Magee, MD
Benjamin A. McDonald, MD
Randy R. Miller, MD
Avance Milborn, MD

NEONATOLOGY ADMINISTRATION

Marina E. Lefrere, MBA, BSN, RN
Vice President Neonatal Services

Lawrence Bello, MHA
Service Line Administrator

Heather Larson
Business Manager

NEONATAL NETWORK DIRECTORS

Renee Gardikes-Gingery, MSN, RN
Melissa Hamms, MBA, BSN, RN
Jennifer Thompson, MBA, BSN, RN

DIRECTOR OF NEONATAL ADVANCED PRACTITIONERS

Eran Kael, DNP, APRN, NNP-BC

The Section of Neonatology is dedicated to providing integrated perinatal care and research throughout the patient life cycle to reduce infant mortality and morbidities so that children are able to reach their full potential. To achieve this, the section not only provides outstanding neonatal care, but has also implemented a variety of innovative, unique programs that bring together multidisciplinary groups to provide advanced clinical care and research targeting the most common and most debilitating causes of mortality and morbidity in these babies. These programs include the comprehensive Center for Bronchopulmonary Dysplasia, the Infant Feeding Disorders Program, the Small Baby Program, the Congenital Infections Program and the...
Neurodevelopmental Follow-up Program. The Center for Bronchopulmonary Dysplasia has the only dedicated unit (C4A) for the care of infants with BPD in the country. The BPD unit draws patients from all over the United States including as far away as California, Oregon and Utah. The BPD unit has excellent outcomes including a very low mortality rate and tracheostomy rate. Furthermore, the neurodevelopmental outcomes of patients taken care of by the BPD unit were published and we found that 56% of patients have no evidence of neurodevelopmental impairment, despite the fact that 78% of the patients in this cohort had severe BPD. The Infant Feeding Disorders Program provides advanced care and treatment to optimize outcomes for infants with feeding disorders. The Infant Feeding Disorders Program published outcomes of their ongoing QI initiative — the feeding enhancement program — and demonstrated significant and sustained shortened length of time for preterm infants to achieve full oral feeds, which resulted in a significant shorter length of stay. The Small Baby Program continues to positively impact the outcomes of extremely preterm infants (those born at <27 weeks gestation). This year the small baby program found that using a novel algorithm with data available at the time of admission that survival in very low-birth-weight infants could be predicted. The Congenital Infections Program, a multidisciplinary program targeting babies born with congenital viral infections, has implemented universal screening for congenital cytomegalovirus infections in the Nationwide Children’s Neonatal Network. Finally, for our patients to reach their full potential requires longer term outpatient neurodevelopmental care available through our Neonatal Follow-up Program, which this year published results that demonstrate that their novel, multi-component, upper-extremity intervention improved motor function in patients with cerebral palsy. Perinatal Research: See page 191 for information about the Center for Perinatal Research in the Abigail Wexner Research Institute at Nationwide Children’s.

GRANTS AWARDED TO NEONATOLOGY CLINICAL AND RESEARCH FACULTY JULY 1, 2019 – JUNE 30, 2020 $5,562,591

SELECTED PUBLICATIONS


2019 – 2020 NATIONALWIDE CHILDREN’S FELLOWSHIP PROGRAM

NEONATAL-PERINATAL MEDICINE

Amy Brown, MD
Jule A. Dillard, MD
Lindsey Kebbel, MD
Alexandra Medoro, MD
Avenue D. Million, MD
Clifford McIlleth, MD
Lesan R. Parikh, MD
Zahra Shah, MD
George Zigler, MD

CLINICAL FAST FACTS

July 2019 through June 2020

Main Campus

Inpatient Discharges: 1,926
Observation and Outpatient-in-a-Bed Discharges: 1,002
Total Discharges: 2,928
Average Length of Stay*: 19.2
Average Daily Census*: 12.3
Patient Days*: 4,888

Newborn Intensive Care Unit at Doctor’s Hospital West

Inpatient Discharges: 125
Observation and Outpatient-in-a-Bed Discharges: 2
Total Discharges: 127
Average Length of Stay*: 13.7
Average Daily Census*: 4.7
Patient Days*: 1,717

Newborn Special Care Nursery at Dublin Methodist Hospital

Inpatient Discharges: 150
Observation and Outpatient-in-a-Bed Discharges: 4
Total Discharges: 154

Average Length of Stay*: 17.6
Average Daily Census*: 31.4
Patient Days*: 11,479

*Excludes observation and outpatient-in-a-bed patients

A Decade of Remarkable Transformation

CLINICAL FAST FACTS (CONTINUED)

July 2019 through June 2020

Newborn Intensive Care Unit at Grant Medical Center

Total Discharges: 225
Average Length of Stay*: 19.2
Average Daily Census*: 13.4
Patient Days*: 4,888

Newborn Intensive Care Unit at St. Ann’s Hospital

Total Discharges: 326
Average Length of Stay*: 17.9
Average Daily Census*: 15.9
Patient Days*: 5,811

Newborn Intensive Care Unit at The Ohio State University Wexner Medical Center

Inpatient Discharges: 651
Total Discharges: 695
Observation and Outpatient-in-a-Bed Discharges: 4
Average Length of Stay*: 17.6
Average Daily Census*: 31.4
Patient Days*: 11,479

Guidelines Developed for Extreme Preterm Infants Proven to be Life-Changing

Positive Impact in the NICU Study Led by Nathalie Maitre, MD, PhD, Reinforces Teach-For-Change Puts Babies First

Prediction of Short-Term Morbidity in Patients Infected Using Exome-Wide Genetic Variation

Cerebral Palsy

Congenital Disorders Program Established Using Innovative Multidisciplinary APPROACH TO Designs Improvements in Survival and Outcomes

Neonatal Ablation: Program Launched

Neonatal Ablation: Program Established: Combating High-Quality Clinical Care With Cutting-Edge Research

Congenital Interventions Program Established: Combating High-Quality Clinical Care With Cutting-Edge Research

Throughout the past decade, we have made great strides in clinical care and research for neonates. Advancing strong collaborations, digging deeper into the treatment and prevention of prematurity, and leading in research and innovation, has enabled the size and strength of our program to be unmatched. Caring for more than 5,000 babies each year, we are the nation’s largest neonatal center.
Nephrology and Hypertension

RNase 7: Paving the Way for Natural, Antibiotic-Free Treatment for Urinary Tract Infections

The latest in the body of antimicrobial peptide research suggests RNase 7 may be a prognostic marker and potential therapeutic option for UTIs.

Building on their body of research focused on the naturally occurring antimicrobial peptides in the urinary tract, clinician-scientists at Nationwide Children’s Hospital have now confirmed the suspected role of Ribonuclease 7 (RNase 7) in Escherichia coli-based infection risk. Human patients, tissue cultures and humanized mouse models all indicate that higher levels of RNase 7 in the urinary tract are associated with lower risk of infection, and lower levels of RNase 7 are associated with increased susceptibility to infection.

According to the research team, this suggests a potential role for RNase 7 in the prediction of infection risk or severity as well as in the development of novel, non-antibiotic treatments — even for drug-resistant UTIs.

“For the first time, we’ve shown that female children with UTIs have lower levels of the antimicrobial peptide RNase 7 compared to healthy controls,” says John David Spencer, MD, chief of the Division of Nephrology and Hypertension at Nationwide Children’s and senior author on the study, published in the Journal of the American Society of Nephrology.

The study’s 29 girls who had a UTI history had an average urinary RNase 7 concentration 1.5 times lower than the 29 healthy control girls.

Additionally, the publication included findings from human tissue cultures showing that silencing RNase 7 allowed a multi-drug resistant strain of E. coli (known as uropathogenic E. coli or UPEC) to bind more effectively to human bladder cells, while overexpressing RNase 7 led to decreased bacterial binding.

The team also developed a humanized mouse model to express high and low levels of RNase 7 in the urinary tract in order to study its biological activity. This first-ever manipulation of RNase 7 in vivo revealed that mice with RNase 7 present had low susceptibility to infection when challenged with UPEC.

“This study represents a key step in trying to evaluate the biological activity and safety profile of RNase 7 manipulation,” says Dr. Spencer, whose work on antimicrobial peptides is supported by funding through the National Institutes of Health. “Our research suggests that if you can find a way to overexpress the RNase 7 protein, it could be a therapy. It also further validates that if you have lower levels of RNase 7, you may be at greater risk for infection.”

REFERENCES:


“For the first time, we’ve shown that female children with UTIs have lower levels of the antimicrobial peptide RNase 7 compared to healthy controls.”

– John David Spencer, MD
NEPHROLOGY AND HYPERTENSION

The Division of Nephrology and Hypertension at Nationwide Children’s Hospital provides specialized primary and consultative care for children with kidney and urinary tract problems through age 21. Disorders treated include acute kidney injury, chronic kidney disease, congenital anomalies of the kidneys and urinary tract, glomerular disorders, tubular disorders, urinary tract infection, kidney stones, electrolyte disorders, hypertension and metabolic bone disease. A full range of renal replacement therapy services are available, including hemodialysis, peritoneal dialysis, continuous renal replacement therapy, aquapheresis and kidney transplantation.

In the 2019-2020 academic year, the division welcomed two new nephrologists: Tahagod Mohamed, MD, and Diana Zepeda-Orozco, MD, MS. Dr. Mohamed is a junior nephrologist who completed her Nephrology Fellowship at the University of Virginia. Dr. Mohamed is developing a national reputation in neonatal nephrology and acute kidney injury. Dr. Zepeda-Orozco joined our team after serving as the director of the kidney transplantation program at the University of Iowa for nearly 10 years. Dr. Zepeda-Orozco is a National Institutes of Health (NIH)-funded physician-scientist who is investigating mechanisms of acute kidney injury. Dr. Zepeda-Orozco will serve as the director of the acute kidney injury program at Nationwide Children’s. The division continues to work closely and in collaboration with multiple clinical and surgical divisions. Clinical operations in the Urology/Nephrology Combined Clinic have nearly doubled. While doing so, we have standardized clinical care for children with urinary tract obstruction and integrated preclinical and translational research efforts into nearly every patient visit. Additionally, we have increased patient volumes in our multidisciplinary Metabolic Bone Clinic, as well as the Lupus Clinic, which is managed in collaboration with the Division of Rheumatology.

The Division of Nephrology and Hypertension maintains an active and highly funded research program in the Abigail Wexner Research Institute at Nationwide Children’s Hospital. Four of our physician-scientists maintain actively funded NIH research programs. This past winter, Brian Becknell, MD, PhD, was awarded his first R01 application from the NIH to study mechanisms of obstructive kidney disease. Additionally, our division participates in over 50 Institutional Review Board-approved clinical and translational studies that are supported by five clinical research coordinators. These studies investigate mechanisms and outcomes of urinary tract infection, obstructive uropathy, chronic kidney disease, bacterial peritonitis, renal transplantation, glomerular diseases, metabolic bone disorders and medical education. Many of these studies are performed in conjunction with the Pediatric Nephrology Research Consortium (PNRC). John D. Mahan, MD, serves as this consortium’s president. This past year, William E. Smoyer, MD, received added funding to spearhead the Care Glomerulosclerosis Network (CASN), a multicenter study funded by the NIH to identify markers of glomerular disease and evaluate how new therapies impact disease progression.

Research done by the clinical and research faculty was presented at several national academic meetings, including the American Society of Nephrology Kidney Week, the Pediatric Academic Societies meeting and multiple specialized international research symposia. Nephrology faculty had over 40 unique, peer-reviewed publications, some of which are highlighted here.

Research: See page 184 for information about the Center for Clinical and Translational Research in the Abigail Wexner Research Institute at Nationwide Children’s.

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

$4,400,892

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEdiATRIC NEpHROLOGY

Jonnayen Canes, MD (Medicine/Pediatrics)

Jessica M. Greco, MD (Medicine/Pediatrics)

Jessamyn Carter, MD (Medicine/Pediatrics)

Dublin Nephrology Clinic Visits:

..........................................................

6

Patient Days*:

...............................................

1.8

Pediatric Nephrology. 2019 May;35(7):1183-1192.

Becknell B, Spencer JD. Innate Immunity and Urinary Tract Infection.


SELECTED PUBLICATIONS


In the past decade, the Division of Nephrology and Hypertension has received national recognition and awards for clinical research. The Nephrology and Urology Research Affinity Group (NURAG) at Nationwide Children’s has received over $18.7 million in extramural funding between 2015-2020.
Neurology

One-year data from the first four patients to receive a single dose of the rAAVrh74.MHCK7 micro-dystrophin gene therapy is published in JAMA Neurology.

Researchers from Nationwide Children’s Hospital have published results in JAMA Neurology from the first four children with Duchenne muscular dystrophy (DMD) treated in the first clinical trial of systemic delivery of micro-dystrophin gene therapy in children. Initial findings suggest that the therapy can provide functional improvement that is greater than that observed under the standard of care.

DMD is a fatal neuromuscular disease that occurs in approximately one in every 5,000 males worldwide and is caused by a mutation in the gene that encodes for dystrophin. The dystrophin gene itself is too large to fit into the adeno-associated viral vector used in the gene therapy technology utilized by the study. Researchers have developed micro-dystrophin as a microgene that provides function while still fitting in the vector.

“Duchenne muscular dystrophy is difficult to treat, and gene therapy offers a needed option having the potential to alter the course of the disease,” says Jerry Mendell, MD, the study’s co-author and principal investigator with the Center for Gene Therapy in the Abigail Wexner Research Institute at Nationwide Children’s.

Four ambulatory participants, aged 4 to 7 years at time of infusion, were treated with a single dose of 2.0 x 10^{14} vg/kg rAAVrh74.MHCK7.micro-dystrophin (SRP-9001 micro-dystrophin, Sarepta Therapeutics), which was infused through a peripheral limb vein. All treatment-related events were mild to moderate and there were no serious adverse events.

“We are very pleased to report successful delivery of the micro-dystrophin transgene to the nuclei – corresponding to robust gene expression and proper localization of micro-dystrophin. This coincides with improvements in functional measurements in all study participants who received SRP-9001,” Dr. Mendell says.

Participants had confirmed vector transduction and showed functional improvement of North Star Ambulatory Assessment (NSAA) scores. The NSAA is a 17-item measure of ambulatory functions with a score range from 0 to 34.

“The publication of these results further supports the potential for SRP-9001 to provide clinically meaningful functional improvements in terms of speed and magnitude for DMD patients,” says Louise Rodino-Klapac, PhD, senior vice president of gene therapy at Sarepta Therapeutics. “We look forward to advancing our ultimate goal of profoundly improving the lives of as many patients living with DMD as possible.”

Sarepta has exclusive rights to the gene therapy program initially developed at AWRI at Nationwide Children’s.

CITATION:

The Division of Neurology provides comprehensive care for children with a wide variety of disorders. These include simple and complex epilepsy; primary and secondary headache and migraine, tics and movement disorders, neuroinflammatory conditions, muscular dystrophy, spinal muscular atrophy and neuropathy (acquired and genetic). In order to correctly identify and safely treat these children, state-of-the-art neurophysiological diagnostic testing and intraproperative monitoring is used. Our mission is to achieve the best outcomes for all children with neurological illness.

In 2020, the neurology section welcomed two new faculty (led by Dr. Melissa Hutchinson) and the center of excellence for Choroiderme Tissue (CMT) (led by Dr. Zarife Sahenk). Additional ongoing multidisciplinary programs include the Batten Disease Center of Excellence, Pediatric Intracranial Hypertension (pseudotumor cerebri) Clinic, Muscular Dystrophy Clinic, Brain Tumor Program, Creutzfeldt-Jakob Disease Clinic, Concussion Clinic, Epilepsy Clinic, Episodic Surgery Program, Muscular Dystrophy Clinic, Spinal Muscular Atrophy Clinic, Stroke Clinic and Tuberculous Sclerosis Clinic. The section offers outstanding residency and fellowship programs.

Neurology also offers pediatric fellowship training in clinical and surgical neurophysiology, gene therapy, headache, neuromuscular disease, neuromuscular pathology and stroke. Faculty members conducted both basic and clinical research and published numerous journal articles and book chapters in 2020.

The Neurology division includes 31 physicians and 12 advanced health care providers who oversee comprehensive programs for children with epilepsy, headache, movement disorders, neurodegenerative disorders and neuromotoric diseases. For children with complex disorders, we use a multidisciplinary clinical approach. In 2019, we added two multidisciplinary clinics: the Neuroimmunology clinic (led by Dr. Melissa Hutchinson) and the center of excellence for Choroiderme Tissue (CMT) (led by Dr. Zarife Sahenk).

In 2019, we added two multidisciplinary programs: the Batten Disease Center of Excellence and the Neuroimmunology Clinic.

In 2020, the neurology section welcomed two new faculty members and one new advanced practitioner. Dr. Sylvia Awadalla joined in early January and brings deep expertise in headache and movement disorders. Dr. Darrah Haffner joined in August after completing fellowship training in neonatal neurology and neurodevelopment. Ms. Alison Remy joined our APP group in August and will be focusing on childhood epilepsy.

After the U.S. Food and Drug Administration approval (February 2019) of gene transfer for infants with spinal muscular atrophy (SMA), we have delivered gene transfers for more than 20 children. Ongoing research continues in head and movement disorders. Ms. Alison Remy joined our APP group in August and will be focusing on childhood epilepsy.

The Neurology division includes 31 physicians and 12 advanced health care providers who oversee comprehensive programs for children with epilepsy, headache, movement disorders, neurodegenerative disorders and neuromotoric diseases. For children with complex disorders, we use a multidisciplinary clinical approach. In 2019, we added two multidisciplinary clinics: the Neuroimmunology clinic (led by Dr. Melissa Hutchinson) and the center of excellence for Choroiderme Tissue (CMT) (led by Dr. Zarife Sahenk). Additional ongoing multidisciplinary programs include the Batten Disease Center of Excellence, Pediatric Intracranial Hypertension (pseudotumor cerebri) Clinic, Muscular Dystrophy Clinic, Brain Tumor Program, Creutzfeldt-Jakob Disease Clinic, Concussion Clinic, Epilepsy Clinic, Episodic Surgery Program, Muscular Dystrophy Clinic, Spinal Muscular Atrophy Clinic, Stroke Clinic and Tuberculous Sclerosis Clinic.

The section offers outstanding residency and fellowship programs. The Neurology residency program (certified by Accreditation Council for Graduate Medical Education) includes five residents per year with options for clinical- or research-focused educational tracks. Neurology also offers pediatric fellowship training in clinical and surgical neurophysiology, gene therapy, headache, neuromuscular disease, neuromuscular pathology and stroke. Faculty members conducted both basic and clinical research and published numerous journal articles and book chapters in 2019. Neurology also offers pediatric fellowship training in clinical and surgical neurophysiology, gene therapy, headache, neuromuscular disease, neuromuscular pathology and stroke. Faculty members conducted both basic and clinical research and published numerous journal articles and book chapters in 2019.
A Decade of Remarkable Transformation


During the past decade Neurology faculty have developed many groundbreaking clinical programs and led scientific discoveries for previously fatal diseases. The faculty increased by more than 70% to the current staff of 33 neurologists and for the past four consecutive years, U.S. News & World Report has ranked Nationwide Children’s in the top seven for Neurology and Neurosurgery.
PEDIATRIC PSYCHOLOGY AND NEUROPSYCHOLOGY

Pediatric Psychology and Neuropsychology is a Section of the Department of Pediatrics at Nationwide Children’s Hospital that concentrates clinical services in three primary areas: Pediatric Psychology provides specialized assessment and intervention services that focus on the relationship between cognitive, social and emotional functioning and physical health, typically for children with co-occurring medical conditions (e.g., cancer, diabetes, sickle cell disease); Pediatric Neuropsychology performs specialized evaluations for children and adolescents with a range of medical and neurological disorders that impact thinking or behavior (e.g., brain tumors, epilepsy, seizure disorders, traumatic brain injury); Pediatric Psychiatric Acute Care Psychology provides services to support the acute care continuum in the Big Lots Behavioral Health Pavilion; and Intellectual and Developmental Disability/Autism Spectrum Disorder Psychology provides specialized assessment and intervention services for children and adolescents impacted by various genetic and neurodevelopmental disabilities, including autism spectrum disorders. See page 132 for details and for information about all Behavioral Health services.

Faculty

Eric M. Butter, PhD
Chief

Charles Albright, PhD
Jessica Bailey, PhD
Amy E. Baughcum, PhD
Doug Bodin, PhD
Shalonda Brooks, PhD
Catherine Butz, PhD
Jennifer E. Cass, PhD
Eileen Chaves, PhD
Sarah Connolly, PhD
Andrea Coppens, PhD
Canice Crerand, PhD
Anne Dawson, PhD
Ashley Debeljak, PhD
Nicole Dempster, PhD
Robert M. Dempster, PhD

Kathleen L. Lemamek, PhD
Ann Levine, PhD
Barbara Mackinaw-Koons, PhD
Laura M. Mackner, PhD
Manlee Martens, PhD
Hannah McIlvop, PhD
Kelly A. McNally, PhD
Margaret Mehling, PhD
David Michalec, PhD
Alana Moses, PhD
James A. Mulick, PhD
Caroline Murphy, PhD
Emily Newman, PhD
Megan Norris, PhD
Jessica Palila, PhD
Ari Rabin, PhD
Natalie Raff, PhD
Whitney Raglin-Bignall, PhD
Courneye Rice, PsyD
Claire Russell, PhD
Jessica Schere, PhD
Rose Schroedl, PhD
Ashley Showalter, PhD
Micheline Silva, PhD
Tynna Snider, PsyD
Janet Soader, PsyD
Jack H. Stevens, PhD
Karen Tabern, PhD
H. Gerry Taylor, PhD
Kristen Trott, PhD
Natalie Tuba, PhD
Kathryn A. Vannatta, PhD
Lindsey Vater, PhD
Sarah N. VerLee, PhD
Mary Wojnaroski, PhD
Andrea Wojtowicz, PhD
Jacqueline Wynns, PhD
Heather L. Yandley, PhD
Tammi K. Young-Saleme, PhD

Grants Awarded

July 1, 2019 – June 30, 2020
$524,626

Selected Publications

Butz C, Camille A, Galaj V, Neter J, Khoury O. Timely Access to Mental Health Services for Patients with Rare, Congenital, or Rare Diseases: A Psychiatrist’s Perspective. JAMA Pediatr. 2020;174.0:174-176


Fast Facts

July 2019 through June 2020

Inpatient Consultations: ........................................... 4,164
Psychology Clinic Visits: ........................................... 14,241
Psychology Medical Clinic Visits/Outpatient Consultation Visits: ........................................... 15,149
FACULTY

Alex R. Kempfer, MD, MPH, MS
Division Chief

Laura Martin, MD
Shengyi Mao, MD
Jonathan T. Lucas, MD
Benjamin Levinson, MD
Gilbert Liu, MD
Mary Kay Kuzma, MD
Alicia Kuper, DO
Ajay Koti, MD
Jack A. Kopechek, MD
Lindsay Kneen, MD
Tatyana Karakay, MD
Shelby Jordan, MD
Tabitha Jones-McKnight, DO
Angela V. Jones, MD
Tahitha Jones-McKnight, DO
Sheila Jordan, MD
Tatyana Karakay, MD
Amnik Singh Khalsa, MD
Lindsay Knorr, MD
Jack A. Kopechek, MD
Ajay Kori, MD
Alicia Kuper, DO
Mary Kay Kuzma, MD
Gilbert Liu, MD
Benjamin Levinson, MD
Jonathan T. Lucas, MD
Shengyi Mao, MD
Laura Martin, MD
Lucas McKnight, MD

Diane A. Snyder, MD
Section Chief

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Oghenevwenjon Akpowa, MD
Raam Alkhouy, MD
Zeenath Ameen, MD
Hoa A. Ampomah, MD
Keirim Beck, MD
Stefanie R. Bester, MD
Sara Bodie, MD
Courtney Brown, MD
Megan Brandt, MD
Nicole V. Caldwell, MD
Milagro P. Castaneda-Vidurruar, MD
Aarti Chandawark, MD
Linda E. Chum, MD

Katharine Coffman, MD
Frances Comer, DO
Duane R. Copenhaver, DO
Kimberly Dean, MD
Emily A. Decker, MD
Tanya Dreyfus, MD
Robyn Dennis, MD
Sarah Denney, MD
Ilhuoma U. Eneli, MD
Maureen Faust, DO
Ashley Fernandez, MD
Susan Friedman, MD
Sean P. Glueson, MD
Judith A. Groten, MD
urma Gupta, MD
Malika Husse, MD
Laura Hart, MD
Stephen J. Hersey, MD
Lisa Humphrey, MD
Aurelia J. Jackson, MD
Sinimol James, MD
Aurelia J. Jackson, MD
Lisa Humphrey, MD
Aurelia J. Jackson, MD
Lisa Humphrey, MD

The Division of Primary Care Pediatrics provides training and education for The Ohio State University College of Medicine students, as well as residents in Pediatrics, Family Medicine and combined Internal Medicine-Pediatrics. Research focuses on a broad range of preventive services, smoking cessation, obesity prevention and treatment, health literacy, and transition from pediatric to adult health care services.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
$1,972,014

SELECTED PUBLICATIONS

Hart LR, Gordon ML, Smolack T, MacNeir G. Practical tips to help transition pediatric patients to adult care. Pediatrics. 2019;144(2)e20190479.

FAST FACTS

July 2019 through June 2020
Primary Care Network Visits: .......................... 180,273
Unique Patients Treated
in Entire Primary Care Network: ..................... 84,594

Department of Pediatrics

PRIMARY CARE PEDIATRICS

Pediatricians in the Division of Primary Care Pediatrics at Nationwide Children’s Hospital staff the 12 Nationwide Children’s Hospital Primary Care Centers located throughout the Columbus area. A multidisciplinary staff provides comprehensive primary care services for a diverse and underserved population of patients.

Douglas J. McLaughlin, MD
Melissa A. Meyers, MD
Belinda M. Mills, MD
Alana A. Milton, MD
Anna Mohn-Udlin, MD
Mary A. Nelin, MD
Barbara Oetregen, MD
Michele Osgood, MD
Cheryl R. Pippins, MD
Quiana Polluck, MD
Stephanie Quash, MD
Alexandra T. Rakowsky, MD
Jessica Rezke, MD
Jennifer Ricciardo, MD
Nathan Richards, MD
Richard E. Rodenberg Jr., MD
Allison Rossetti, MD
Andrea Sarletti, MD
Sara Schroeder, MD
Amina Smajlovic, MD
Kimberly Stettler, MD
Lisa Stone, DO
Melissa Swanson, MD
Patricia Temple Gabbe, MD
Olivia W. Thomas, MD
Gina R. Thompson, DO
Jagdishbharat K. Uss, MD
Jose Vargus, MD
Shravanthi Vundavalli, MD
Caroline Wieking, MD
Mark Wineman, MD
Rachel Zamorri-Monroe, DO

The Primary Care centers provide comprehensive care primarily for children from birth to 21 years of age. Available services include preventive care, chronic disease management and acute care, with both scheduled and same-day, walk-in access. In addition to pediatricians and pediatric nurse practitioners, the clinics include a wide array of other individuals to support the needs of patients and their families, including health coaches, pharmacists, psychologists and social workers. Combined adult and pediatric health services are available at one clinic site.

The division’s quality improvement initiatives continue to focus on improving care for patients with a broad array of conditions, including anemia, asthma, attention deficit-hyperactivity disorder, depression and obesity. The division also focuses on ensuring all children and adolescents receive timely preventive services, including well-child visits and immunizations. The division also houses the Center for Healthy Weight and Nutrition, a national model for multidisciplinary comprehensive care for children and adolescents with obesity. In 2019, the division expanded its focus on adolescent preventive services, including screening for depression and suicide risk. To address the needs of patients and families during the COVID-19 pandemic, the division expanded access through telemedicine in addition to regular, in-person visits.

The Division of Primary Care Pediatrics provides training and education for The Ohio State University College of Medicine students, as well as residents in Pediatrics, Family Medicine and combined Internal Medicine-Pediatrics. Research focuses on a broad range of preventive services, smoking cessation, obesity prevention and treatment, health literacy, and transition from pediatric to adult health care services.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
$1,972,014

SELECTED PUBLICATIONS

Hart LR, Gordon ML, Smolack T, MacNeir G. Practical tips to help transition pediatric patients to adult care. Pediatrics. 2019;144(2)e20190479.

FAST FACTS

July 2019 through June 2020
Primary Care Network Visits: .......................... 180,273
Unique Patients Treated
in Entire Primary Care Network: ..................... 84,594

Department of Pediatrics
HEALTHY WEIGHT AND NUTRITION

Ihuoma U. Eneli, MD, MS, FAAP
Director

Marc P. Michalsky, MD, FACS, FAAP
Surgical Director

Editha Chaves, PhD
Jane Hamd-Lambert, PhD
Dominique Williams, MD, MPH, FAAP, Dipl ABOM
Jinyu Xu RD, MPH, PhD
Research Scientist

Keigo Yada, MD, PhD, FACS
Childhood Obesity and Adolescent Bariatric Surgery Fellow

The Center for Healthy Weight and Nutrition at Nationwide Children's Hospital offers a comprehensive approach to weight management with programs for the prevention and treatment of children and young adults, ages 2 to 21 years, with obesity. The center's mission is to empower children and families to establish a foundation for healthy lifestyles through clinical care, education, research, community engagement and advocacy.

The Center for Healthy Weight and Nutrition offers assessment clinics for evaluation of children and young adults with obesity and a variety of multidisciplinary programs with a physician, psychologist, dietitian, physical therapist and athletic trainer for intensive weight management. In addition, the center offers adolescent bariatric surgery and is accredited by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program. The center leads the Primary Care Obesity Network (PCON), a program that supports primary care practices with training and resources.

The center remains committed to providing educational opportunities with a four-year medical student elective, a residency elective rotation, and a childhood obesity and adolescent bariatric surgery fellowship, in addition to serving as an expert to obesity programs around the United States and internationally. The center has federal, industry and foundation research funding. It participates in three National Institutes of Health (NIH) multicenter studies on the long-term outcomes of adolescent bariatric surgery, modeling obesity program attrition and the use of family behavioral therapy to address childhood obesity in the primary care setting.

In addition, the center serves as the coordinating center for an international registry on rare disorders of genetic obesity. Through leadership roles at the National Academy of Medicine (NAM) Roundtable on Obesity Solutions, American Society for Metabolic and Bariatric Surgery (ASMB) and American Academy of Pediatrics (AAP) Institute for Healthy Childhood Weight (IHCW), our work led to the first AAP policy on bariatric surgery and the NAM obesity public workshops.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
$285,835

SELECTED PUBLICATIONS


FAST FACTS
July 2019 through June 2020

Bariatric Clinic Visits: 576
Healthy Weight and Nutrition Clinic Visits: 2,219
Hilliard Healthy Weight Clinic Visits: 399
Westerville Healthy Weight Clinic Visits: 928
Pulmonary Medicine

A Major Milestone in Cystic Fibrosis Treatment

A triple medication combination could be life-changing for the majority of patients with cystic fibrosis.

A Phase III clinical trial shows that eleraftor added to ivacaftor and tezacaftor improves lung function and quality of life in cystic fibrosis patients with the most common genetic mutation, F508del. The triple therapy, known as Trikafta, could effectively treat 90% of people with cystic fibrosis.

“Even though we treated a relatively small number of patients, the magnitude of the effect of this medicine is so huge that it took only small groups to be able to say we have extraordinarily significant results,” says Karen McCoy, MD, chief of the Division of Pulmonary Medicine at Nationwide Children’s Hospital and an author of the study.

“We could tell within hours of starting the medication that something had changed in the patients’ bodies. Patients felt better and had appetites. It transformed the way their bodies worked.”

In a study published in The Lancet, Dr. McCoy and her colleagues report the results of a Phase III clinical trial evaluating a next generation CFTR modulator, eleraftor, in combination with two currently used CFTR modulators, ivacaftor and tezacaftor.

The randomized, double-blind trial was completed at 44 sites in four countries. More than 100 patients with cystic fibrosis ages 12 years and older who had two copies of the F508del mutation were randomly assigned to receive the triple therapy or receive ivacaftor plus tezacaftor alone.

Treatment with the triple therapy resulted in profound improvements in lung function, sweat chloride concentration and respiratory-related quality of life compared with ivacaftor plus tezacaftor alone, along with a favorable safety profile. Though the trial was only four weeks long, systemic effects were also noted, with rapid improvements in body weight and body mass index.


“This therapy is a major breakthrough that will provide life-changing therapy for nearly all patients with cystic fibrosis. The results that I observed in our patients during the trial, in cases of compassionate use and now after approval are compelling,” Dr. McCoy says, who is also professor of Pediatrics at The Ohio State University College of Medicine. “We will ultimately be able to change the course of this disease dramatically for the vast majority of patients with cystic fibrosis.”

REFERENCE:

“Even though we treated a relatively small number of patients, the magnitude of the effect of this medicine is so huge that it took only small groups to be able to say we have extraordinarily significant results.”

– Karen McCoy, MD
### PULMONARY MEDICINE

The Division of Pulmonary Medicine at Nationwide Children's Hospital is to provide outstanding clinical care for children and adults with congenital and acquired respiratory disorders, including asthma, cystic fibrosis (CF), sleep-related breathing disorders, lung transplant, advanced lung disease care and management of chronic mechanical ventilation, environmental exposures and vaping-related injuries. The care model is multidisciplinary. Our mission also includes education of medical and allied health professional trainees and involvement in cutting-edge clinical, basic and translational research.

#### FACULTY

- Mark L. Spinaingard, MD
- Rohan A. Thompson, MD
- Lisa Ulrich, MD
- Pulmonary Medicine clinicians provide care at the Nationwide Children's main campus in Columbus and at regional Ohio locations in Westerville, Dublin and Lima Claws to 5 Home™ Centers. Our 19 physicians collaborate to complete over 10,000 outpatient visits at these four locations. Ranked sixth in the U.S. News & World Report, the program excels in patient care, training programs and research.

The cornerstone of the Division of Pulmonary Medicine is our nationally recognized Cystic Fibrosis Care Center, which is a designated Therapeutic Development Center. The center collaborates with our colleagues in Endocrinology, Gastroenterology, Hepatology, Otolaryngology, Psychology and Psychiatry to provide the best clinical outcomes for our pediatric and adult CF patients. A strong collaboration, Care CF Columbus (C3), has also formed with clinicians and basic researchers at The Ohio State University and the Abigail Wexner Research Institute. This collaboration is funded as a Research and Development Program at these four locations. Ranked sixth in the U.S. News & World Report, the program excels in patient care, training programs and research.

A Decade of Remarkable Transformation

In the past decade, Pulmonary Medicine has been at the forefront of groundbreaking research and scientific discoveries in cystic fibrosis. Nationwide Children’s serves as a translational research center for the Therapeutics Development Network (TDN) of the Cystic Fibrosis Foundation. As a translational research center for TDN, our patients have access to some of the latest advances in cystic fibrosis treatment. Foundation. As a translational research center for TDN, our patients have access to some of the latest advances in cystic fibrosis treatment.
Children, pediatric subspecialties in pulmonology, neurology and psychiatry, who are also board-certified in sleep medicine, review all polysomnographic studies to determine both diagnosis and potential therapies that would benefit each child. Further evaluation and treatment is available through the outpatient Sleep Disorders Clinic.

Staff of the Sleep Disorders Center have collaborated on research projects with Nationwide Children’s investigators from Anesthesiology, Critical Care, Gastroenterology, Endocrinology, Neonatology, Neurology, Otolaryngology, Pediatric Surgery, Psychiatry, Psychology, Pulmonology, Plastic Surgery, the Center for Injury Research and Policy at Nationwide Children’s and the Department of Mathematics at The Ohio State University. Recently completed studies include CDC-funded research of effectiveness of different alarm signals in awakening children and adults during sleep, using OSA screening questionnaires to predict preoperative outcomes and examining the utility of sleep studies shorter than four hours in infants and sleep disturbances in pediatric intracranial hypertension.

SELECTED PUBLICATIONS


Dublin Sleep Clinic Visits:

Ben Wisniewski, MD
Eric Mull, MD
Daniel Malleske, MD

SELECTED PUBLICATIONS


FAST FACTS

July 2019 through June 2020

Inpatient Discharges: 48
Observation and Outpatient-in-a-Bed Discharges: 84
Total Discharges: 129
Average Length of Stay*: 5.3
Average Daily Census*: 0.7
Patient Days*: 243

Inpatient Consults: 132
Main Campus Rheumatology Clinic Visits: 4,840
Dublin Rheumatology Clinic Visits: 849
Total Rheumatology Clinic Visits: 5,689

*Excludes observation and outpatient-in-a-bed patients.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC RHEUMATOLOGY

Othman Al-Ahmed, MD
Chitrana Raja, MD
Laura B. Balinges, MD
Veronica Minuk, MD

2019-20 Annual Report

NATIONWIDE CHILDREN’S HOSPITAL

NationwideChildrens.org/2020-Report

Department of Pediatrics

SPORTS MEDICINE

Sports Medicine at Nationwide Children’s Hospital includes a team of experts who specialize in the treatment and prevention of sports-related injuries in the pediatric and adolescent athlete. The focus of the department is prevention, diagnosis and treatment of youth and adolescent sports injuries, including concussions.

FACULTY

Thomas L. Pommering, DO
Chief

Steven C. Cuff, MD
Drew Duerson, MD
Anastasia N. Fischer, MD
Jonathan Napolitano, MD
Amy E. Valasek, MD

Highlights:
- Provided care for just under 17,000 patients at our eight locations
- Provided medical services at more than 2,100 events, affecting more than 200,000 athletes
- Developed an Adaptive Sports Medicine Program for athletes with special physical needs
- Served as team physicians for Ohio Dominican University and several central Ohio high schools and middle schools
- Faculty named over 50 times in publications, abstracts and national podium and poster presentations

Services available at Nationwide Children’s Sports Medicine include:
- Diagnosis and treatment of all sports-related injuries
- Sports Concussion Clinic
- Adaptive Sports Medicine Clinic
- Limb Deformity Clinic in collaboration with Orthopedics
- Point of service musculoskeletal ultrasound for diagnostic and therapeutic treatment
- Injury rehabilitation
- Specialized rehabilitation and injury prevention programs for swimmers, dancers, runners and athletes in other sports
- Sports Nutrition Counseling
- Sports Performance Training
- Play Strong (supervised exercise program for children with medical conditions)
- Sports Medicine Fellowship Training Program
- Central Ohio EMS Community Outreach and Education for Care of Athletes Injured on the Field of Play
- Partnerships with schools, and youth and club sport organizations


The Department of Anesthesiology and Pain Medicine at Nationwide Children's Hospital consists of fellowship-trained, board-certified pediatric anesthesiologists. The department provides anesthesiology and pain-management services for pediatric patients of all ages, from neonates through adolescents, requiring all types of surgical procedures, procedural sedation outside the operating room, acute and chronic pain management, and palliative care.

The department published more than 50 manuscripts last year. The department provided anesthetic care for approximately 40,000 procedures. Members of the faculty are fellowship-trained, board-certified pediatric anesthesiologists. The department also provides palliative care and hospice services with four full-time palliative care physicians. The fellowship program provides subspecialty training in pediatric anesthesiology for fellows in both an ACGME-accredited program and international fellows from all over the world. Advanced subspecialty training is offered in pediatric cardiac anesthesia, pediatric regional anesthesia, quality improvement and safety, acute pain management, chronic pain management and palliative care.

Departmental research initiatives are led by a Vice-Chair for Academic Affairs and supported by two postdoctoral research scientists, two full-time clinical research nurse anesthetists who provide care at 43 sites per day. There is a division of cardiac anesthesia that includes six physicians dedicated to the care of patients with acquired and congenital heart disease. We also have an active acute pain service that provides pain management services, including patient-controlled analgesia and regional anesthesia. The department also provides palliative care and hospice services with four full-time palliative care physicians.

The fellowship program provides subspecialty training in pediatric anesthesiology for fellows in both an ACGME-accredited program and international fellows from all over the world. Advanced subspecialty training is offered in pediatric cardiac anesthesia, pediatric regional anesthesia, quality improvement and safety, acute pain management, chronic pain management and palliative care.

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Departmental research initiatives are led by a Vice-Chair for Academic Affairs and supported by two postdoctoral research scientists, two full-time clinical research nurse anesthetists who provide care at 43 sites per day. The department also provides palliative care and hospice services with four full-time palliative care physicians.
The department includes more than 25 pathologists and doctoral scientists with subspecialty expertise in pediatric pathology and laboratory medicine. This professional staff is supported by more than 400 technical staff who provide 24/7 coverage in critical patient care areas. As an integral part of Nationwide Children’s operations, our team provides specimen collection and diagnostic services in multiple service centers across Ohio.

In the last year, the Anatomic Pathology Laboratory processed close to 10,000 surgical cases, 1,300 cytology specimens and 90 autopsies. Clinical laboratories performed more than 3.1 million tests in various subspecialty areas. As part of our core mission, we were actively involved in undergraduate and graduate medical education, and our faculty served in multiple leadership roles locally and on the national scene. Faculty highlights include the appointment of Shamlal Mangray, MB, BS, as chief of Pathology and Laboratory Medicine; Kathy Nicol, MD, as medical director; Miriam Conces, MD, as director of surgical pathology; and Selene Koo, MD, PhD, as director of autopsy pathology. Additionally, two anatomic pathologists and three molecular pathologists were recruited in the last year.

Dustin Bunch, PhD, who joined our team as assistant director of clinical chemistry, is also assistant director of laboratory informatics. Dr. Bunch has made enormous contributions to our laboratory informatics initiatives and coordinated efforts between the laboratory and Nationwide Children’s Clinical Informatics teams in the short time he has been here.

Most recently, Amy Leber, PhD, Huanyu Wang, PhD, and Sophonie Jean, PhD, worked feverishly with their microbiology team to make Nationwide Children’s the first hospital in central Ohio to go live with COVID-19 polymerase chain reaction (PCR) testing. In addition, they helped other institutions with trouble-shooting to provide testing online. This team also brought on COVID-19 antibody testing. Kathy Nicol, MD, and Sophonie Jean, PhD, coordinated with our clinical team for the administration of convalescent plasma as part of the treatment regimen for one of our patients. Jade Wilson, DO, MPH, and Sophonie Jean, PhD, worked closely with leaders in epidemiology and administration to support the Nationwide Children’s response to the pandemic.

Many of our faculty serve in professional committees at the level including leadership roles. Nita Ramirez, MD, director of the Biopathology Center, was the recipient of the Carl R. Jolliff Award for Lifetime Achievement in Clinical or Diagnostic Immunology.
PHYSICAL MEDICINE AND REHABILITATION

The Section of Physical Medicine and Rehabilitation at Nationwide Children’s Hospital specializes in the diagnosis and management of children with physically disabling conditions. Our physicians are board-certified specialists in Physical Medicine and Rehabilitation with additional certification in pediatric rehabilitation medicine and are members of the departments of Pediatrics, and Physical Medicine and Rehabilitation at The Ohio State University College of Medicine. In addition, Carl D. Gelfius, MD, is board certified in electrodiagnostic medicine. Carl D. Gelfius, MD, Karl Klamar, MD, and Reginald D. Talley, MD, are board certified in brain injury medicine.

FACULTY

Michelle A. Miller, MD
Chief
Carl D. Gelfius, MD
Karl W. Klamar, MD
Wilawan Nopkhun, MD
Jonathan S. Pedrick, MD
Nathan S. Rosenberg, MD
Reginald D. Talley, MD

Physical Medicine and Rehabilitation was actively involved in the teaching of medical students, medical residents and fellows over the past year. We offer a pediatric rehabilitation rotation to the Physical Medicine and Rehabilitation residents from Larkin Community Hospital and the Palm Spring Branch of Larkin. Presentations on pediatric rehabilitation, concussion, neuromuscular disorders, musculoskeletal disorders, spasticity management and pediatric traumatic brain injury were made at local, regional, national and international levels.

Clinically, we provide services to the multidisciplinary brachial plexus team, the wheelchair seating and equipment clinic, and the EMG laboratory. We also continue services to our CARF (Commission on Accreditation of Rehabilitation Facilities)-accredited inpatient rehabilitation unit, the inpatient consult service and the following outpatient clinics: general rehabilitation, myelomeningocele, botulinum toxin, concussion, gait lab, neuro-urology and non-accidental traumatic brain injury.

FAST FACTS

<table>
<thead>
<tr>
<th>July 2019 through June 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Discharges: ............. 101</td>
</tr>
<tr>
<td>Observation and Outpatient-in-a-Bed Discharges: ........... 3</td>
</tr>
<tr>
<td>Total Discharges: ............ 106</td>
</tr>
<tr>
<td>Average Length of Stay*: ............ 23.8</td>
</tr>
<tr>
<td>Average Daily Census*: ............... 6.7</td>
</tr>
<tr>
<td>Patient Days*: .............. 2,401</td>
</tr>
<tr>
<td>Inpatient Consults: ............ 419</td>
</tr>
<tr>
<td>Number of Beds: ............... 12</td>
</tr>
<tr>
<td>Physical Medicine Clinic Visits: ........ 5,329</td>
</tr>
<tr>
<td>Myelomeningocele (Spina Bifida) Clinic Visits: ........... 626</td>
</tr>
<tr>
<td>School-based Seating Clinic Visits: ........ 11</td>
</tr>
</tbody>
</table>

*Excludes observation and outpatient-in-a-bed patients.

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEdiATRIC reHAbilITATION MEDICINE

Amy Hiller, DO
Noel Pratas, MD
Big Lots Behavioral Health Services at Nationwide Children’s Hospital is a comprehensive service line dedicated to children and adolescents affected by mental illness and problems of emotional development, as well as their families. By working together, we aim to deliver teams-based care that transcends the work of individual professionals, incorporating evidence-based practices into active clinical settings and establishing high standards of quality, safety and customer satisfaction. The facility from the Department of Pediatrics and the Child and Adolescent Division of the Department of Psychiatry and Behavioral Health provide clinical care for the service line.

In March 2020, Nationwide Children’s opened the Big Lots Behavioral Health Services at Nationwide Children’s, a facility fully dedicated to children and adolescents with mental and behavioral health conditions. As the most comprehensive pediatric facility of its kind nationally, the Pavilion houses integrated behavioral health services, including inpatient psychiatric beds, a crisis stabilization unit, a partial hospital, and intensive behavioral services, including inpatient psychiatric beds, a crisis stabilization unit, a partial hospital, and intensive behavioral services.

The Child Development Center and Center for Autism Spectrum Disorders provide services to individuals with intellectual and developmental disabilities, including those with autism spectrum disorders. The Center Development Center offers a wide range of services to address the developmental and behavioral needs of children, adolescents and families of those with autism spectrum disorders and other developmental disabilities. These services include interdisciplinary assessment and treatment, psychological evaluation and treatment, family interventions, advocacy support and care coordination with medical, social and educational services. The Child Development Center provides integrated care in more than a dozen pediatric subspecialty clinics. It also serves as a site for the Autism Speaks Autism Treatment Network, a network of 13 sites across the United States and Canada. The Center for Autism Spectrum Disorders provides comprehensive, multidisciplinary care focusing on evidence-based treatment, education, research and advocacy for children diagnosed with autism spectrum disorders. Services include intensive behavioral intervention and consultation, school support and educational consultation, Apgar’s counseling, social skills groups, parent teaching, advocacy and community education.

Pediatric Psychology and Neuropsychology provides clinical services in two primary areas: Pediatric Psychology provides specialized assessment and intervention services that focus on the relationship between cognition, emotion, behavior and adaptation and emotional functioning and physical health, typically for children with co-occurring medical conditions (e.g., cancer, diabetes, sickle cell disease). Pediatric Neuropsychology performs specialized evaluations for children and adolescents with a range of medical and neurological disorders that impact thinking or behavior (e.g., brain tumors, stroke, seizure disorders, traumatic brain injury). The section provides care throughout the hospital, including inpatient medical units, medical specialty outpatient clinics and the Psychology Clinic at Nationwide Children’s.

Pediatricians act as liaisons to divisions within the Departments of Pediatrics and Psychiatry to provide expertise in clinical care and to assist in development of research and quality initiatives around the psychosocial care for patients and families. In 2019, Pediatric Psychology had an increased patient volume for both inpatient consultation and liaison and outpatient services. Our area of continued expansion has been integrating pediatric psychology into our Primary Care Centers with new integration sites added in 2019. Also, Pediatric Psychology received a possible growth in integrated care within our internal psychology. G. Complex Care and Nounology services. Neuropsychology expanded to support integrated services in our Rhenology clinics. Psychologists also began preparing for integration into psychiatric acute care services on a larger scale with the opening of the Big Lots Behavioral Health Pavilion; three psychologists, two psychology fellows and a psychology intern/resident are not part of the Psychiatric Acute Care Service. Additionally, there is a history of psychologists providing leadership in several programs within the Department of Pediatrics at Nationwide Children’s, with roles such as director of Psychosocial Services for the Division of Hematology, Oncology & Blood and Marrow Transplant, psychosocial leadership in areas of gastrointestinal care and the Newborn Intensive Care Unit, program leadership in the interdisciplinary feeding program for children with feeding aversions, and the comprehensive interdisciplinary pain program. In 2019, Pediatric Psychology began providing clinical program leadership in Nationwide Children’s new Intensive Pain Rehabilitation and Education Program.

See page 110 for a list of faculty, selected publications and grants awarded.

Psychiatry and Community Behavioral Health is the largest and most clinically diverse sector of Behavioral Health Services. This integrated program of care for pediatric mental disorders spans a comprehensive spectrum, from prevention services to inpatient psychiatric units. Services currently available include pediatric crisis assessment and treatment within an expanded Youth Crisis Stabilization Unit, multidisciplinary inpatient services for youth who are hospitalized at Nationwide Children’s, psychiatric inpatient beds at Nationwide Children’s, Partial Hospital Program, multidisciplinary inpatient and outpatient programs for children, adolescents, and families of those with autism spectrum disorders in collaboration with Adolescent Medicine, intensive outpatient services within the Mood and Anxiety Program, intermediate levels of behavioral health care in the community courts and schools, specialized services for early child mental health, outpatient treatment clinics and a novel program to integrate mental health service delivery in primary care settings. Over the past year, the focus has been on the opening of the Big Lots Behavioral Health Pavilion. See page 134 for a list of faculty, selected publications and grants awarded.

Center for Biobehavioral Health: See page 181 for information about the Center for Biobehavioral Health in the Abigail Wexner Research Institute at Nationwide Children’s Hospital.

GRANTS AWARDED TO CLINICAL AND RESEARCH FACULTY JULY 1, 2019 – JUNE 30, 2020

NATIONAL RESEARCH FOUNDATION

Total Inpatient Days: .............................................

Total Outpatient Visits/Consults: .............................

Child Development Center Outpatient Consultation Visits: 1,432

Total Outpatient Visits/Consults: .............................

Total Inpatient Consults: .................................

Total Outpatient Days: .................................

Total Inpatient Days: .................................


Total Outpatient Visits/Consults: 250,748

Total Inpatient Consults: 5,501

Total Inpatient Days: 9,104

FAMILY PRACTICE AND COMMUNITY ORGANIZATION

Total Outpatient Visits/Consults: 10,628

Child Development Center Outpatient Consultation Visits: 1,432

Center for Autism Spectrum Disorders Visits: 38,628

Center for Autism Spectrum Disorders: .....................................

Center for Autism Spectrum Disorders Visits: 133

Child Development Center Outpatient Consultation Visits: 1,432

Center for Autism Spectrum Disorders Visits: 38,628

Behavioral Health Total Outpatient Visits/Consults: 250,748

Total Inpatient Consults: 5,501

Total Inpatient Days: 9,104

FAMILY PRACTICE AND COMMUNITY ORGANIZATION

Total Outpatient Visits/Consults: 10,628

Child Development Center Outpatient Consultation Visits: 1,432

Center for Autism Spectrum Disorders Visits: 38,628

Behavioral Health Total Outpatient Visits/Consults: 250,748

Total Inpatient Consults: 5,501

Total Inpatient Days: 9,104

FAMILY PRACTICE AND COMMUNITY ORGANIZATION
PSYCHIATRY AND COMMUNITY BEHAVIORAL HEALTH

Psychiatry and Community Behavioral Health at Nationwide Children's Hospital is the largest and most clinically diverse section of Behavioral Health. This integrated program of care for pediatric mental health conditions spans a comprehensive spectrum of care from prevention services to inpatient psychiatric units. The Child and Family Division in The Ohio State University Department of Psychiatry and Behavioral Health has faculty at Nationwide Children’s and The Ohio State University. See page 132 for details and for information about all Behavioral Health services.

FACULTY

Robert A. Kowatch, MD, PhD
Rajeev Krishana, MD, PhD, MBA
Scott Leibowitz, MD
Ferronella Mbu, MD
Molly Meers, PhD
Jennifer Munoz, PhD
Maura Munoz, MD, MA
Mary Ann Murphy, MD, PhD
Sarah Nayerem, MD
Upal Ramtekkar, MD, MBA, MPE
Jennifer Rene, PsyD
Nadine Schwartz, MD
Lacramioara Spetie, MD
Geeta Ilipilla, MD
Natalie Jacobowski, MD
Kristina R. Jiner, MD
Anna Kerlek, MD

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

$1,013,189

SELECTED PUBLICATIONS


FAST FACTS

July 2019 through June 2020

Psychiatry Inpatient Consultations:.................1,337
Psychiatry Inpatient Unit Discharges:................570
Community-Based Visits:..............................44,646
Outpatient Therapy Visits:..............................88,284
Partial Hospital/Intensive Outpatient Program Visits:...2,979
Psychiatry Clinic Visits:.................................29,201
Youth Crisis Stabilization Unit Discharges:...........998
Psychiatric Crisis Department/PEC:.................5,580
RADIOLOGY

Department Report

RADIOLOGY

The Department of Pediatric Radiology at Nationwide Children’s Hospital is one of the nation’s premier imaging programs for children, with subspecialty expertise in abdominal, cardiac, chest, fetal/neonatal, interventional, musculoskeletal, neuroimaging and nuclear imaging. We provide expert care in imaging diagnosis and therapy. Our mission is to improve children’s lives through innovative imaging. The major philosophical consideration that drives our mission is that children are not small adults. Technology must be adapted to meet the needs of pediatric patients to create imaging biomarkers specific for pediatric disease. Our vision of the reinvented imaging department, the Children’s Imaging Biomarker Alliance (CIBA), was born with the following goals:

- Develop and validate imaging biomarkers specific to pediatric disease
- Determine quality, safety and cost-effectiveness of validated imaging biomarkers for discrete patient care pathways
- Integrate imaging biomarkers across the basic/translational /clinical spectrum
- Integrate pediatric research across departments, imaging modalities and populations

The imaging infrastructure is located in the Pediatric Advanced Imaging Resource (PAIR), which brings together strategic partnerships and shared cutting-edge resources with optimized distribution of imaging technology and skilled personnel, an integrated model of imaging informatics, a robust quality and safety infrastructure and an advanced image-processing program which includes 3D modeling and 3D printing for personalized treatment planning and creation of patient-specific devices.

FACTORILY

Rajesh Krishnamurthy, MD
Radiologist-in-Chief
Bret H. Adler, MD
David Gregory Bates, MD
Adam Bobboy, MD
Associate Section Chief, Nuclear Medicine and Molecular Imaging
Leah Bramwell, MD
Associate Section Chief, Interventional Imaging
Ellen Chung, MD
Associate Radiologist-in-Chief

Jerome Rusin, MD
Summit Shah, MD
Sally Smith, DO
Benjamin Thompson, DO
Patrick Warren, MD
Section Chief, Interventional Imaging
Cody Young, DO
Nicholas Zumbinger, MD

Radiology has had several clinical advancements over the past year. Most notably, we have grown subspecialized programs to include:

- **Cardiac Imaging**: especially neonatal/infant cardiac CT, new blood pool contrast program and myocardial stress perfusion program
- **Musculoskeletal Imaging**: with a new Ultrasound contrast program and joint injections in collaboration with Rheumatology
- **Interventional Imaging**: using Tumors Metrics to quantify tumor mass and novel targeted antibody treatment
- **Neuroimaging**: with the utilization of Emergent Stroke Programs
- **Vascular Anomalies**: creating new lymphatic channel imaging and intervention programs

We successfully organized and hosted a hands-on workshop and the largest international meeting with 3D Imaging for Interventional Catheterization with the utilization of Emergent Cardiac Imaging. We also welcomed our first fellow in Pediatric Cardiac Imaging.

Finally, we have several advancements in research. Our research team is now led by Mai-Lan Ho, MD. Our Interventional Radiology team is administering targeted gene delivery to support gene therapy research. We have been a key imaging partner for the tissue engineering group. We are the grant award recipient of the American College of Radiology’s (ACR) Innovation Fund for the creation of "I-ROAR: Imaging Registry for Orphan And Rare Disease.”

Rajesh Krishnamurthy, MD, was elected to the board of the Society of Pediatric Radiology in 2020, and is the current chair of the ACR Pediatric Imaging Research Committee.

SELECTED PUBLICATIONS


2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDIATRIC RADIOLOGY

Nathan Fagan, MD (Interventional Radiology Fellow)
Eriko Morgan (Pediatric Cardiac Radiology Imaging Fellow)
SURGICAL SERVICES

Nationwide Children’s Hospital’s surgical departments have come together with a single, clear focus — to provide optimal outcomes for every child — inside and outside the walls of the operating room. This work is predicated on three core pillars — providing advanced clinical care, performing ground-breaking research and offering industry-leading training programs — that combine to provide the best care for every child.

Our faculty are helping to improve the care provided to children around the world by training the next generation of surgeons. Our departments offer the most surgical residency and fellowship programs of any free-standing pediatric hospital in the United States. Training programs are also offered to other surgeons, providing opportunities for them to advance their skills in more advanced techniques such as minimally invasive laparoscopic and robot-assisted surgery.

SURGICAL SUBSPECIALTIES

• Cardiothoracic Surgery
• Colorectal and Pelvic Reconstruction
• Dentistry
• Neurosurgery

• Ophthalmology
• Orthopaedics
• Otolaryngology
• Pediatric and Adolescent Gynecology

• Pediatric Surgery
• Plastic and Reconstructive Surgery
• Transplant
• Trauma
• Urology

THE HEART CENTER / CARDIOTHORACIC SURGERY

The Cardiothoracic Surgery Program at Nationwide Children’s Hospital is dedicated to the treatment of all patients, from fetus to adulthood, with congenital heart defects ranging from the most straightforward to the extremely complex. As part of The Heart Center, we offer a comprehensive approach to heart care that is based on a multidisciplinary team model, which enables our team to constantly monitor quality of care and patient safety pre- and post-surgery to assure the best possible outcomes. See page 40 for details about The Heart Center.

FACULTY

Mark E. Galantowicz, MD
Chief, Cardiothoracic Surgery
Co-Director, Heart Center

Sergio A. Carrillo, MD
Pediatric Cardiothoracic Surgeon

Patrick I. McConnell, MD
Director, Cardiopulmonary Mechanical Assist Program

Toshiharu Shinoka, MD, PhD
Director, Cardiovascular Tissue Engineering Program

GRANTS AWARDED TO HEART CENTER AND CARDIOVASCULAR RESEARCH FACULTY

JULY 1, 2019 – JUNE 30, 2020

$2,302,971

SELECTED PUBLICATIONS


Oluyinka Olutoye, MD, PhD
Surgeon-in-Chief

Sergio A. Carrillo, MD
Pediatric Cardiothoracic Surgeon

Patrick I. McConnell, MD
Director, Cardiopulmonary Mechanical Assist Program

Toshiharu Shinoka, MD, PhD
Director, Cardiovascular Tissue Engineering Program
Surgical Services

**COLORECTAL AND PELVIC RECONSTRUCTION**

The Center for Colorectal and Pelvic Reconstruction at Nationwide Children’s Hospital is leading the way in providing high-quality care for children diagnosed with colorectal and pelvic conditions. There is a direct correlation between the number of patients a clinical program sees and the high-quality outcomes they can deliver to their patients. Colorectal and Pelvic Reconstruction is the busiest program of its kind anywhere in the world, having performed more than 764 operations last year. Every child diagnosed with a colorectal or pelvic condition is handled with an individualized treatment plan. Because of the complexity of many conditions, most children require care throughout their life. Our team is committed to providing optimal outcomes and quality of life for patients ranging from newborns, through toilet training, puberty and adulthood, including bowel, urinary, sexual function and childbearing.

**FACULTY**

Richard J. Wood, MD
**Chief**

Karla Vaz, MD
Kent C. Williams, MD
Desale Yacob, MD

**DIAGNOSTIC RADIOLOGY**

Brent H. Adler, MD
David Gregory Bates, MD
Benjamin P. Thompson, DO

**NEUROSURGERY**

Jeffrey R. Leonard, MD

**PEDIATRIC AND ADOLESCENT GYNECOLOGY**

Geri D. Hewitt, MD

**UROLOGY**

Daniel G. Daluza, MD

**GASTROENTEROLOGY, HEPATOLOGY AND NUTRITION**

Neetu Bali, MD
Carlo Di Lorenzo, MD
Peter Lu, MD

**ADVANCE PRACTICE NURSE COORDINATORS**

Kristin Booth, MSN, CFNP
Onnalisa Nash, MS, CPNP-PC

The Center for Colorectal and Pelvic Reconstruction complex reconstruction program, working closely with urologists, gynecologists and gastroenterologists, continues to help children from around the world, thus far providing guidance and surgery for children from all 50 states and 73 countries. The use of minimally invasive surgery has expanded as well, offering both robot-assisted and pure laparoscopic surgical treatment of complex conditions, including bladder neck reconstruction, and appendicovesicostomy and/or Malone procedures for severe incontinence, both urinary and fecal, and offering unique opportunities to share tissues such as a shared appendix used for both procedures. The Colorectal and Pelvic Reconstruction team travels to provide surgical education across the globe. Surgeons train fellows and nurses train nurses. The Center for Colorectal and Pelvic Reconstruction has a growing transition of care program for children as they become young adults and move into adulthood. With the expertise of Alexandria Gavin, DO, the first surgeon in the world trained in both pediatric and adult colorectal surgery, this unique program will collaborate with The Ohio State University Wexner Medical Center. The center has changed the lives of many adult patients through our collaborative approach to care.

**SELECTED PUBLICATIONS**


**2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM**

**PEDIATRIC COLORECTAL RESEARCH**

Hira Ahmad, MD

**PEDIATRIC COLORECTAL SURGERY**

Yousef El-Gohary, MD

**INTERNATIONAL PELVIC RECONSTRUCTION**

Maestres, MRCGP, MMed

(Red Cross War Memorial Children’s Hospital, South Africa)

Clare Skerritt, MD

(Bristol Royal Hospital for Children, United Kingdom)
DENTISTRY
The Department of Dentistry at Nationwide Children’s Hospital is comprised of dedicated professionals in the fields of pediatric dentistry, orthodontics, oral surgery, endodontics, periodontics, general dentistry, dental hygiene, and dental assisting who provide comprehensive preventive, therapeutic, urgent, and emergency oral health care services for infants, children, and adolescents, including those with special health care needs. Our mission is to optimize oral health for the children who need us most through a balanced program dedicated to providing quality clinical care and specialty services while advancing knowledge through research, advocacy, and community partnerships within a premier educational environment. Scientific discoveries focus on caries prevention, behavior management, oral microbiome, and dental trauma outcomes.

FACULTY
Janice A. Townsend, DDS, MS
Chief

FULL-TIME NATIONAL CHILDREN’S FACULTY
Homa Amini, DDS, MS, MPH
Elon Azadani, DDS, MS
Paul S. Casamasimo, DDS, MS
Daniel B. Claman, DDS
Kimberly Hammersmith, DDS, MPH, MS
Patrick M. Kennedy, DDS
Daniel B. Claman, DDS
Paul S. Casamassimo, DDS, MS
Ehsan Azadani, DDS, MS
Homa Amini, DDS, MS, MPH

COMMUNITY-BASED FACULTY
Ashok Kumar, BDS, MS
Director of Clinical Operations and General Anesthesia
Rosa Ortega, DDS, MS

OSU-AFFILIATE FACULTY
Hany A. Elnam, BDS, MS
Henry W. Fields, DDS, MS, MSD
Ann L. Griffin, DDS, MS
Erin L. Gross, DDS, PhD, MS
Courtney A. Jatana, DDS, MS, FACS
Kelly S. Kennedy, DDS, MS
Benjamin Kosok, DDS, MS
Joshua M. Leavitt, DMD, MS
Jeffery S. Lee, DDS
Sean E. Lindsey, DDS
Eileen M. Martinez, DDS
Monte E. Maonenhentik, DDS, MS
Yison-Mi L. Marracia, DMD, MS
Jeffrey T. Mihon, DDS, MS
Kara M. Morris, DDS, MS
Cecilia A. Moy, DDS, MS
Andrea M. Myers, DDS
Scott W. Nieman, DDS
DaShawn T. Normon, DDS
Colleen C. Orillana, DDS, MS
Andree-Anne Page, DMD
Sachin S. Paralkar, DDS
Monica R. Patel, DMD, MS
Nita S. Patel, DDS
Matthew L. Pingel, DMD
Jesicla Patano, DMD
Mindy A. Price, DDS, MS
Sidney D. Price, DDS, MS
Joel J. Richards, DMD
Shawn A. Rosenberg, DMD, MS
Anseer K. Sandhu, DDS
Matina M. Shah, DDS, MS
Anuradha Shetal, DMD
David S. Silverglade, DDS, MS
Randall M. Speer, DDS
Patrick St. John, DDS, MS
Rob S. Steiner, DMD
Heidi Steinkamp, DDS, PhD
Kumar Subramaniam, DDS, MS
Claire E. Towsing, DDS
Eric C. Van Gilder, DDS
Kevin T. Weitzel, DMD, MS
Stephen Wilson, PhD, DMD

In the past year, the department has continued to provide access for patients, including children with special health care needs. Although altered operations due to the COVID-19 pandemic decreased the number of patient visits, the department provided continuous care for children with urgent and emergent needs in clinic, emergency department, and operating room settings. The department has been a leader in how to continue patient care and training activities during COVID-19 with a nationwide shared resident curriculum and four publications on our experiences. To continue to improve clinical access to care and to promote scholarly activity in the department, Beau Meyer, DDS, MPH, has been hired in a joint recruitment effort with The Ohio State University College of Dentistry.

Additional highlights:
National and local faculty and resident recognitions:
- Homa Amini, DDS, MS, MPH, received an additional year of funding for Ohio Medicaid, Medicaid Equity Simulation Project, “MEDTAPP: Access to Dental Care for Immigrant Families.”
- Elon Azadani, DDS, MS, was appointed as a graduate faculty member at The Ohio State College of Dentistry.
- Paul Casamassimo, DDS, was awarded the Gustav O. Kruger Career Achievement Award from Georgetown University on May 28, 2020.
- Dan Claman, DDS, completed the Quality Improvement Education Course.
- Ann Griffen, DDS, MS, was appointed chair of the Graduate Studies Committee at The Ohio State University College of Dentistry.
- Erin Gross, DDS, MS, was appointed chair-elect of the faculty council at The Ohio State University College of Dentistry.
- Kim Hammerstrom, DDS, MPH, MS, was awarded $2,250,000 by the U.S. Department of Health and Human Services for the Health Resources and Services Administration postdoctoral training in general, pediatric and public health dentistry and dental hygiene.
- Beau Meyer, DDS, MPH, was awarded the Olu Alaves Award for Early Career Scholars who Published Outstanding Articles in the Journal of Dental Education in 2019 by the American Dental Education Association.
- Ashok Kumar, DDS, MS, completed the “Communicate With Me” training course.

• Janice Townsend, DDS, MS, was a contributor to the surgeon general’s report.

Research (funded) highlights:
• Improved Access to Care with Homa Amini, DDS, MPH, MS
• Oral Microbiome Studies with Ann Griffen, DDS, MS, and research team, The Ohio State University College of Dentistry
• Predoctoral Training Grant with Kimberly Hammersmith, DDS, MPH, MS

SELECTED PUBLICATIONS


2019 – 2020 NATIONWIDE CHILDREN’S RESIDENCY PROGRAM

PEDIATRIC DENTISTRY
Seth Bradbury, DDS
Madeleine DiParks, DDS
Joshua Evans, DDS
Taylor Harlan, DDS
Kirthin Lanier, DDS
Sheyna Marone, DDS
Jamie Molina, DDS
Ehsanbehzad Pahlevi, DDS
Mitch Poole, DDS
Enrique Ramirez, DDS
Adam Richardson, DDS
Victoria Tran, DDS
Andrew Yu, DDS
Stefan Winer, DDS
Chloe Wong, DDS
Mia Yoshioka, DDS

FAST FACTS
July 2019 through June 2020

Inpatient Discharges: 2
Observation and Outpatient-in-a-Bed Discharges: 16
Total Discharges: 19
Average Length of Stay*: 1.0 Patient Days*: 2
Dental Clinic Visits: 35,986
Mobile Dental Unit Visits: 85
Dental Clinic and Sedation: 366
Total Surgical Procedures: 4,289

*Excludes observation and outpatient-in-a-bed patients.

Surgical Services

NEUROSURGERY

Ranked sixth in the country by U.S. News & World Report, the Department of Pediatric Neurosurgery at Nationwide Children’s Hospital provides evaluation and treatment for problems of the central nervous system in patients from birth through 21 years of age and in selected adults with congenital neurological disorders. The staff works closely with members of the departments of Anesthesia, Hematology, Oncology & Blood and Marrow Transplant, Neurology, Physical Medicine and Rehabilitation, Pediatric Surgery, Plastic and Reconstructive Surgery, and many other pediatric disciplines.

FACULTY

Jeffrey R. Leonard, MD
Chief

FULL-TIME NATIONWIDE CHILDREN’S FACULTY

Amie I. Dragoea, MD
Jonathan A. Pindrik, MD
Anmar Shaikhouni, MD, PhD
Eric A. Sribnick, MD, PhD

OSU-AFFILIATE FACULTY

John M. McGregor, MD
Eric A. Sribnick, MD, PhD

With over 850 surgical cases and more than 5,500 clinic visits performed in 2019 alone, the Department of Pediatric Neurosurgery has continued with significant growth. Outreach efforts have been successful, as the team has provided care to patients from all around the world, including 31 states and nine countries. The pediatric epilepsy surgery program is steadily expanding and is on pace to perform over 50 epilepsy cases this year.

The Selective Dorsal Rhizotomy Program continues to provide comprehensive care for patients with spastic cerebral palsy, including care provided by colleagues in Physical Medicine and Rehabilitation, as well as in Therapy Services. Our program is one of very few in the country that perform this procedure with great success. Our out-of-state referrals have grown significantly, as demonstrated by increases in new patient clinic visits, inpatient hospital days and case volume.

The scholarly output of the program has increased markedly with over 30 publications (journals, chapters and manuscripts) and 20 presentations in national and international meetings. We have enrolled over 600 patients in either clinical trials or registry projects, and as a member of the Hydrocephalus Clinical Research Network (HCRN), we continue to participate in multi-institutional studies focusing on the treatment of hydrocephalus. In addition, the department is a part of many other research endeavors, studying Chiari I malformations, cerebral palsy, epilepsy and brain tumors. Jonathan A. Pindrik, MD, is co-director of the Epilepsy Surgery Program and the site principal investigator for the HCRN. Eric A. Sribnick, MD, PhD, continues a basic science research program on the role of immunology in traumatic brain injury and is the trauma liaison for the department. Both have submitted and presented multiple abstracts at national meetings over
collaboration dedicated to treatment of cerebral palsy in the pediatric and adult populations. He also serves on the editorial boards and the scientific peer review panel for SRA International, the Journal of Pediatric Neurology and World Neurosurgery and is associate editor of neurosurgery for Pediatrics.

SELECTED PUBLICATIONS


Jeffrey Leonard, MD, Named Neurosurgery Chair, Ophthalmology and Visual Sciences

Amanda L. Way, MD

Gary L. Rogers, MD

Mary Lou McGregor, MD

Catherine Olson Jordan, MD

Hilliary E. Inger, MD

Cybil B. Cassady, MD

FULL-TIME NATIONWIDE CHILDREN’S FACULTY

David L. Rogers, MD

Chief

Megan M. Chambers, MD

Raymond L. Cho, MD

Louis J. Choritch, III, MD

Frederick H. Davidson, MD

Jill A. Foster, MD

Andrew J. Hendershot, MD

Charles J. Hickey, MD

Steven E. Katz, MD

Carrin G. Kelley, MD

Johnstone M. Kim, MD

Dino D. Kliouvic, MD

Rebecca A. Kuenen, MD

Carrie A. Lembach, MD

Cameron B. Nahori, MD

Matthew P. Ochs, MD

Tyler Ostry, MD

Daniel G. Straka, MD

Ana M. Suvelles Cogollos, MD

Michael B. Wells, MD

The Department of Ophthalmology supports research and teaching programs that ensure delivery of the highest quality pediatric care for our patients, now and in the future. We are participating in amblyopia, cataract, myopia and retinopathy of prematurity (ROP) studies sponsored by the Pediatric Eye Disease Investigator Group. We are actively engaged in studies focused on preserving vision in children with Retinopathy disease. Research continues on projects concerning infantile cataracts, intracranial hypertension, secondary intracocular lens placement, pediatric strabismus and children with cataract. We are also one of 15

Surgical Services

OPHTHALMOLOGY

The Department of Ophthalmology at Nationwide Children’s Hospital is dedicated to providing comprehensive eye care for children and adults. The department includes the Eye Clinic and the Electrophysiology Testing Laboratory. The Eye Clinic serves in-house patient referrals, provides comprehensive outpatient eye care and offers special testing on the patients of community-based physicians. The clinic staff includes pediatric ophthalmologists, optometrists, a pediatric ophthalmology fellow and ophthalmology residents from The Ohio State University College of Medicine, as well as low vision and rehabilitation specialists. In addition, the Eye Clinic offers specialty clinics staffed by ophthalmologists and other subspecialists and eye care professionals for patients with issues related to glaucoma, retinopathy, cataract, myopia, retinopathy of prematurity, glaucoma, retinopathy of prematurity, congenital glaucoma and low vision.

FACULTY

Johnstone M. Kim, MD

Carrin G. Kelley, MD

Steven E. Katz, MD

Dino D. Kliouvic, MD

Rebecca A. Kuenen, MD

Carrie A. Lembach, MD

Cameron B. Nahori, MD

Matthew P. Ochs, MD

Tyler Ostry, MD

Daniel G. Straka, MD

Ana M. Suvelles Cogollos, MD

Michael B. Wells, MD
sites currently participating in the multicenter Artisan Aphakia Lens study. The Artisan Aphakia lens is unique because it is fixed to the iris and therefore allows for lens implantation in patients who do not have the support structure for a traditional implant. Without an implant lens, these children must wear extremely strong and cosmetically unappealing glasses or highly customized, and often poorly tolerated, hard contact lenses. These patients now have an option to live with much more normal visual function. These lenses are not FDA approved, and we expect this study will help gain future FDA approval.

The Visual Electrophysiology Clinic at Nationwide Children’s is led by Julie Racine, PhD. This clinic performs electroretinograms, multifocal electroretinograms, electro-oculograms and visual evoked potential on patients of all ages, including adults, to assess retinal and retino-cortical function. The department also manages and acts as the physical location for the office of the Ohio Amblyope Registry program (funded by the Ohio Department of Health’s Save Our Sight Fund), the first and only statewide program in the United States designed to serve the needs of children with amblyopia. It is a voluntary registration program to increase knowledge about amblyopia, its causes, treatment and prevention. It also provides free eye patches and other important services to help families of children with amblyopia.

The department is equipped with state-of-the-art technology for utilization in standard dilated eye exams and for specialty testing, including ultrasound (A/B scans), retinal photography, visual field, optical coherence tomography (OCT), intravenous and oral fluorescein angiography, autorefraction, tonometry, color vision and contrast sensitivity testing. We are proud to serve patients from across the country and the world.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
$586,310

SELECTED PUBLICATIONS


SELECTED PUBLICATIONS


FAST FACTS
July 2019 through June 2020

Inpatient Discharges: 1
Observation and Outpatient-in-a-Bed Discharges: 12
Total Discharges: 13
Total Surgical Procedures: 1,684
Inpatient Consults: 2,692
Eye Clinic and Low Vision Eye Clinic Visits: 8,088

*Excludes observation and outpatient-in-a-bed patients.
Orthopaedics

Finding the Best Treatment for Stable but Severe Slipped Capital Femoral Epiphysis

A novel comparison of the modified Dunn procedure for children with stable versus unstable slipped capital femoral epiphysis (SCFE) has identified a new target to improve surgical outcomes.

The modified Dunn procedure was controversial for many years due to the high rate of avascular necrosis after surgery, which many studies found to be as high as 60%. Surgeons at Nationwide Children’s Hospital managed to achieve far lower than average postsurgical avascular necrosis rates for unstable SCFE cases, however (~6%, which they published in 2018 in the Journal of Pediatric Orthopedics). In an attempt to offer better future mobility outcomes for other patients as well, they then extended the use of the modified Dunn procedure to severe cases of stable, chronic SCFE.

In the first known comparison of outcomes for patients with stable versus unstable slipped SCFE undergoing the modified Dunn procedure, surgeons at Nationwide Children’s found that the procedure can effectively treat both acute and chronic SCFE. However, those with stable SCFE had a higher postsurgical complication rate, primarily due to the co-occurrence of avascular necrosis and postoperative instability. In patients without postoperative instability of the hip, however, avascular necrosis risk was similar across the groups.

“The modified Dunn procedure is very effective and relatively safe in acute unstable slips, but it needs to be used more cautiously in stable chronic cases — especially those with a more severe slip,” says Kevin E. Klingele, MD, chief of Orthopaedic Surgery at Nationwide Children’s and senior author on the latest study, also published in the Journal of Pediatric Orthopedics. “Avoiding postoperative instability may be the key to lowering complication or avascular necrosis rates in this procedure to a more acceptable level for severe, stable slip patients.”

Since conducting the research, Dr. Klingele and the team’s other orthopedic surgeons have attempted to eliminate postoperative instability using relative femoral neck lengthening, longer postoperative leg bracing and motion restrictions, and capsulorrhaphy (suturing to tighten the hip joint). They have had no postoperative slips in patients with chronic, stable SCFE since.

“For patients with severe stable slips, outcomes from in situ screw fixation alone are not good, but we now also know that the modified Dunn procedure for these cases is different than using it for acute, unstable SCFE — you have to be more careful to avoid postoperative complications,” Dr. Klingele says. “If we can eliminate that additional risk, though, we will be on our way to reaching the ideal treatment outcome: minimal complications with the best long-term hip function.”

REFERENCES:


“If we can eliminate that additional risk, though, we will be on our way to reaching the ideal treatment outcome: minimal complications with the best long-term hip function.”

– Kevin E. Klingele, MD
Research efforts were highlighted by two projects being recognized at this year’s Pediatric Orthopaedic Society of North America Annual 2020 meeting. “Reverse dynamization accelerated bone healing in a large animal osteotomy model” via senior author Christopher Iobst, MD, achieved runner-up status as best basic science paper. “Probability analysis of sequential SCFE (PASS score)” via senior author Kevin Klingele, MD, achieved runner-up status as best clinical paper. Both projects were enabled by Baruch Danino, MD, who completed his year as the department’s first international exchange research scholar.

SELECTED PUBLICATIONS

FAST FACTS
July 2019 through June 2020

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Inpatient Discharges</th>
<th>Observation and Outpatient-in-a-Bed Discharges</th>
<th>Total Discharges</th>
<th>Average Length of Stay**</th>
<th>Average Daily Census**</th>
<th>Patient Days*</th>
<th>Total Surgical Cases</th>
<th>Inpatient Consults</th>
<th>Main Campus Orthopaedic Clinic Visits**</th>
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<td>Canal Winchester</td>
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<td>Clinic Visits</td>
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<td>New Albany Orthopaedic Clinic Visits</td>
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<td>Westerville Orthopaedic Clinic Visits</td>
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<td>Orthopaedic Oncology Clinic Visits</td>
<td>590</td>
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<td>Total Orthopaedic Clinic Visits</td>
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*Excludes observation and outpatient-in-a-bed patients.

PEDIATRIC ORTHOPEDICS
Michael Pelle, DO

A Decade of Remarkable Transformation

ORTHOPAEDICS

The Department of Orthopaedics at Nationwide Children’s Hospital provides diagnosis, evaluation and treatment for all orthopedic conditions and disorders in infants, children and adolescents. Inpatient, outpatient and emergency services are provided to patients with a wide range of developmental, congenital, neuromuscular and postraumatic problems of the musculoskeletal system, trauma and fractures, scoliosis and other spinal abnormalities.

Faculty members participate in the education of health care professionals at several levels. Residents, medical students and nurses from The Ohio State University Wexner Medical Center, OhioHealth, and Mount Carmel Health System receive all of their pediatric orthopedic experience at Nationwide Children’s. The Accreditation Council for Graduate Medical Education-accredited fellowship program rounds out the extensive educational program.

Chief
Kevin E. Klingele, MD

FULL-TIME NATIONAL CHILDREN’S FACULTY
Allan C. Beebe, MD
Martin C. Bora, MD
Reid C. Chambers, DO
Christopher A. Iobst, MD
John R. Kean, MD
Jan E. Klamar, MD
Charles J. Seaborne, MD, PhD, MPH
Raymond K. Wurapa, MD

Craig N. Dimitriu, MD
Jonathan T. Feibel, MD
Robert T. Gostine, MD
James E. Popp, MD
Desmond J. Stutman, DO
Corey L. Van Hoff, MD

In 2019, the Department of Orthopedics maintained its stature as a top 10 ranked pediatric orthopedic provider, developed surgically innovative techniques and protocols, and flourished within a very active research division. Recruiting efforts were highlighted with the addition of Reid Chambers, DO, and Craig Smith, MD. Dr. Chambers partnered within a very busy spine program and Dr. Smith joined the Center for Limb Lengthening and Reconstruction as well as quickly built a successful hip arthroscopy program within the Center for Hip Preservation.

The Spine Program officially expanded to become the Center for Comprehensive Spine Care (CCSC). Under the direction of Allan Beebe, MD, the CCSC provides team-centered care for patients with spinal deformity, ranging from newborns with congenital anomalies to adults with chronic conditions. Such a comprehensive approach, built with collaboration among many services, including Neurosurgery, Pain Services, and the Honda Center for Gait Analysis and Mobility Enhancement, ensures optimal outcomes for our patients. The CCSC holds an outstanding track record within quality improvement and dual surgeon operative techniques, producing one of the lowest infection rates within the country, as well as very low complication and reoperation rates.

Inpatient Consults: 286

Main Campus Orthopaedic Clinic Visits: 14,705

2019 – 2020 NATIONAL CHILDREN’S FELLOWSHIP PROGRAM

FELLOWSHIP PROGRAM

Pediatric Orthopaedics
Michael Pelle, DO

2010 – 2020 NATIONAL CHILDREN’S HOSPITAL

From limb lengthening to hip preservation, from comprehensive spine care to sports medicine and adaptive sports medicine, and from advanced care for musculoskeletal oncology patients to basic science research that moves the field forward, the Department of Orthopaedics has established a designated initiative to solve the most complex programs of the field over the last decade.

A Decade of Remarkable Transformation

ORTHOPAEDICS

Kevin Klingele, MD, Named Chief of Orthopaedics
Dr. Christopher Iobst Joins to Head the New Center for Limb Lengthening and Reconstruction
Nationally Children’s Launches Birth to Career for Hip Preservation
Governor’s Children’s Development Orthopaedic Quality Improvement and Research Division
Grant from Honda Helps Build Center for Gait Analysis and Mobility Enhancement
Ranked #8 by U.S. News & World Report – Fourth Consecutive Year in Top 10

Surgical Services
OTOLARYNGOLOGY

The Department of Pediatric Otolaryngology, Head and Neck Surgery at Nationwide Children's Hospital provides comprehensive diagnosis and treatment for children who have diseases of the ears, nose and throat. These problems include congenital and acquired diseases of the head and neck, hearing loss, ear infections, tonsillitis, sinusitis, acute and chronic nasal problems, airway disorders, voice disorders, sleep apnea, skull base tumors, salivary gland problems and many other related diseases.

FACULTY

Brandon Kim, MD
Leslie R. Kim, MD, MPH
Jameson K. Mattingly, MD
Aaron C. Moberly, MD
Matthew O. Old, MD
Bradley A. Otto, MD
Robert S. Pema, DO
Minka L. Schofield, MD

COMMUNITY-BASED FACULTY

Patrick L. Bockensted, MD
Jacobs P. Burkart, DO
Roberto J. Castellon, MD
Daniel W. Chase, MD
Subinoy Das, MD
Timothy P. Drankwalter, DO
Alexander A. Farag, MD

OSU-AFFILIATE FACULTY

Amit Agrawal, MD
Eugene Co-Hink Chio, MD
Brad W. deSilva, MD
Edward E. Dodson, MD
Garth F. Essig Jr., MD
L. Atick Forrest, MD

Charles A. Elmaraghy, MD, FAAP, FACS

FULL-TIME NATIONWIDE CHILDREN'S FACULTY

Ofer F. Adamsa, MD, FACS
Ethan Bassett, MD, FACS
Tandy Chiang, MD
Jonathan M. Grischkan, MD, FAAP, FACS
Kris R. Jatana, MD, FAAP, FACS
Spencer Lindsey, MD
Kris R. Jatana, MD, FAAP, FACS
Jonathan M. Grischkan, MD, FAAP, FACS
Tandy Chiang, MD
Ethan Bassett, MD
Oliver F. Adunka, MD, FACS

Chief

Charles A. Elmaraghy, MD, FAAP, FACS

FELLOWSHIP PROGRAM

PEDIATRIC OTOLARYNGOLOGY

Erin Hamsrely, DO
Gunari Bangal, MD

Blair A. O'Brien, MD
David M. Powell, MD
Cherie Ryo, MD
John M. Ryanm, MD
Ashish Shah, MD
Theresa M. Shirk, DO
Stephen F. Smith Jr., MD
Adam C. Spieau, MD
Evan J. Tolim, DO
Andrew Tompkins, MD
Darryl N. Willert, MD

The department continues its clinical growth of services with over 3,200 clinic visits and over 5,000 surgical procedures. The department has grown both clinically and academically. New clinical programs include our same-day ear tube surgery pilot program that allows for a single visit for evaluation and surgery. We have published over 50 original research manuscripts in peer-reviewed journals and numerous other national presentations. We have developed a new protocol based on an initiative to reduce post-operative complications following tonsillectomy. As a result, the readmission rate has decreased, as has our rate of hemorrhage. In addition, we continue to reduce our use of opioids following surgery. Otolaryngology has been the surgical leader with reduction of new prescriptions for narcotics.

FAST FACTS

July 2019 through June 2020

Inpatient Discharges: 96
Observation and Outpatient-in-a-Bed Discharges: 1,866
Total Discharges: 2,607
Average Length of Stay*: 3.8
Average Daily Census*: 0.8
Patient Days*: 275
Total Surgical Cases: 9,457
Inpatient Consults: 792
Dublin ENT Clinic Visits: 8,198
ENT (Main Campus) Clinic Visits: 14,852

2019 – 2020 NATIONWIDE CHILDREN’S FELLOWSHIP PROGRAM

PEDiatric OTOLARYNGOLOGY

Erin Hamsrely, DO
Gunari Bangal, MD

SELECTED PUBLICATIONS


JULY 1, 2019 – JUNE 30, 2020

$313,165

NATIONWIDE CHILDREN’S HOSPITAL | 2019-20 Annual Report | nationwidechildrens.org/2020-Report

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Surgical Services

PEDIATRIC AND ADOLESCENT GYNECOLOGY
The Department of Pediatric and Adolescent Gynecology at Nationwide Children’s Hospital provides comprehensive reproductive health services for patients and their families from birth through early adulthood. These services are provided within a wide array of clinical services including:

- Pediatric and Adolescent Gynecology
- Center for Colorectal and Pelvic Reconstruction
- Endometriosis and Chronic Pain Program
- Family AIDS Clinic and Education Services (FACES)
- Fertility and Reproductive Health Program
- Teen and Pregnant Program
- THRIVE Program (differences of sexual development and complex urological and gender concerns)

FACULTY

Geri D. Hewitt, MD
Chief
Pediatric and Adolescent Gynecology

Dana Lenobel, APN

Kate A. McCracken, MD
Teen and Pregnant Program

Kara Malone, MD
Lesley Manson, WHNP-BC
Natasha Reno, WHNP
Family AIDS Clinic and Education Services (FACES)

Maggie Rosen, MD
Maternal-Fetal Medicine Staff

Michael P. Cackovic, MD
Magd Costantine, MD
Heather Frey, MD
Mark Landon, MD
Kara Rood, MD
Philip Samuels, MD

Patrick Schneider, MD
Cynthia S. Shellhaas, MD
Stephen F. Thung, MD, MSCI
Courtney Ware, MD

Pediatric and Adolescent Gynecology at Nationwide Children’s continues to grow in all aspects of medical services provided: ambulatory and telehealth visits, in-patient consultations and surgical procedures performed. The geographic region we serve continues to expand as well.

Gynecology continues to work collaboratively within CCPR to address the reproductive health needs of females born with anorectal malformations across their lifespan. This work encompasses direct surgical and medical patient care, research projects and educational initiatives. We also work collaboratively with the ARM transitional program at OSUMC.

The Endometriosis and Chronic Pelvic Pain program provides streamlined, comprehensive care for patients with chronic pelvic pain. The multidisciplinary collaboration includes providers from numerous disciplines across the medical center working together to enhance quality of life and reproductive outcomes for these patients.

The Fertility and Reproductive Health Program provides clinical services and best practices for patients at risk of diminished fertility. Nationwide Children’s is part of the International Oncosperity Consortium, and we continue to offer ovarian tissue cryopreservation and cancer survivorship care.

The Teen and Pregnant Program clinic continues to serve pregnant patients in central Ohio offering multidisciplinary care in both traditional and centering obstetrical care models.

SELECTED PUBLICATIONS

FAST FACTS

<table>
<thead>
<tr>
<th>Department</th>
<th>Visits (2019-20)</th>
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<tbody>
<tr>
<td>Downtown Teen and Pregnant</td>
<td>1,282</td>
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<tr>
<td>Dublin Pediatric and Adolescent Gynecology Clinic</td>
<td>625</td>
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<tr>
<td>Linden Teen and Pregnant Clinic</td>
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<tr>
<td>Main Campus Pediatric and Adolescent Gynecology Clinic</td>
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<td>Westerville Pediatric and Adolescent Gynecology Clinic</td>
<td>765</td>
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<tr>
<td>Total Pediatric and Adolescent Gynecology Clinic</td>
<td>5,497</td>
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<tr>
<td>Total Surgical Procedures</td>
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</table>
Pediatric Surgery

Midwest Pediatric Surgery Consortium Finds Antibiotics Alone Successfully Treat Uncomplicated Appendicitis in Children

New research demonstrates that nonoperative management of uncomplicated appendicitis is a safe and effective option in a variety of health care systems.

Appendicitis is the most common cause for emergency abdominal surgery in childhood, affecting 80,000 children in the United States each year, but nonoperative treatment options are viable. A study performed by the Midwest Pediatric Surgery Consortium, led by Peter Minneci, MD, and Katherine Deans, MD, co-founders and directors of the Center for Surgical Outcomes Research at Nationwide Children’s Hospital, found that nonoperative management of uncomplicated appendicitis is a safe and effective option in a variety of health care systems.

Of 1,068 patients from 10 health centers enrolled in the study, 67.1% of those who elected to initially manage their care through antibiotics alone experienced no harmful side effects and did not later require an appendectomy by their one-year follow-up. Patients in this group experienced an average of 6.6 disability days, compared to the 10.9 days in the surgery group. Nonoperative management was also associated with fewer disability days for caregivers.

"With surgery, patients will definitely experience postoperative pain and disability," says Dr. Minneci, principal investigator of the studies with Dr. Deans. "Treatment-related disability is important to kids, because it means missing activities in their lives that may directly affect their development and quality of life such as school, athletics and vacations," Dr. Deans notes.

Additionally, the study, which focused on children who were hospitalized for uncomplicated appendicitis — who experienced abdominal pain for no more than 48 hours, had a white blood cell count below 18,000 and underwent an ultrasound or CT scan to rule out rupture and to verify that their appendix was 1.1 centimeter thick or smaller with no evidence of an abscess or fecolith — found that both the patients who elected to undergo surgery and those who chose nonoperative management with antibiotics alone reported similar health care satisfaction at 30 days and quality of life at 1 year.

Drs. Minneci and Deans say that future research could study how to disseminate these results and translate them into pediatric clinical practice so that more patients can be informed of the two options and the risks and benefits of each.

"Culture change and rethinking how we treat patients is always hard," says Dr. Deans. "Surgeons tend to be passionate about operations, and an appendectomy is a well-tested and trusted procedure. However, some patients want to avoid surgery at all costs, and the results of our study allows us to move away from a one-size-fits-all model of appendicitis care and treat each child based on his or her values and preferences."

REFERENCES:


"Treatment-related disability is important to kids, because it means missing activities in their lives that may directly affect their development and quality of life such as school, athletics and vacations.”

– Katherine Deans, MD

NATIONWIDE CHILDREN’S HOSPITAL

The department continues to have one of the busiest robotic surgery programs of any children’s hospital in the United States. This year the hospital acquired a new state-of-the-art Da Vinci Xi Robot, which will allow us to perform more diverse, complex operations on even smaller children. Our original robot will be housed in the new Nationwide Children’s Hospital Conference and Simulation Center, and will be a wonderful addition to the numerous simulation and training opportunities available for faculty, staff and visitors. In addition, laparoscopic training simulation devices have been produced in our department and represent unique training tools for surgeons.

The Burn Program at Nationwide Children’s uses state-of-the-art techniques to accelerate burn wound healing and reduce pain. One of the newest techniques being used is using Re-cell, a technique that uses a small sample of the patient’s own skin to produce spray-on skin cells that cover an area 30 times larger than previous methods and improves pigmentation. Other new products being used include the skin substitute biodegradable transient matrix (BTM), which promotes the formation of granulation tissue over very deep burn wounds, and Supratel, an antipruritic cream that decreases pain in the treatment of burns and donor sites. Use of a new smart phone virtual reality game is used as a distraction technique to reduce pain during dressing changes.

The research conducted in the department is broad and encompasses a range of basic, clinical, translational and outcomes research projects. The department continues as a leader in the nation in presentations at national academic meetings. For the ninth year in a row, our research trainees have received prestigious national awards for their high-quality research, bringing our total number of research awards to an unprecedented 35 in the past nine years. Faculty members in the department are highly prolific, publishing 150 to 200 papers a year.

Ihab Halaweish, MD, joined the department in 2019. He obtained his medical degree from Case Western Reserve University, did his General Surgery and Trauma Translational and Clinical Research training at the University of Michigan, and did his Fellowship in Pediatric Surgery at Texas Children’s Hospital. His clinical interests focus on colorectal surgery and general pediatric surgery.
PLASTIC AND RECONSTRUCTIVE SURGERY

The Department of Plastic and Reconstructive Surgery at Nationwide Children's Hospital provides comprehensive, interdisciplinary management of cleft lip and palate, congenital and traumatic craniofacial anomalies, 22q deletion syndrome, velopharyngeal dysfunction, hemangiomas and vascular anomalies, pigmented birthmarks, burn injuries, microtia and other ear anomalies, breast abnormalities, and congenital and traumatic hand and upper extremity anomalies and peripheral nerve disorders.

FACULTY

Richard E. Kirschner, MD, FAAP, FACS
Chief

FULL-TIME NATIONAL CHILDREN’S FACULTY

Adriane Baylos, PhD, CCC-SLP
Kim Bjorklund, MD
Ibrahim Kikama, MD
Lauren Madhoun, PhD
Ana Mercado, DMD, PhD
Lauren Madhoun, PhD
Gregory D. Pearson, MD
Kara Morris, DDS, MS
Albert Chao, MD
Ibrahim Khansa, MD
Kim Bjorklund, MD
Adriane Baylos, PhD, CCC-SLP

The Department of Plastic and Reconstructive Surgery takes the leading role in several interdisciplinary teams at Nationwide Children's to provide comprehensive care for the restoration of both form and function. The department offers advanced fellowship training in both pediatric plastic/craniofacial surgery and craniofacial speech science. Both the Cleft Lip and Palate Center and the Center for Complex Craniofacial Disorders once again received national recognition as leading American Cleft Palate-Craniofacial Association (ACPA)-approved programs. The 22q Center continued to fulfill its mission to provide comprehensive, coordinated services to patients and families from across the nation.

In 2020, Lauren Madhoun, PhD, CCC-SLP, BCS-S, was recruited to lead the Craniofacial Infant Feeding Program and was appointed as assistant professor of Plastic Surgery at The Ohio State University. This unique program serves the Cleft Lip and Palate Center and the Center for Complex Craniofacial Disorders, providing feeding and dietary support to infants with cleft palate and other craniofacial differences.

Dr. Amy Moore, chief of the Department of Plastic Surgery at The Ohio State University Wexner Medical Center, joined the Nationwide Children's team in 2020. An expert in pediatric peripheral nerve reconstruction, Dr. Moore has joined Dr. Kim Bjorklund to establish the Brachial Plexus and Peripheral Nerve Program at Nationwide Children's. In March, Dr. Moore and Dr. Bjorklund performed the first lower extremity nerve transfer surgery for an acute flaccid myelitis patient at Nationwide Children's, making the hospital one of the only sites in the nation to perform this surgery. The 22q Center continued to fulfill its mission to provide comprehensive, coordinated services to patients and families from across the nation.

SELECTED PUBLICATIONS


2019 – 2020 NATIONAL CHILDREN’S FELLOWSHIP PROGRAM

PEDiatric PLASTIC AND CRANIOFACIAL SURGERY

Chateau Kipudono, MD

CRANIOFACIAL SPEECH

Breanna Bilizos, MA, CCC-SLP

SELECTED PUBLICATIONS

The transplant programs at Nationwide Children’s Hospital provide comprehensive services to patients locally, nationally and internationally. Our programs are Abdominal Transplant (including Kidney and Liver Transplant), Blood and Marrow Transplant (BMT), Heart Transplant, and Lung and Heart-Lung Transplant.

**ABDOMINAL TRANSPLANT**

The Abdominal Transplant Program at Nationwide Children’s offers specialized and comprehensive care to patients with end-stage liver disease due to congenital and acquired hepatic and biliary disorders, and end-stage renal disease due to kidney and urinary tract disorders. We perform both living- and deceased-donor kidney transplants and deceased-donor liver transplants for infants, children and adolescents. Both the Kidney and Liver Transplant Programs are certified by the United Network for Organ Sharing (UNOS). The Kidney Transplant Program is certified by the Centers for Medicare and Medicaid Services (CMS) and is a member of the Improving Renal Outcomes Collaborative (IROC). The Liver Transplant Program is accepted into the Ohio Solid Organ Transplant Consortium (OSOTC) and is an active member of the Society of Pediatric Liver Transplantation (SPLIT). In addition, the programs partner with The Ohio State University into the Ohio Solid Organ Transplant Consortium (OSOTC) and is an active member of the Society of Pediatric Liver Transplantation (SPLIT). In addition, the programs partner with The Ohio State University Abdominal Organ Transplant Program to provide the full continuum of care to patients as they age and transition to adult care. In the past year, the Nationwide Children’s Kidney Transplant Program performed six transplant surgeries, three of which were from a living donor. The Nationwide Children’s Liver Transplant Program performed two liver transplants during the period, one of which was a combined liver-kidney transplantation with the kidney transplant team, the first such combination transplant surgery at Nationwide Children’s. Both the Kidney and Liver Transplant Programs are certified by the United Network for Organ Sharing (UNOS).

**BLOOD AND MARROW TRANSPLANT**

The Blood and Marrow Transplant (BMT) Program uses a family-centered, holistic care model in utilizing hematopoietic cell transplantation (HCT) as the definitive cure for pediatric and adolescent/young adult patients with malignant and nonmalignant disorders. Our team is dedicated to optimizing clinical applications of HCT by reducing transplant-associated morbidity and mortality through novel care and innovative therapies, including immune-directed cellular therapies. The BMT Program is supported by the Foundation for Accreditation of Cellular Therapy (FACT)-accredited Apheresis Program at Nationwide Children’s, which offers extracorporeal photopheresis for patients with graft-versus-host disease, and The James and WW Williams Company Cell Therapy Laboratory at The James Cancer Hospital and Solove Research Institute at The Ohio State University, which offers unique forms of hematopoietic cell graft manipulation and processing. Our Cellular Therapy and Cancer Immunotherapy Program (CTCIP) provides logistic support for cell therapy manufacturing and protocol development for novel investigator-initiated cellular therapies. The BMT Program educates the next generation of HCT and cell therapy physicians through its fourth-year Pediatric BMT/Cell Therapy Fellowship Program.

The BMT Program is FACT-accredited and is affiliated with the National Marrow Donor Program (NMDP), the Center for International Blood and marrow Transplant Research (CIBMTR), the Children’s Oncology Group (COG), the Pediatric Transplant and Cell Therapy Consortium (PTCTC), the Primary Immune Deficiency Treatment Consortium (PIDTC), the Blood and Marrow Transplant Clinical Trials Network (BMT CTN), the Sickle Cell Transplant Alliance for Research (STAR) Consortium, and the New Approaches to Neuroblastoma Therapy (NANT) Consortium. We actively collaborate in cutting-edge research and investigator-initiated clinical trials with The Ohio State University Comprehensive Cancer Center. Autologous and allogeneic hematopoietic cell transplants are performed using all types of stem cell
LUNG AND HEART-LUNG TRANSPLANT

The Lung and Heart-Lung Transplant Program is part of an advanced lung disease center consisting of programs for cystic fibrosis, congenital heart disease, pulmonary vascular disorders, intestinal lung disease and neonatal lung disease. Our transplant team also works in conjunction with The Heart Center, offering combined lung-heart transplantation to patients with advanced cardiopulmonary disease.

We offer a full spectrum of lung assist devices and ambulatory extracorporeal membrane oxygenation (ECMO) to children with advanced lung disease, including acute respiratory decompensation, and have the capability of transporting patients to our center on lung assist devices and ECMO.

SELECTED PUBLICATIONS


TRAUMA

Nationwide Children’s Hospital is one of the largest Level 1 pediatric trauma centers in the nation to be verified by the American College of Surgeons. We are also one of the few free-standing pediatric burn centers in the United States to be verified by the American Burn Association. The trauma and burn programs provide clinical care for injured children, a robust quality improvement program to ensure that the highest quality of care is provided, and research to improve outcomes through the Center for Pediatric Trauma Research at Nationwide Children’s. Our nationally recognized trauma and burn service provides care for injured children from infancy through adolescence. Pediatric trauma and burn experts are involved in all aspects of patient care, including pre-hospital, emergency department, critical care, inpatient, operative management and rehabilitation. Our multidisciplinary, collaborative approach allows us to provide patients with exceptional care. Our center serves as a resource for injury prevention and education for our primary service area and beyond.

FACULTY

Rajan Thakkar, MD
Trauma Medical Director
Co-Director Burn Program

Renata Fabia, MD
Co-Director Burn Program

Jonathan I. Groner, MD
Trauma Quality Medical Director

TRAUMA SURGEONS

Jennifer H. Aldrink, MD
Gail E. Besner, MD
Christopher K. Breuer, MD
Katherine J. Deans, MD
Karen A. Diefenbach, MD
Ikbal Halaweish, MD
Brian D. Kenney, MD
Ihab Halaweish, MD
Brian D. Kenney, MD
Marc P. Michalsky, MD
Peter C. Minneci, MD
Benedict C. Nwomeh, MD
Oluyinka Olutoye, MD
Richard Wood, MD

PHYSICIAN TRAUMA/BURN LIAISONS

Morgan Wurz, MD (Emergency Medicine)
Graciela Argote-Romero, MD (Anesthesia)
Allan Beebe, MD (Orthopedics)
Greg Cambier, MD (Anesthesia)
Maria Estrada, DO (Critical Care)
Mark Hogan, MD (Radiology)
Joff Lunn, MD (Critical Care)
David Martin, MD (Anesthesia)
Ellen McManus, MD (Emergency Medicine)
Eric Sribnik, MD (Neurosurgery)

TRAUMA PROGRAM MANAGER

Kathy Haley, MS, RN

Highlights from the past year:

• Renata Fabia, MD, was nominated as president-elect for the North American Burn Society.
• Rajan Thakkar, MD, provided leadership for the Pediatric Injury Quality Improvement Collaborative, a national burn injury quality collaborative.
• The Burn Program launched its first full year of its Laser Therapy Program for burn scar reconstruction.

CENTER FOR PEDIATRIC TRAUMA RESEARCH

RESEARCH CENTER FACULTY

Henry Xiang, MD, MPH, PhD
Director

Jonathan I. Groner, MD
Medical Director

Julie Leonard, MD, MPH
Associate Director

Sheila Giles, RN, BSN, was instrumental in acquiring the American Nursing Association’s recognition of burn nursing as a specialty.
Lee Ann Wurzer, MS, RN, CPNP, TCGRN, MS, led the COVID-19 Pediatric Trauma Society Nurse Leadership Group.
Carrie Rhodes, CPST-I, BA, was appointed to the steering committee for the Pediatric Trauma Society Injury Prevention Committee.
Kathy Haley, MS, RN, was reappointed to the board of the Central Ohio Trauma System.

The trauma team provides expertise and leadership through the Central Ohio Trauma System, the state trauma system, and nationally through the Pediatric Trauma Society, the Verification Review Committee of the American College of Surgeons, and other national trauma and burn organizations.
FACULTY
Jennifer Cooper, PhD
Renata Fabia, MD, PhD
Brian Kenney, MD, MPH
Jeffrey Leonard, MD
Eric Sribnick, MD, MPH
Rachel Stanley, MD
Rajin Thakkar, MD
Ginger Yang, PhD, MPH

AFFILIATE FACULTY
Allan C. Berhe, MD
Mark Hall, MD, FAAP, FCCM
Bo Lu, PhD (The Ohio State University)
Jennifer Lundine, PhD, CCC-SLP, BC-ANCDS
Keith Yeates, PhD

NURSE RESEARCHERS
Kathy Haley, MS, RN
Sheila Giles, BSN, RN
Dana Noffsinger, CPNP-AC
LeeAnn Wurster, MS, RN, CPNP

SENIOR RESEARCH ASSOCIATE
Megan Armstrong, MPH

Center for Pediatric Trauma Research Achievements
• Julie Leonard, MD, MPH, won the Outstanding Mentor Award from the Abigail Wexner Research Institute.
• Ginger Yang, PhD, was featured by the U.S. Centers for Disease Control and Prevention in its Injury Control Research Centers success story about Ohio concussion laws.
• Ginger Yang, PhD, received a multiyear NIH grant to study the effectiveness of parent-focused driving safety interventions on safe-driving practices among teen drivers who have committed a traffic violation.
• Henry Xiang, MD, MPH, PhD, received a research grant from the Ohio Department of Public Safety Emergency Medical Services to evaluate smart phone virtual reality for pediatric home burn-dressing pain management.
• Jennifer Lundine, PhD, received a multiyear CDC grant as the co-investigator to assess return to school following pediatric traumatic brain injury.

Yuyang Zhang, graduate student of Bo Lu, PhD, was the third-place winner of 2019 Ohio State University Center for Clinical and Translational Science Annual Scientific Meeting poster competition in the graduate students section.

GRANTS AWARDED
JULY 1, 2019 – JUNE 30, 2020
Trauma-related research funding spans multiple centers which include Emergency Medicine, Center for Biobehavioral Health, Pediatric Psychology and Neuropsychology, Center for Injury Research and Policy, and Center for Innovation in Pediatric Practices.
$2,546,672

SELECTED PUBLICATIONS


FAST FACTS
July 2019 through June 2020

Admissions: 1,575
Average Length of Stay: 3.0
Blunt Injury Admissions: 1,192
Penetrating Injury Admissions: 142
Burn Injury Admissions: 215
Asphyxial Injury Admissions: 26
Orthopedic Trauma Admissions: 409
Neurosurgery Trauma Admissions: 167
Pediatric Surgery Trauma Admissions: 769
Other Service Trauma Admissions: 120
Using Biomarkers to Determine the Success of Ureteropelvic Junction Obstruction Surgery

Biomarkers initially found to differ among patients with ureteropelvic junction obstruction and healthy controls may also objectively gauge post-surgical resolution of obstruction.

A follow-up study of a trial that initially identified four biomarkers that differ between healthy controls and pediatric patients about to undergo surgery for ureteropelvic junction obstruction (UPJO) has confirmed that two of these biomarkers may also be useful in determining whether the obstruction has successfully resolved post-surgery.

The study, published in the *Journal of Pediatric Urology*, found that levels of beta defensin 1 (BD-1) and hepatocarcinoma-intestine-pancreas/pancreatitis-associated protein (HIP/PAP) — both of which were significantly elevated pre-surgery compared to healthy control patients — significantly decreased after successful UPJO surgery, with BD-1 returning to normal, healthy control levels.

“Diagnosis of obstruction currently relies exclusively on the use of radiologic studies, which can take their toll on families because they’re often invasive and time-consuming, and they can be ambiguous in many cases of UPJO,” says Brian Becknell, MD, PhD, a pediatric nephrologist and principal investigator in the Center for Clinical and Translational Research at Nationwide Children's Hospital. “It would be nice to have urine biomarkers we could serially monitor and measure noninvasively over time to determine which patients might need surgery and which can be monitored on a conservative, nonoperative basis.”

The clinician-scientists behind the research examined follow-up urine samples at least 6 months after surgery (to allow time for complete surgery-related healing) for 13 of the original study’s 30 patients. All had successful resolution of their obstruction after surgery, as demonstrated via improved radiologic imaging and symptom resolution.

Their work is the first to demonstrate that HIP/PAP and BD-1 may offer clinicians not only a noninvasive and non-imaging-based method of detecting ureteral obstruction but also of monitoring its resolution post-surgery.

“We now need to show how these biomarkers behave in a larger group of patients,” says Christina Ching, MD, senior author of the study, pediatric urologist and a physician-scientist at Nationwide Children’s. “In addition, while this study was the first step in demonstrating the potential of these markers in evaluating for resolution of obstruction, it was actually a drawback of this study that all patients had a successful outcome from surgery. We need to follow some patients who do not respond to surgery to determine if biomarkers follow a different trajectory in that situation.”

To learn more about a wide range of obstruction-related biomarkers, the team will use a recently awarded R01 grant (Brian Becknell, MD, PhD, lead investigator) to prospectively follow about 300 young children with UPJO, with the hope of correlating serial urine findings with radiologic imaging and kidney function testing as needed.

**REFERENCES:**


“We now need to show how these biomarkers behave in a larger group of patients.”

– Christina Ching, MD
The Department of Urology at Nationwide Children’s Hospital provides comprehensive diagnostic and therapeutic services for a wide range of urological disorders in children of all ages, including teenagers and young adults. Advanced services include reconstructive surgery of the urinary tract, genitalia and urinary sphincter, as well as consultations for urinary tract abnormalities detected in utero. The department participates in several multispecialty clinics, including THRIVE (a program specializing in care for differences of sexual development, complex urological problems and gender concerns), the Center for Colorectal and Pelvic Reconstruction (CCPR), the Urology/Nephrology Combined Clinic, the Stone Clinic and the Myelomeningocele Program.

The mission of the department is to provide the highest quality pediatric urological care in the safest and most child-friendly environment. The department includes members who are full-time pediatric urologists, hold faculty appointments in the Department of Urology at The Ohio State University College of Medicine and are committed to cutting-edge medical research and surgical education.

The academic productivity of the program has continued to increase. In the last year, the department had 30 publications, 63 presentations at national and international meetings and nine book chapters published. Dr. Christina Ching is the first member of the department to be a National Institutes of Health-funded researcher.

The department continues to provide care to multiple areas in the region, acknowledging that it is vitally important to have a premier program to go to families as opposed to always having them come to main campus. To that end we have expanded long-distance Ohio outreach clinics in Lima, Mansfield and Wheelersburg. In addition, the joint venture with Dayton Children’s Hospital continues to serve southwest Ohio, with two Nationwide Children’s Urology faculty members offering full-time service to the Dayton metropolitan area.

The Robotic-Assisted Laparoscopic Surgery Program is robust, performing a wide range of surgical procedures, from routine kidney level operations such as pyeloplasties and nephrectomies, to more complex procedures such as bladder neck reconstructions and appendicovesicostomy. Only a handful of centers around the country are performing the latter, but at Nationwide Children’s they have become commonplace. Our six robotically trained pediatric urologists are among the most active in the country with regard to surgical volumes.

Urology continues to place great importance on multispecialty collaborative clinics. These include the THRIVE program for differences of sexual development, the Center for Colorectal and Pelvic Reconstruction (CCPR), and the Urology/Nephrology Combined Clinic.

The Department of Urology at Nationwide Children’s Hospital is committed to cutting-edge medical research and surgical education.
As an international leader in pediatric research, science is thriving at Nationwide Children’s. The behavioral, basic and clinician scientists within the Abigail Wexner Research Institute (AWRI) at Nationwide Children’s are redefining pediatric health care with best outcomes for every child in mind. The AWRI occupies more than 500,000 square feet of dedicated research space on the Nationwide Children's campus. One of the largest pediatric research centers in the United States, the AWRI is ranked in the top six for National Institutes of Health funding among free-standing children’s hospitals. The centers of emphasis are structured to support multidisciplinary team science and discovery, enabled by outstanding shared resources. Each center is home to faculty members working in contiguous space and collaborating with talented staff, postdoctoral fellows, graduate students, residents and other students.

INSTITUTES AND CENTERS OF EMPHASIS

- Battelle Center for Mathematical Medicine
- Biopathology Center
- Center for Biobehavioral Health
- Center for Cardiovascular Research
- Center for Childhood Cancer and Blood Diseases
- Center for Clinical and Translational Research
- Center for Gene Therapy
- Center for Injury Research and Policy
- Center for Innovation in Pediatric Practice
- Center for Microbial Pathogenesis
- Center for Perinatal Research
- Center for Regenerative Medicine
- Center for Vaccines and Immunity
- Steve and Cindy Rasmussen Institute for Genomic Medicine

INSTITUTE LEADERSHIP

Lauren O. Bakaletz, PhD
Vice President, Basic Sciences Research

Deena J. Chisolm, PhD
Vice President, Health Services Research

William E. Smoyer, MD
Vice President, Clinical Research

Veronica J. Vieland, PhD
Vice President, Computational Research
BATTLELE CENTER FOR MATHEMATICAL MEDICINE

Faculty from the Battelle Center for Mathematical Medicine in the Abigail Wexner Research Institute at Nationwide Children's Hospital apply state-of-the-art, quantitative methods to basic and clinical research in order to better inform and ultimately improve clinical care in pediatrics. A primary goal of the center is to provide a unique environment in which specialists from a variety of mathematical, statistical and computational areas can share their professional “home” in order to facilitate creative, collaborative research within the group.

FACULTY

Veronica J. Vezland, PhD

Director

Christopher W. Bartlett, PhD

Jayajit Das, PhD

David A. Greenberg, PhD

Andrzej Kloczkowski, PhD

Paola Malerba, PhD

William Stewart, PhD

Battelle Center for Mathematical Medicine faculty continued their tradition of active collaboration with one another, with investigators across the Nationwide Children’s organization and with colleagues at The Ohio State University and other institutions. This year saw the publication of 19 peer-reviewed research papers and the filing of one patent, the awarding of several new research grants and the presentation of 16 invited research talks at high-profile national and international venues spanning seven countries. Our faculty also participated in organizing five national and international conferences spanning seven countries. Our faculty also participated in organizing five national and international conferences spanning seven countries.

GRANTS AWARDED

JULY 1, 2019 – JUNE 30, 2020

$1,595,541

SELECTED PUBLICATIONS


We continuously pursue grant-supported, bioinformatics-based studies aimed at advancing medical research. The Battelle Center was awarded three NCI-funded U24 grants for the period of 2020 to 2026: two for supporting the ongoing biobanking efforts of COG and SWOG and a new one to support the Early-Phase and Experimental Clinical Trials (EET) Biobank. Also awarded was funding to support the NRG Oncology-Columbus biobank. The COG, SWOG and NRG Oncology-Columbus biobanks are part of the NCI-sponsored National Clinical Trials Network and support large phase 2 and phase 3 clinical trials; the EET Biobank supports phase 1 clinical trials. The CCG BCR was awarded contracts to support pathology review and nucleic acid isolation for the NCI Division of Cancer Epidemiology and Genetics (to study environmental causes of cancer), the Clinical Trial Sequencing Project (to analyze cancer genomes from the ECOG-ACRIN 20S1 renal cancer trial), Early Onset Malignancies Initiative (to investigate why certain racial and ethnic populations are at increased risk of developing cancer at an early age) and the Human Cancer Model Initiative (an international consortium generating novel, next-generation, tumor-derived culture models annotated with genomic and clinical data).

Mr. Bowen replaced Dr. Gastier-Foster as PI of the Biorepository Core Resource of the Center for Cancer Genomics in October 2019. In June 2020 he and Dr. Gastier-Foster were recipients of the American Association for Cancer Research (AACR) Team Science Award. The Cancer Genome Atlas: Dr. Nicol is contact-PI of the EET Biobank. Dr. Ramirez-Milan is contact-PI of the COG and SWOG biobanks and PI of the NRG Oncology-Columbus and EET Biobanks. Last September, she received a CAP Lifetime Achievement Award for her contributions to the field of pathology and her efforts to establish their Biorepository Accreditation Program.
**SELECTED PUBLICATIONS**

**JULY 1, 2019 – JUNE 30, 2020**

**Cell Reports.**


**American Journal of Clinical Pathology.**


**APL Bioengineering,**


**Journal of Neurosurgery.**

The mission of the Center for Cardiovascular Research in the Abigail Wexner Research Institute at Nationwide Children’s Hospital is to conduct innovative, mechanism-based research leading to improved therapies and outcomes for pediatric cardiovascular diseases and to foster preventive strategies and promote cardiovascular health in adults.

Faculty members are investigating how the SARS-CoV-2 virus causes the heart damage observed in COVID-19 patients in collaboration with faculty in the Center for Vaccines and Immunity. Lastly, the center continues to support the cardiovascular research education of trainees at all levels. These efforts have been supported by an NIH-funded T32 postdoctoral training grant, along with an American Heart Association training award that supports summer research fellowships for undergraduate students.

The Heart Center: See page 30 for information about Cardiology and page 139 for Cardiovascular Surgery services.

GRANTS AWARDED TO HEART CENTER AND CARDIOVASCULAR RESEARCH FACULTY JULY 1, 2019 – JUNE 30, 2020

$2,302,971

SELECTED PUBLICATIONS


Zhao NY, Gao P. Subtype-specific cardiomyocytes for precision medicine: Where are we now? Stem Cells. 2020 Mar 30. [Epub ahead of print].


SELECTED PUBLICATIONS

Kendall GC, Booth BS, Diao KN, Miao XY, Rong W, Xie Y, Wang T, Gnanaprakasam JNR, Chen X, Kang S, Xu X, Sun H, Liu L, Rodgers H, Miller E, Showpnil, IR, Miller, KR, Taslim, CR, Pishas, K, Theisen, ER. Mapping the structure-function relationships of disordered oncogenic transcription factors using a novel proteomics and transposon-based system as this organism allows for direct observation of tumor development, and thereby support the development of new treatments for cancer in children. These new teams are integrated with a growing collaborative of pediatric sarcoma research programs in the center. This collaborative has been leveraged in the form of multiple, collaborative grants (U54 awards) from the National Institutes of Health and the National Cancer Institute as part of their Cancer Moonshot Initiative. One of these U54 awards is led by Stephen Lessnick, MD, PhD, and seeks to understand how the EWS/FLI1 protein regulates genes that cause Ewing sarcoma. The second U54 award is led by Timothy Cripe, MD, PhD, and studies various aspects of how the immune system can be manipulated to treat pediatric cancers, including sarcoma.

Hematology/Oncology/IMT: See page 80 for information about the Division of Hematology, Oncology & Blood and Marrow Transplant at Nationwide Children’s Hospital.

GRANTS AWARDED TO CENTER AND DIVISION CLINICAL AND RESEARCH FACULTY JULY 1, 2019 – JUNE 30, 2020

$15,198,205
The Center for Clinical and Translational Research in the Abigail Wexner Research Institute at Nationwide Children’s Hospital is committed to improving the diagnosis, treatment and outcomes of society’s most important pediatric diseases by integrating high-caliber basic science research with innovative patient-based research.

**FACULTY**

Rachel M. Stanley, MD, MHSA
Eric A. Sribnick, MD, PhD
Lance M. Relland, MD, PhD
Kirk M. McHugh, PhD
Bryce A. Kerlin, MD
Mark W. Hall, MD, FAAP, FCCM
Mitchell H. Grayson, MD
Christina B. Ching, MD
David R. Brigstock, PhD
Andrea E. Bonny, MD
M. Brian Becknell, MD, PhD
Shipra Agrawal, PhD
William E. Smoyer, MD, FASN

**SELECTED PUBLICATIONS**


**SUPPORT STAFF**

Kathleen Church, Project Manager
Takesha Simmons, PhD, Project Manager/Directory, Gene Therapy Clinical Research Unit.

The Center for Gene Therapy again had a highly productive and collaborative year, facilitated by the NIH/NAIAS P50-funded Center of Research Translation (CORT) in Muscular Dystrophy Therapeutic Development, which focuses on rapidly moving innovative therapies toward the clinic.

This year saw the widespread adoption by the neuromuscular community of the first adeno-associated viral (AAV) treatment for spinal muscular atrophy (SMA) — onasemunogene abeparvovec, which was developed at Nationwide Children’s — as well as the first publication of highly promising data from the first-in-human trial of AAV-delivered microdystrophin in patients with Duchenne muscular dystrophy. In addition, the first clinical trial of viral-mediated exon skipping was initiated with Nationwide Children’s as the sole site, using an AAV-delivered U7 small nuclear RNA (U7snRNA) in patients with exon duplications, with a goal of expressing full-length dystrophin. Other gene therapy trials continued, including for two forms of limb girdle muscular dystrophy, for mucopolysaccharidosis types 3A and 3B, and for CLN3- and CLN6-related Batten disease. The operationalization of new trials was facilitated by the establishment of the Gene Therapy Clinical Research Unit, made available to all investigators.

Two additional faculty joined the center. Dr. Stephen Kaler relocated from the NICHD/NIH, for a longstanding interest in disorders of inherited neurometabolic, motor neuron and copper transport diseases, and ongoing translational programs that address Menkes disease and choroid plexus—targeted gene therapy for alpha-mannosidosis, among others. Dr. Allison Bradbury joined from the University of Pennsylvania, to further develop her translational programs in the leukodystrophies, including Krabbe disease.

**ASSOCIATE FACULTY**

Kensuke Inoue, MD
Christopher Walker, PhD

**2019-2020 FOLLOWERS**

Nicolaos Abreu, MD (Gene Therapy Fellow)
Nicolaos Abreu, MD (Gene Therapy Fellow)

**ASSOCIATE FACULTY**

Kim McBride, MD
Christopher Walker, PhD

**2019-2020 FOLLOWERS**

Nicolaos Abreu, MD (Gene Therapy Fellow)
Retana Knox, MD, PhD (Neuromuscular Fellow)
Other highlights included development of a novel approach to visualizing the overexpression of DUX4, providing a novel tool for the study of the complex molecular mechanism responsible for facioscapulohumeral muscular dystrophy; a large animal model demonstrating the feasibility of systemic delivery of the GALGT2 gene as a surrogate gene therapy for DMD; and the validation of a novel reachable workspace as a measure of motor function in SMA.

Neurology: See page 104 for related information about the Section of Neurology at Nationwide Children’s.

GRANTS AWARDED TO CENTER FOR GENETIC THERAPY AND NEUROLOGY CLINICAL AND RESEARCH FACULTY July 1, 2019 – June 30, 2020

$17,070,837

SELECTED PUBLICATIONS


GALGT2, a surrogate gene therapy for DMD; and the validation of a novel reachable workspace as a measure of motor function in SMA.

Neurology: See page 104 for related information about the Section of Neurology at Nationwide Children’s.

GRANTS AWARDED TO CENTER FOR GENETIC THERAPY AND NEUROLOGY CLINICAL AND RESEARCH FACULTY July 1, 2019 – June 30, 2020

$17,070,837

SELECTED PUBLICATIONS


GALGT2, a surrogate gene therapy for DMD; and the validation of a novel reachable workspace as a measure of motor function in SMA.

Neurology: See page 104 for related information about the Section of Neurology at Nationwide Children’s.

GRANTS AWARDED TO CENTER FOR GENETIC THERAPY AND NEUROLOGY CLINICAL AND RESEARCH FACULTY July 1, 2019 – June 30, 2020

$17,070,837

SELECTED PUBLICATIONS


GALGT2, a surrogate gene therapy for DMD; and the validation of a novel reachable workspace as a measure of motor function in SMA.

Neurology: See page 104 for related information about the Section of Neurology at Nationwide Children’s.

GRANTS AWARDED TO CENTER FOR GENETIC THERAPY AND NEUROLOGY CLINICAL AND RESEARCH FACULTY July 1, 2019 – June 30, 2020

$17,070,837

SELECTED PUBLICATIONS


GALGT2, a surrogate gene therapy for DMD; and the validation of a novel reachable workspace as a measure of motor function in SMA.

Neurology: See page 104 for related information about the Section of Neurology at Nationwide Children’s.

GRANTS AWARDED TO CENTER FOR GENETIC THERAPY AND NEUROLOGY CLINICAL AND RESEARCH FACULTY July 1, 2019 – June 30, 2020

$17,070,837

SELECTED PUBLICATIONS


The mission of the Center for Innovation in Pediatric Practice is to advance child health and well-being through research in and across clinical care, health services, health policy and community initiatives. We aspire to lead the nation in groundbreaking research that produces reduced disparities, vibrant communities, flourishing families and equitable and best outcomes for all children. Investigators at the center develop and test new health service delivery and payment systems in partnership with pediatricians, payers and Nationwide Children’s to improve quality and equity of care—especially for those patients most at risk.

**FACULTY**

Dena J. Chiswol, PhD
Director
Susan E. Creary, MD, MSc
Jennifer L. Dotson, MD, MPH
Laura C. Hart, MD
Kelly J. Kelleher, MD, MPH
Alex R. Kemper, MD
Amirk S. Khalsa, MD
Sarah H. O’Brien, MD, MSc
Jordee M. Wells, MD, MPH
Chicago, studying iron deficiency anemia in Medicaid-enrolled youth. Dr. Jordee Wells was awarded an Arielle H. Sheftall, PhD
Jeffrey A. Bridge, PhD, Director
CENTER FOR SUICIDE PREVENTION AND RESEARCH
Prasanth Pattisapu, MD, MPH, Co-Director
Katherine J. Deans, MD, MHSc, Co-Director
Jennifer N. Cooper, PhD
Sarah H. O’Brien, MD, MSc
Alex R. Kemper, MD
Kelly J. Kelleher, MD, MPH
Laura C. Hart, MD
Susan E. Creary, MD, MSc

**GRANTS AWARDED**

**JULY 1, 2019 – JUNE 30, 2020**

*The Nationwide Children’s Hospital and Franklin County, Ohio, Pediatric Vital Signs Project.*

**SELECTED PUBLICATIONS**

**Center for Surgical Outcomes Research**

Jennifer N. Cooper, PhD
Katherine J. Deans, MD, MHSc, Co-Director
Daryl J. McLeod, MD
Perry C. Mincucci, MD, MHSc, Co-Director
Prasanth Pattisapu, MD, MPH

**Center for Suicide Prevention and Research**

Jeremy A. Bridge, PhD
Arielle H. Sheffall, PhD

**Ohio Department of Medicaid, Dr. Dena Chiswol was awarded a $14.9 million Integrated Care for Kids (iCK) cooperative agreement from CMS to study innovative approaches to reducing out-of-home placement in rural, Medicaid-enrolled youth. Dr. Jordee Wells was awarded an NICHD diversity supplement to study racial disparities in pediatric head trauma follow-up care. Dr. Sarah O’Brien was named co-investigator on a new R21 award to Texas Children’s Hospital, studying iron deficiency anemia in African American girls. Notable publications explored novel approaches to adherence measurement for sickle cell disease, community development as an intervention for health and the health systems role in advancing population health. Center for Surgical Outcome Research faculty published results from their groundbreaking research on non-operative treatment of uncomplicated appendicitis along with research on disparities in pediatric tonsillectomy and opioid prescribing. The center welcomed Dr. Prasanth Pattisapu, ENT, as a new investigator.

**Faculty members’ achievements include:** Dr. Katherine Deans appointed as the Chief Clinical Science Officer at the Abigail Wexner Research Institute and Dr. Chiswol named as Nationwide Foundation Endowed Chair in Health Equity Research and appointed to the state’s Minority Health Task Force for COVID-19. Dr. Jeffrey Bridge named as Nationwide Foundation Endowed Chair in Innovation in Behavioral Health Research and Dr. Arielle Sheffall received a Young Investigator Award from the American Foundation for Suicide Prevention.

**FACULTY**

Laura O. Bakalatz, PhD
Director
Michael T. Bailey, PhD
Jennifer L. Edwards, PhD
Steven D. Goodman, PhD
John S. Gunn, PhD
Sheryl S. Justice, PhD
Samantha J. King, PhD
Benjamin T. Kopp, MD
Ross M. Maltz, MD
Kevin M. Mason, PhD
Christopher P. Montgomery, MD
Santiago Partida-Sanchez, PhD
Chack-Yung Yu, PhD

**Each faculty member within the center highlighted a noteworthy accomplishment for the 2019-2020 academic year. Michael Bailey, PhD, and his team discovered that the production of reactive oxygen intermediates by intestinal epithelial cells, a primary mechanism by which the host responds to stressful stimuli, leads to changes in gut microbiome. Lauren Bakalatz, PhD, and Steven Goodman, PhD, cite both their recent publication in *Proceedings of the National Academy of Sciences* and the successful co-founding and launch of Carametrix Biosciences Inc. to move forward promising technology that disrupts diverse pathological phenotypes. The laboratory of Jennifer Edwards, PhD, identified and patented two nontraditional antibiotics that can be used to prevent and cure female cervical infection by *unreatable* *Neisseria gonorrhoeae*. John Gunn, PhD, was awarded two new National Institutes of Health grants important to ongoing research into the mechanisms of gallstone bileform-related chronic carriage of *Salmonella*. Sheryl Justice, PhD, demonstrated that bacterial mutants enhance formation of intracellular bacterial communities, providing more insight into the nutritional requirements for intracellular growth. Samantha King, PhD, was awarded a new R21 grant delivered by the National Institute of Allergy and Infectious Diseases to study the serine-rich repeat protein adhesin of the infective endocarditis pathogen *Streptococcus aureus*. Ben Kopp, MD, was awarded his first R01 National Institutes of Health/National Heart Lung and Blood Institute grant titled, “The role of CFTR during macrophage-mediated killing of bacteria.” The laboratory of Ross Maltz, MD, launched a longitudinal clinical trial in pediatric *Cohhi’s* disease and developed two murine models for use in his research. Kevin Mason, PhD, developed a sequential model of stimuli media to investigate microevolution through genetic mutations that modulate disease severity. The laboratory of Christopher Montgomery, MD, demonstrated that genetically determined immunodominance inhibits “natural” protective immunity against *Staphylococcus aureus* infection in mice, but vaccination overcomes this restriction. Santiago Partida-Sanchez, PhD, was awarded a grant by the Cystic Fibrosis Foundation and published six research articles. Chack-Yung Yu, PhD, obtained evidence for a role complement C4 and C5 phenotypic and genotypic diversity as risk factors for cardiovascular diseases.

**Infectious Diseases:** See page 88 for information about the Division of Infectious Diseases at Nationwide Children’s.
SELECTED PUBLICATIONS


**Research Institute Reports**

**CENTER FOR PERINATAL RESEARCH**

The Center for Perinatal Research in the Abigail Wexner Research Institute at Nationwide Children's Hospital has a unique, integrative approach to prematurity research that extends from before birth to long after. In close collaboration with the Section of Neonatology, the mission of the faculty in the Center for Perinatal Research is to conduct innovative basic, translational and clinical research focused on prevention of preterm birth and improvement of prematurity-related outcomes.

**FACULTY**

- Lynette K. Rogers, PhD
- Carl H. Backes, MD
- Kristen Bemninger, MD
- Gail E. Besner, MD
- Rodney Britt, PhD
- Bernadette Chen, MD
- Sudarshan R. Jadcherla, MD
- Yusen Liu, PhD
- Mark A. Klebanoff, MD, MPH
- Sudarshan R. Jadcherla, MD
- Jonathan L. Slaughter, MD, MPH
- Gail E. Besner, MD
- Mary Lauren Neel, MD
- Rodney Britt, PhD
- Leif D. Nelin, MD
- Mary Lauren Neel, MD
- Rodney Britt, PhD
- Sudarshan R. Jadcherla, MD
- Jonathan L. Slaughter, MD, MPH
- Jennifer K. Tritzmann, MD, MPH

**GRANTS AWARDED**

**JULY 1, 2019 – JUNE 30, 2020**

$4,028,402

**SELECTED PUBLICATIONS**


**GRANTS AWARDED TO NEONATOLOGY**

**JULY 1, 2019 – JUNE 30, 2020**

$5,562,391

**SELECTED PUBLICATIONS**

CENTER FOR REGENERATIVE MEDICINE
The Center for Regenerative Medicine in the Abigail Wexner Research Institute at Nationwide Children’s Hospital applies the principles of engineering, computer modeling and life sciences to develop biological substitutes to restore or improve tissue function. Regenerative medicine is the process of creating living, functional tissues to repair or replace tissue or organ functions, lost primarily due to congenital defects or disease. The center currently focuses on producing blood vessels, valvular patches and heart valves, offering a positive impact on children with congenital heart disease. Other areas of regenerative medicine research in progress include intestinal and tracheal replacement.

FACULTY

Christopher B. Breuer, MD
Director

Tendi Chiang, MD

Oluykina O. Oluoyo, MD, PhD

Toshiharu Shinoka, MD, PhD

Mitchel R. Stacy, PhD

Medical advances have made it possible to save more patients from life-threatening injuries, diseases and congenital conditions. However, after the onset of these conditions, the damage is usually lifelong. Often, symptoms can be treated with success, but the underlying tissue or organ damage remains unhealed and can cause further complications over time. To develop new clinical applications that address the unmet needs of these patients, the Center for Regenerative Medicine has established the Center for Regenerative Medicine in 2017. Center for Regenerative Medicine clinicians and researchers, led by Christopher Breuer, MD, are creating biological vessels, tissues and tracheas; identifying tissue progenitor cells, and developing ways to enhance tissue repair and growth. To further diversify the center’s research focus, the center has begun the second phase of our human Tissue-Engineered Vascular Graft (TEVG) clinical trial for patients undergoing a Fontan repair. This NIH-funded project’s goal is to further work on the body’s innate repair mechanisms to assist patients with congenital heart defects.

Ultimately, this comprehensive approach means that the Center for Regenerative Medicine has the ability to turn promising laboratory discoveries into proven treatments and make them available to patients.

GRANTS AWARDED
July 1, 2019 – June 30, 2020
$2,145,809

SELECTED PUBLICATIONS


Immune reconstitution occurs in the unique setting of immune reconstitution following kidney transplantation. This model holds great promise to define mechanisms of protective immunity and to assess new vaccine concepts to protect against a virus that takes a great toll on public health in the United States and globally.

Infectious Diseases, see page 88 for information about the Division of Infectious Diseases at Nationwide Children’s Hospital.

GRANTS AWARDED
July 1, 2019 – June 30, 2020
$5,044,969

SELECTED PUBLICATIONS


Infectious Diseases, see page 88 for information about the Division of Infectious Diseases at Nationwide Children’s Hospital.

GRANTS AWARDED
July 1, 2019 – June 30, 2020
$5,044,969

SELECTED PUBLICATIONS


...
The Steve and Cindy Rasmussen Institute for Genomic Medicine launched a comprehensive protocol studying the genomes of children with cancer and hematologic disease. With a focus on rare, relapsed or treatment-refractory cancers, we can identify new treatment options, potentially leading to improved outcomes. All pertinent research results are confirmed under CAP/CLIA standards and communicated to our oncology providers to inform patient management, including prognostication, diagnosis and eligibility for targeted therapeutics and clinical trials. To date, we have studied more than 250 pediatric cancer patients on this protocol. In general, we returned at least one medically meaningful result for over 90% of patients studied to date. Similarly, when pediatric patients display treatment refractory epilepsy, DNA from the affected brain tissue removed by surgery for curative intent can be evaluated by highly sensitive exome sequencing, with the demonstrated ability to detect mosaic genetic variation associated with disease. Importantly, these results have dual benefit: they better inform patients and parents about the root cause of the seizures, and they fuel additional research into how these altered genes lead to epilepsy. This is just one example of the virtuous cycle of discovery leading to treatment leading to discovery that fuels advances in our understanding of genetic diseases and their optimal treatment.

In 2019, the institute advanced its comprehensive protocol to pilot a workflow for rapid turnaround, whole genome sequencing-optimized protocol to study families with diagnoses of autism or bipolar disease and suicidality/depression, who are being treated in the new Big Lots Behavioral Health Pavilion. For children with rare or undiagnosed diseases, genomic testing can provide additional resolution of the genetic causes, information relevant to reproductive decisions, and new treatment directions. Since early 2017, the institute has performed clinical exome sequencing to identify alterations in the protein-coding regions ("exons") of all human genes. This testing has elucidated a genetic diagnosis for greater than one-third of families. For patients in whom this test does not reveal a diagnostic answer, enrollment in the institute’s Rare Disease Genomics Study examines the genome more broadly for rare genetic variants that lead to disease, and to perform comprehensive molecular profiling of a patient’s tumor sample. Over this past year we have implemented a cutting-edge laboratory information management system (LIMS) to improve laboratory processes and reduce our reliance on paper charts. We have developed a comprehensive sequence management tool that automates highly complex bioinformatics workflows and eliminates the chance for errors. We are advancing the understanding of genomic medicine through the development of novel computational tools and the application of big data technologies. By combining novel laboratory methods, state-of-the-art bioinformatics solutions and machine learning technologies, the institute is driven to create a future where no child with genetic disease goes undiagnosed and every child with cancer receives optimal treatment based on their genomic profile.

**Grants Awarded**

**July 1, 2019 – June 30, 2020**

$1,465,172
SELECTED PUBLICATIONS


GO INTERACTIVE

Visit NationwideChildrens.org/2020-Report for a fully interactive experience based on this publication, including Video Interviews, Patient Stories and Related Features. You can also access practice tools, referral information and training opportunities—including residencies and fellowships—at NationwideChildrens.org/For-Medical-Professionals.

PediatricsNationwide.org is an online publication providing articles on global pediatric issues, clinical programs, professional commentaries and novel research.
Acknowledgements

LEADERSHIP

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The Ohio State University College of Medicine

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Oluyinka Olutoye, MD, PhD
Surgeon-in-Chief, Nationwide Children’s Hospital
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The Ohio State University College of Medicine

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Alicia Shoemaker
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Scott Milburn
Senior Director, Corporate Communications

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Abbie Roth
Managing Editor, Science Communication

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Adrienne Sheline
Rob Shepherd
Kimberly Smitley
Christina Stocker
Sara Styer
Karen Sweitzer
Ray Tam
Laura Taylor
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Kristin Tomlinson
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