

Dear Colleagues,

We are immensely proud of all we have accomplished this past year. As we look back and celebrate the breakthroughs, innovations, and life-changing treatments happening within our walls, we remember that all our successes start with the desire to provide the right care for every young patient, every time.

As Mark transitions into the new role as president, UPMC Hospitals, a nationwide search led us to a new leader for UPMC Children's Hospital of Pittsburgh who will build upon the excellent reputation of our nationally ranked pediatric hospital.

Please join us in welcoming **Diane Hupp, DNP, RN**, as the new president of Children's effective February 1. Diane began her career at UPMC Children's 36 years ago as a volunteer. Through the years, she served in various administrative leadership roles, most recently as chief nursing officer and vice president of patient care services and vice president of operations. We are confident that Diane will continue to lead this great hospital with care and compassion.

It is an honor to share the accomplishments of this past year with you, our cherished colleagues, friends, and alumni.





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Mark Sevco, MBA, MHA
President
UPMC Hospitals



Brian S. Martin, DMD, MHCDS

Vice President, Medical Affairs UPMC Children's Hospital of Pittsburgh









High Impact Innovations



UPMC Children's Plans Novel Trial for Pediatric Epilepsy Treatment

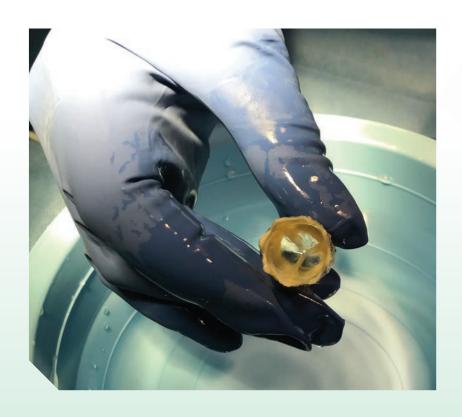
The Epilepsy Center at the Brain Care Institute at UPMC Children's Hospital of Pittsburgh has been at the forefront of responsive neurostimulation (RNS). RNS is an evolving treatment paradigm in children with focal epilepsies that are not amenable to surgical resection or ablation, as well as children with primary generalized epilepsies that have failed to respond to other treatment modalities. William Welch, MD, a neurologist and director of epilepsy neurostimulation in the Epilepsy Center, and Taylor Abel, MD, the surgical director of the Pediatric Epilepsy Surgery Program at UPMC Children's, are in the planning phase of a safety and feasibility trial of centromedian nucleus RNS implantation for primary generalized epilepsy in pediatric patients. This would be the first trial of its kind to rigorously test RNS use in pediatric epilepsy patients and report on safety and feasibility outcomes.

Excellent Long-Term Outcomes From Melody Transcatheter Pulmonary Valve IDE and Post-Approval Trials

The Melody® transcatheter pulmonary valve was approved by the U.S. Food and Drug Administration in 2010 after completion of the initial investigational device exemption (IDE) trial. Results from the initial IDE showed highly favorable results and excellent outcomes in the study cohort. The FDA required the device manufacturer to conduct a five-year post-approval study (PAS) on a second patient cohort at centers not included in the initial study.

Jacqueline Kreutzer, MD, FACC, FSCAI, co-director of the Heart Institute at UPMC Children's and chief of the Division of Pediatric Cardiology, was the principal investigator and lead author of the recently completed five-year PAS. The study was published in *Catheterization & Cardiovascular Interventions* and included a longitudinal comparison between the IDE and PAS studies.

The 10-year results of the initial IDE trial cohort, along with the five-year outcomes for the PAS, demonstrate excellent long-term outcomes.









Heart Institute at UPMC Children's One of Nation's First Centers to Implant Harmony TPV

The Heart Institute at UPMC Children's was the third site in the country to begin using the Harmony™ Transcatheter Pulmonary Valve (TPV). The UPMC Children's Cardiac Catheterization Laboratory team — led by **Bryan H. Goldstein, MD**; **Jacqueline Kreutzer, MD**; and **Sara M. Trucco, MD** (*pictured left to right*) — has implanted more than a dozen Harmony valves in pediatric patients, placing the Pittsburgh program among the busiest Harmony TPV implant sites in the world.



Expanding Care Through New Specialty Multidisciplinary Clinics

The Division of Pediatric Pulmonary Medicine at UPMC Children's has recently expanded its specialty clinic presence for patients with sickle cell disease (SCD), complex airway disorders, and neuromuscular conditions.

These patient-centered, multidisciplinary clinics bring together the combined expertise of multiple divisions and clinicians. Leading clinical pulmonary medicine efforts in the new sickle cell disease clinic is Mark Dovey, MD, clinical director of pediatric pulmonology at UPMC Children's. Dr. Dovey works closely with the hematology team led by Cheryl A. Hillery, MD, and Ramasubramanian Kalpatthi, MD, codirectors of Children's Comprehensive Pediatric Sickle Cell Program in the Division of Pediatric Hematology/Oncology. Pediatric pulmonary medicine specialist Geoffrey Kurland, MD, director of Children's pediatric lung transplant program, leads the pulmonary medicine efforts in the airway disorders clinic. Jane B. Taylor, MD, MsCR, FAAP, is the pulmonary medicine liaison for Children's pediatric Muscular Dystrophy Association clinic.

The integrated, multidisciplinary approach of these clinics offers patients and families cohesive, comprehensive follow-up care across their spectrum of needs.

Pioneering Treatment of Krabbe Disease in Clinical Trial

Maria Escolar, MD, MS, founding director of the Program for the Study of Neurodevelopment in Rare Disorders at Children's, has been a pioneer in the diagnosis and treatment of Krabbe disease. Krabbe is a devastating inherited disease that destroys the nervous system and is often fatal before age five. A novel gene therapy treatment developed by Dr. Escolar at Pitt was licensed to Forge Biologics and received a "fast track" designation from the U.S. Food and Drug Administration. Pitt is now actively recruiting patients for a clinical trial, bringing this lifesaving treatment one step closer to reality.



New EEG Electrode Developed for Differing Hair Types, Expanding Epilepsy Care

The director of Epilepsy Services at Children's, **Christina M. Patterson, MD**, is the primary investigator in a study testing the efficacy of a new electroencephalography system that may be more effective in registering high-quality signals from individuals with coarse and curly hair types. The new system, called Sevo, was developed by researchers at Carnegie Mellon University and Precision Neuroscopics in Pittsburgh.

Some types of hair, primarily very coarse or curly varieties, can affect the ability of EEG electrodes to obtain optimal signal quality when placed on the scalp during epilepsy screening. The new system being tested uses a novel type of electrode with an integral clip that enables the device to realize and maintain better contact with the patient's scalp.

"If we can achieve optimal EEG signal quality across a spectrum of patients with varying hair types, this study and the device will be a step toward reducing the diagnostic disparities in epilepsy for patients because of their hair type," said Dr. Patterson.







New Approaches to Care



Launch of New Craniofacial Scleroderma Center

Kathryn Torok, MD, associate professor of pediatrics and clinical and translational science at the University of Pittsburgh School of Medicine, launched the new Pediatric Craniofacial Scleroderma Center at UPMC Children's. The center specializes in multidisciplinary clinical care, advanced imaging services, and integration of active research studies. New patients at the center are scheduled for a two-day visit with providers across UPMC Children's, including plastic surgery, rheumatology, ophthalmology, dentistry, orthodontics, and several other pediatric subspecialties.

UPMC Children's Oncology Researchers Discover and Treat First Known Case of AML in Pediatric Patient With ALPS-FAS

A clinical team from the Division of Pediatric Hematology/Oncology at UPMC Children's Hospital of Pittsburgh published its experience in diagnosing and successfully treating the first known case of acute myeloid leukemia (AML) and mast cell proliferation in a pediatric patient with autoimmune lymphoproliferative syndrome (ALPS). The patient underwent an allogeneic hematopoietic stem cell transplantation and has remained in remission from both the AML and mast cell proliferation for more than 24 months. Former pediatric resident Naomi Gunawardena, MD, was the first author of the study. She was joined in the case report by Meghan McCormick, MD, MS, and senior author A. Kim Ritchey, MD, from Children's Division of Pediatric Hematology/Oncology. The case report was published in *Pediatric Blood & Cancer*.



The Da Silva Center for Ebstein's Anomaly at the UPMC Children's Heart Institute hosted its first Ebstein's Anomaly Symposium. The symposium was designed to provide information about the use of advanced diagnostic imaging, review of surgical techniques, new approaches to staged procedural care, and postsurgical management. The cone technique is applicable for almost all situations. However, few surgeons are familiar with the procedure and considerations involving the variability of anatomical presentations with this congenital heart disease. Introduced in 1993 by **José Pedro da Silva, MD**, founding director of the Da Silva Center for Ebstein's Anomaly at UPMC Children's Hospital of Pittsburgh, the cone procedure is now the standard surgical repair for this disease. Close to 500 individuals registered for the course representing 42 countries from around the world. Codirectors of the symposium were **Victor O. Morell, MD**, and **Jacqueline Kreutzer, MD, FACC, FSCAI**.

Children's Expands Pediatric Emergency Care Across 19 Hospitals

To ensure that every child has access to quality emergency care, **UPMC Children's expanded its emergency care affiliation to 19 hospitals** within the UPMC footprint. Through this program, local emergency care providers can consult with board-certified pediatric emergency medicine physicians at Children's via real-time ED-to-ED virtual telemedicine consultations — 24 hours a day, every day of the year. With ED affiliation, these 19 hospitals also benefit from access to Children's physician trainings and research data.





Operation Brain Trauma Therapy: Treating TBI in Children

Patrick Kochanek, MD, MCCM, is leading a national consortium called "Operation Brain Trauma Therapy" to test new therapies for treating traumatic brain injury in children. The drug- and biomarker-screening consortium is intended to improve the quality of preclinical studies and provide a rigorous framework to increase the translational potential of experimental traumatic brain injury treatments. Dr. Kochanek is a distinguished professor and the Ake N. Grenvik professor of critical care medicine at the University of Pittsburgh.

New Neonatal Protocol for Premature Babies Sends Patients Home Faster

The UPMC Newborn Medicine Program has evolved its feeding approach to include a multidisciplinary team consisting of physicians, nurses, occupational therapists, speech-language pathologists, and other disciplines that use infant-driven feeding for premature patients. Until recently, neonatal intensive care unit patients requiring an NG tube to facilitate feedings or act as a bridge to self-feeding could not be discharged home until they could feed normally. However, keeping some infants in the hospital when they could be discharged except for their needing a temporary NG tube was seen as detrimental for both the patient and family. That is why a new NG tube discharge protocol went into effect.

To be discharged under the new NG protocol, infants must also pass an eight-point checklist with criteria that includes tolerating bolus feedings, postmenstrual age greater than 42 weeks, and demonstration of adequate growth on enteral feeding.

"For these patients, we know they will do better medically, developmentally, and in terms of comfort if they can be at home with their families. This was our rationale for developing our NG tube discharge protocol, and it is what drives our work to find as many babies and families as possible that can benefit," says **Arcangela Lattari Balest, MD**, who serves as the director of the Multidisciplinary Feeding Program.

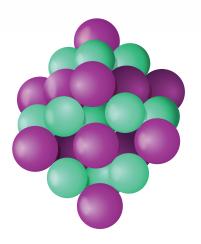
"It is what drives our work to find as many babies and families as possible that can benefit."

- Arcangela Lattari Balest, MD



3% NaCl Infusions Via PIVC in Emergent Conditions Supported by Review Paper

Michael L. Moritz, MD, FASN, coauthored a new review paper on the administration of 3% sodium chloride (NaCl) infusions via a peripheral intravenous catheter (PIVC) in emergent conditions. The paper was published in the *Journal of Infusion Nursing*. There is a common misconception that 3% NaCl cannot be administered through a peripheral vein. As such, many hospitals have policies restricting the use of 3% NaCl through a central line to avoid or limit the incidence of adverse infusion events. However, according to the new paper by Dr. Moritz, there is no evidence to support this concern, and a growing body of evidence demonstrates that it is safe to administer 3% NaCl via PIVC.



Research Breakthroughs

UPMC Children's Study Links Violence-Related Stress and Decreased Lung Function in Children with Asthma

A new study led by researchers in the Division of Pediatric Pulmonology Medicine at UPMC Children's Hospital of Pittsburgh has uncovered an association between chronic stress as a result of witnessing or experiencing violence and decreased lung function and lower quality of life in children with asthma. Fellow Kristina Gaietto, MD, and Division faculty member Yueh-Ying Han, PhD, MS, were the lead authors of the study. Division Chief Juan C. Celedón, MD, DrPH, ATSF, was the senior author of the investigation. The study, published in European Respiratory Journal, represents the first prospective investigation to assess lung function in children with asthma in the setting of violence-related stress. The study is also the first prospective research to analyze low-dose corticosteroid treatment data related to lung function and the experience of violence-induced stress. The study found that not only did violence-related stress lead to decreases in lung function and quality of life in the participants, but those individuals being treated for asthma with low-dose corticosteroid therapy also experienced similar decreases in lung function and quality of life.

First Study to Measure Absorbed Radiation in **Pediatric Patients**

A new study led by **Rajeev Chaudhry**, **MD**, assistant professor of urology in the Division of Pediatric Urology, prospectively examined the absorbed radiation dose in pediatric patients undergoing a fluoroscopic voiding cystourethrogram. This is the first study conducted in pediatric patients to measure the actual dose of radiation absorbed by the skin using dosimetry. The data uncovered in this study will provide pediatric urologists with a more accurate understanding of the potential radiation exposure to their patients.

New Findings on Long-Term Outcomes for Shunt Infections and Malfunctions

A recent study on shunt infections and malfunctions in cases of myelomeningocele with symptomatic hydrocephalus provides new findings on long-term outcomes. **Stephanie Greene**, **MD**, director of vascular neurosurgery and director of perinatal neurosurgery in the Brain Care Institute at Children's, was the senior author of the study published in the *Journal of Neurosurgery:* Pediatrics. The most important finding demonstrates that neurosurgeons should be cognizant of the high rates of shunt malfunction and infections in patients with myelomeningocele. Furthermore, the data from Dr. Greene's analysis show that in cases of shunt infections, shunt externalization is likely not the optimal approach to clear the infection.

The First Trial of Entinostat in Pediatric Patients

Andrew J. Bukowinski, MD, MS, a member of Children's Division of Pediatric Hematology/Oncology, was the principal investigator and lead author on a phase 1 study evaluating the use of entinostat to treat recurrent or refractory solid cancers in children and adolescents. The study was published in the journal Pediatric Blood & Cancer. This was the first trial of entinostat in pediatric cancer patients.

Research Advances in Pediatric Hip Preservation Surgery at UPMC Children's

Nonarthritic hip pain in young, active pediatric orthopaedic patients presents diagnostic and treatment challenges to obtain optimal long-term outcomes in hip preservation. Michael McClincy, MD, head of the Adolescent and Young Adult Hip Preservation Program at Children's, led a multicenter study to lay the groundwork for developing a standardized approach to the diagnostic evaluation of patients with nonarthritic hip pain. The study was published in the Orthopaedic Journal of Sports Medicine.

Research Shows Promise for Nonsurgical Treatment of Chronic Pancreatitis

Researcher Mohamed Saleh, MD, conducted a study investigating a novel, nonsurgical approach to treating chronic pancreatitis. The study, published in The Journal of Clinical Investigation, details the approach and preclinical studies in mouse and nonhuman primate models of a chemical pancreatectomy designed to treat chronic pancreatitis, a condition that currently offers few treatment options and only suboptimal results. "As clinicians, there is little we can offer our patients with chronic pancreatitis right now. If successful, this approach would dramatically alter that treatment landscape. Our team is hard at work on the next phases of our investigation," says Dr. Saleh.

UPMC and Pitt Researchers Discover Ataxia Rooted in Genetic Mutation

An international group of collaborators, led by Udai Pandey, PhD, Deepa Rajan, MD, and other researchers at Children's and Pitt, has identified a genetic cause of a rare neurological disorder marked by developmental delay and loss of coordination, or ataxia, published in Nature Communications. The disorder, scientists found, is caused by mutations in a protein called GEMIN5 — one of the key building blocks of a protein complex that controls RNA metabolism in neurons. This was the first time that mutations in GEMIN5 were linked to any genetic disease.

Pitt Scientists Link Genetics and Group B Streptococcus

A team of Pitt researchers led by **Thomas A. Hooven, MD**, assistant professor of Pediatrics and a scholar at the Richard King Mellon Foundation Institute for Pediatric Research, found that a genetic regulator plays a critical role in allowing group B Streptococcus to enter the bloodstream, which can trigger adverse responses leading to preterm labor and stillbirth.

Incorporating a Less Invasive, Blood Testing-Based Approach to Rejection Surveillance After Pediatric **Heart Transplantation**

New research from a multidisciplinary team of investigators at the Heart Institute at Children's shows the benefits of using donor-derived cell-free DNA (dd-cfDNA), a noninvasive, blood-based biomarker, in lieu of endomyocardial biopsy. This marks the first real-world clinical use data to emerge on the feasibility, reliability, and success of dd-cfDNA testing as part of routine care of pediatric patients following heart transplantation. This less invasive procedure would benefit patients by reducing repeated routine invasive biopsies, simplifying and speeding up the diagnostic routine while also improving patient quality of life.

The study, published in *Pediatric Transplantation*, was led by **Brian Feingold**, MD, MS, FAHA, a professor of pediatrics and clinical and translational science at Pitt Medicine and medical director of the heart failure and transplantation programs in the Heart Institute at Children's.

Whole-Genome Sequencing in the NICU: Two Studies **Underway at UPMC**

Physicians at Children's are involved in two studies that utilize whole genome sequencing (WGS), which simultaneously detects mutations in single genes and recognizes large missing or extra pieces of chromosomes in sick babies. WGS technologies have created a new era of precision medicine at UPMC, significantly reducing the length and cost of the diagnostic process for NICU patients.

Promotions and Appointments

Bassam Albashiti, MD, joined the Division of Child Neurology after completing a fellowship in child neurology at UPMC Children's Hospital.

John F. Alcorn, PhD, a member of UPMC Children's Division of Pediatric Pulmonary Medicine, has been selected to serve as the chair of the National Institutes of Health Immunity and Host Defense Study Section.

Kelly M. Bailey, MD, PhD, assistant professor of Pediatrics in the Division of Pediatric Hematology/Oncology, was elected to the Society for Pediatric Research.

Carlton M. Bates, MD, pediatric nephrology division chief, was appointed to the role of physician scientist development lead on the executive committee of the Council for the Society for Pediatric Research.

Wassim Chemaitilly, MD, has been appointed as the new clinical director for Children's Division of Pediatric Endocrinology, Diabetes, and Metabolism.

Katherine Cobb-Pitstick, MD. joined Children's Division of Child Neurology after completing a combined pediatric and adult fellowship in headache medicine at UPMC.

Craig P. Dobson, MD, is the new clinical director of Children's Division of Pediatric Cardiology at the Heart Institute.

Paris Ekeke, MD, MS, joined the UPMC Newborn Medicine Program.

Erick Forno, MD, MPH, ATSF, has been appointed as the new director of the Pediatric Asthma Center.

Simon Horslen, MB, ChB, FRCPCH, joined Children's Division of Gastroenterology, Hepatology and Nutrition as the new director of hepatology.

Jessica Hughes, MD, joined Children's Division of Pediatric Orthopaedic Surgery as an assistant professor of Orthopaedic Surgery.

Bernhard Kühn, MD, director of research at Children's Heart Institute, was chosen as part of the 2022 class of new members of the American Pediatric Society, North America's most prestigious pediatric organization, APS members are recognized child health leaders of extraordinary achievement who work together to shape the future of academic pediatrics.

Amanda McCoy, MD, MPH, FCS(ECSA), joined Children's Division of Pediatric Orthopaedic Surgery and is an assistant professor of orthopaedic surgery at Pitt Medicine.

Onome Oghifobibi, MD, MSc, FAAP, joined the UPMC Newborn Medicine Program as an assistant professor of pediatrics following his neonatal-perinatal fellowship at Children's.

Elissa K. Ortolani, MD, joined the Brain Care Institute at Children's, having dual appointments in Children's Division of Pediatric Neurology and the UPMC Department of Neurology.

Bianca Pinto, MD, FAAP, joined Children's Division of Pediatric Endocrinology, Diabetes, and Metabolism after completing fellowship training in the division.

Aidan Porter, MD, joined Children's Division of Pediatric Nephrology following his pediatric nephrology fellowship training at the hospital.

Vikram Raghu, MD, MS, joined Pitt Medicine's Division of Gastroenterology. Hepatology, and Nutrition as an assistant professor of pediatrics after completing his fellowship in pediatric gastroenterology at Children's.

Mary Ellen Vajravelu, MD, MSHP, joined Children's Division of Pediatric Endocrinology, Diabetes, and Metabolism.



Leslie C. Davis Named CEO of UPMC

The UPMC Board of Directors unanimously selected **Leslie C. Davis** to succeed Jeffrey A. Romoff as president and chief executive officer. Davis has more than 30 years of health care experience, most recently serving as president of the Health Services Division at UPMC. Davis said UPMC will continue to build upon its culture of innovation in the years ahead — with a particular focus on the patient experience. "There shouldn't be a patient who wants to go anywhere else," Davis said.

Awards and Honors

Children's pediatric neurosurgeon Taylor J. Abel, MD, FAANS, was awarded an NIH National Institute on Deafness and Other Communication Disorders R21 grant for a study that will investigate the flexible representation of speech in the supratemporal plane.

Arvind Srinath, MD, MS, associate professor in the Division of Pediatric Gastroenterology, Hepatology and Nutrition, was recently elected to the University of Pittsburgh School of Medicine Academy of Master Educators.

The Antonio J. and Janet Palumbo Cystic Fibrosis Center in the Division of Pediatric Pulmonary Medicine at Children's was recognized by the Cystic Fibrosis Foundation with a 2021 Outstanding Care Center Partnership Award.

Children's Division of Pediatric Hematology/Oncology researcher Kelly M. Bailey, MD, PhD, was awarded a UPMC Hillman Cancer Center Junior Scholar Award for Meritorious Basic Cancer Research.

Erica Braverman, MD, instructor of pediatrics in the Division of Pediatric Hematology/Oncology, was awarded a 2021 Hyundai Hope on Wheels Young Investigator Award.

Anita P. Saraf, MD, PhD, received a 2021 American Heart Association Career Development Award to begin new studies in the domain of adult congenital heart disease.

Silva Arslanian, MD, scientific director of the Center for Pediatric Research in Obesity and Metabolism, received a multi-PI NIH grant aiming to study brain health in youth at risk for type 2 diabetes.

Jerry Vockley, MD, PhD, FACMG, professor of pediatrics and director of Children's Division of Genetic and Genomic Medicine and Center for Rare Disease Therapy, was awarded two grants designed to help develop new therapies for inborn errors of metabolism.

Radhika Muzumdar, MD, chief of Children's Division of Pediatric Endocrinology, Diabetes, and Metabolism, was awarded a new National Institutes of Health R01 grant to study the cardioprotective effects of humanin.

lan F. Pollack, MD, FAANS, FACS, FAAP, Children's chief of pediatric neurosurgery, was elected chair of the American Board of Pediatric Neurological Surgery for its 2022 term.

University of Pittsburgh Department of Pediatrics researcher Thiago Bruder do Nascimento, PhD, was awarded a 2021 Career Development Award from the American Heart Association. The grant will provide funding for his research project titled "Progranulin on Kawasaki's Disease-induced vascular damage."

UPMC Children's Heart Institute Congenital Heart Surgery Program attained the highest rating from the Society of Thoracic Surgeons.

Ingrid M. Libman DeGordon, MD. PhD. MPH, associate professor of pediatrics and endocrinology in Pitt Medicine's Department of Pediatrics and director of Children's diabetes program, was awarded a Medical Student Research Mentoring Award from the University of Pittsburgh School of Medicine.

Christine A. March, MD, MS, was accepted into Pitt's Clinical and Translational Science Scholars Program.

Arjumand Ghazi, PhD, associate professor of pediatrics at Pitt Medicine's Division of Pediatric Gastroenterology, Hepatology and Nutrition, was awarded an NIH R56 grant for a study titled "Role of the Transcription Elongation and Splicing Factor TCER-1 in Repressing Immunity and Promoting Fertility."

Dorothy J. Becker, MBBCh, FCP(PEDS), professor of pediatrics at Pitt Medicine and chief emeritus of Children's Division of Endocrinology, received the Van Wyk Prize from the Pediatric Endocrine Society (PES). It is the Society's most prestigious award, recognizing Dr. Becker's outstanding career and achievements in the field of diabetes prevention, treatment, and research.



UPMC Children's Hospital of Pittsburgh is recognized as one of the top children's hospitals in the country, earning the ninth position on the 2021-2022 U.S. News & World Report Honor Roll of Best Children's Hospitals.



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