

# Impact

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### A Hospital 'Even Better Than We Had Imagined'

Spectrum Health Helen DeVos Children's Hospital has come a very long way in 25 years. Bob Connors, MD, has witnessed it all. A board-certified pediatric surgeon, Dr. Connors came aboard 28 years ago, when the full-service children's hospital was no more than an ambitious idea in search of direction and community support. Today, as president of Helen DeVos Children's Hospital, he sits at the helm of a regionally and nationally recognized source of compassionate pediatric medical care, superior education and leading-edge research.

"When we began in 1993, we had all of our children's hospital programming, from neonatology to pediatric intensive care, on one floor in Butterworth Hospital," Dr. Connors recalls. "We still have that space, but now it houses half of our neonatal program. Our growth has been phenomenal."

The spark for Helen DeVos Children's Hospital came in 1972 in the form of a grant from the Gerber Foundation to establish a 12-bed neonatal intensive care unit. In 1980, the 10-year plan for Butterworth Hospital included a full children's hospital. Ten years later, Richard DeVos pledged \$5 million to support pediatric programming, and in 1993, the Helen DeVos Women's & Children's Center opened in Butterworth Hospital.

"We were a children's hospital within a hospital," says Dr. Connors.

Since then, the hospital has grown in service, stature and recognition at almost light speed. "We had perhaps 10 or 12 children's specialists when I came here," Dr. Connors says. "Now, we have more than 300. We are attracting children and families from all over the state—all over the world, really, for some of our programs."

In 2011, Helen DeVos Children's Hospital moved into a new, 14-story, 212-bed building. It has continued to grow its network of pediatric specialty clinics, with more than 50 services and programs situated throughout Michigan, including the Upper Peninsula.

Dr. Connors says the established high quality of existing medical care and strong work ethic made Grand Rapids the ideal home for a comprehensive children's hospital. "We had a robust neonatal center in place in 1990, and it had been here

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**Bob Connors, MD**

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“I’m grateful to our referring providers for entrusting us with the care of their patients and for their collaboration with us as we increase our specialized services.”

Bob Connors, MD

for some time,” he says. “Coupled with a very generous community, all the important elements were in place.”

With medical care atop the list of priorities for a children’s hospital, “we knew we also had to be a teaching hospital,” Dr. Connors says. “Even when I came here, we were training residents in pediatrics and other specialties.”

The hospital has cultivated the research element, both establishing and participating in numerous clinical studies.

“We have also taken on the role of advocate on behalf of children,” Dr. Connors says. “Children have no vote. They have no money. They have no voice in the public forum. Their well-being is up to us.”

Care, education, research and advocacy “are woven into the fabric of our hospital,” Dr. Connors says. “We remain very proud of our care-oriented character.”

This level of care could not be accomplished without people, which may be the most important element of all, Dr. Connors says.

“Chapter after chapter has been written by the wonderful people who have come here,” he says. “They have been responsible for growing our capabilities. Not just our physicians, but also our nurses and other medical professionals and staff. Each one has been a key to our success. They come here, they stay here and that leads to a wonderful culture. I’m also grateful to

our referring providers for entrusting us with the care of their patients and for their collaboration with us as we increase our specialized services.”

Looking forward, expanding the educational element is a priority. “We have a pretty large pediatric residency program, and we are growing the number of fellowships,” he says. “In three to four years, I think there will be very rapid growth in our fellowship programs, in both breadth and depth.”

There will be challenges. “We live in a world of payment concerns,” Dr. Connors says. “There is a need to continue to provide services more efficiently and cost effectively. At the same time, we anticipate a rapidly advancing quality of care, in the form of molecular medicine and genomics. But this is a challenge we look forward to—to be able to personalize our ability to treat conditions and patients.”

Just as they could 25 years ago, challenges can become opportunities.

“We are still a rare breed,” Dr. Connors says. “Out of 4,500 hospitals in the U.S., only 220 are children’s hospitals. That gives us the opportunity and responsibility to lead the way in pediatric care.”

A lot has happened in the first 25 years, he says.

“I am proud of our people, our programs and our facilities,” Dr. Connors says. “This is a wonderful place; a healing place. To me, when you enter a healing place, you immediately feel better.”

In addition to all the other elements, Helen DeVos Children’s Hospital is a result of a vision realized, Dr. Connors says. “If you can translate vision into reality, you can form the future,” he says. “Today, I think it’s even better than we had imagined. And that is a pretty fun thing to see.”



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## Addition of Pediatric Cardiac Intensive Care Unit Further Distinguishes Congenital Heart Center

Spectrum Health Helen DeVos Children’s Hospital is creating a dedicated pediatric cardiac intensive care unit to provide world-class care to the growing number of pediatric patients with congenital heart disease, and to better serve the needs of more patients in its pediatric intensive care unit.

The six-bed PCICU, which is anticipated to be completed in January 2019, “will further align Helen DeVos Children’s Hospital with the industry best practices of leading congenital heart centers,” says Bob Connors, MD, president of Helen DeVos Children’s Hospital.

The addition of cardiothoracic surgeon Marcus Haw, MBBS, FRCS, in 2012, and congenital cardiologist Joseph Vettukattil, MD, in 2013 has expanded the number of surgeries and procedures, as well as the variety of comprehensive services available at the hospital’s Congenital Heart Center.

The number of surgeries performed by the center’s team has grown significantly; they had more than 300 from July 2017 through June 2018. At the same time, the complexity of the heart conditions being treated also has increased. Additionally, there were nearly 300 congenital catheterizations during that same time frame.

“Historically, the congenital heart program performed at a limited scope,” says Dr. Haw, who serves as co-director of the Congenital Heart Center and division chief for pediatric cardiothoracic surgery. “When I came

here six years ago, the objective was to develop all levels of complexity, and we certainly have achieved that. Our complexity is significantly higher than average.”

The ability to treat increasingly complex congenital heart conditions has enabled patients and their families, who formerly would seek care outside Michigan, to access treatment at our Congenital Heart Center. “That, in turn, is driving us to develop the specialized PCICU,” Dr. Haw says.

The skills and experience of the cardiac care team provide patients and their families with “complete treatment for almost any anomaly,” says Dr. Vettukattil, co-director of the Congenital Heart Center and division chief of pediatric cardiology.

“Our team coordinates care for maximum effect and amazing outcomes,” he says. “We are able to transform the lives of children and adults once thought not operable.”

Dr. Vettukattil leads the cardiac catheterization laboratory, performing interventions in both children and adults with congenital and structural heart disease. He also leads the clinical research team. “Ours is an all-encompassing center,” he says. “I perform interventional cardiac procedures from fetus to late adulthood. My oldest patients are in their 90s.”

The current PICU has 24 beds, with the ability to “overflow” to 30, says Robert Fitzgerald, MD, division chief, pediatric acute care. The unit admits

## Addition of Pediatric Cardiac Intensive Care Unit Further Distinguishes Congenital Heart Center, Continued

approximately 1,600 patients each year, an increase from about 1,100 admissions five years ago, he says.

Admissions have risen for a variety of reasons, ranging from an increase in respiratory illnesses in wintertime to a growing number of trauma cases and surgeries, as well as more complex surgeries. "We have also been receiving more referrals from outside the hospital, and more internal cases," Dr. Fitzgerald says.

The PICU includes 17 critical care doctors and a certified critical care nursing staff. "We have one of the most comprehensive teams in the

In addition to being ranked as a "Best Children's Hospital in Cardiology and Heart Surgery" by U.S. News & World Report, the PICU has earned a Beacon Gold Award for Excellence by the American Association of Critical-Care Nurses for employing evidence-based practices to improve patient and family outcomes.

hospital," Dr. Fitzgerald says. "Our rounds have a dozen people on them."

Besides number of patients and surgeries performed, cardiac care and pediatric critical care at Helen DeVos Children's Hospital also have grown in reputation and recognition. In addition to being ranked as a "Best Children's Hospital in Cardiology and Heart Surgery" by U.S. News & World Report, the PICU has earned a Beacon Gold Award for Excellence by the American Association of Critical-Care Nurses for employing evidence-based practices to improve patient and family outcomes.

"We have an obsession in trying to

understand our own quality," Dr. Haw says.

For example, Helen DeVos Children's Hospital takes part in Virtual PICU System registry, and will be participating in the Pediatric Cardiac Critical Care Consortium (PC<sup>4</sup>) registry.

The VPS registry contains severity of illness scores, including Pediatric Risk of Mortality III, Pediatric Index of Mortality 2, Pediatric Logistic Organ Dysfunction and several cardiac intensive care unit complexity scores.

Additionally, the Society of Thoracic Surgery awards star ratings based on the Duke Cardiac Research Institute analysis of each center's data. A three-star rating is the highest rating a center is awarded. "We have received three stars for the past 2.5 years," Dr. Haw says. "We are very dedicated to monitoring our performance."

The PC<sup>4</sup> data set provides a more in-depth understanding of how the heart center compares with other centers according to a number of risk categories. "It is a transparent database," Dr. Haw says. "We will be able to see how others are doing by name, identify which is the best center, ring them up and ask, 'What are you doing differently?' It will give us real-time quality improvement across 32 heart centers."

Innovations, from leading-edge procedures to the latest technologies, also distinguish Helen DeVos Children's Hospital's Congenital Heart Center, including:

- Taussig-Bing repair
- Double Switch for L-Transposition
- Fontan Procedure
- Norwood Procedure
- Revision Fontan

- Biventricular repair following Fontan palliation
- Sutureless repair of pulmonary vein stenosis
- Pulmonary atresia, ventricular septal defect, and major aortopulmonary collateral arteries
- Biventricular repair of double outlet right ventricle with straddling valves and/or distant VSD
- Surgical and interventional planning via 3-D visualization and 3-D printing

“New technologies are leading to new capabilities, and they have been life-changing for our patients,” Dr. Haw says.

The Congenital Heart Center specialists have developed the concept of hybrid 3-D printing (multi-modality integration), where computed tomography and 3-D echocardiography are integrated to bring MRI, CT and echo into a single platform.

“This is an evolving concept,” says Dr. Vettukattil, “and we are at the forefront.”

Dr. Haw says 3-D printing allows surgeons to better prepare for complex surgeries by producing a complete model of the heart. Surgeons can also take the 3-D model into the consultation with the family and describe the procedure in precise and often reassuring detail.

“We are building a library of these 3-D models because so many are unique and rare cases,” he says. “This will allow us to pass along experience to other surgeons who may not be as familiar with the condition or procedure.”

““ We utilize innovations here coming directly from our dedicated cardiac research team. This research, coupled with our team’s skills, experience and dedication, delivers the best outcomes for our patients. The addition of the PCICU is one more step forward.””

Joseph Vettukattil, MD, MBBS

Since 2014, congenital heart education, research and innovation has included 33 institutional review board-approved studies (13 completed and closed); 50 publications in medical journals; 105 live, oral and poster presentations; and five book chapters, as well as collaboration with Michigan State University, Michigan Technological University, Northwestern University and Van Andel Institute.

“We utilize innovations here coming directly from our dedicated cardiac research team,” says Dr. Vettukattil. “This research, coupled with our team’s skills, experience and dedication, delivers the best outcomes for our patients. The addition of the PCICU is one more step forward.”

# Early Screening Key to Identifying Anxiety Disorders



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Childhood anxiety is very common, although it often goes unrecognized and untreated. The earlier a child is screened for anxiety disorders, the sooner the child can be referred to a behavioral health specialist who will work with the child and the family to identify and address the source of the anxiety.

"Anxiety can manifest itself in a variety of different but very real physical symptoms," says Steve Pastyrnak, PhD, section chief of pediatric psychology at Helen DeVos Children's Hospital. "Whether it is a child with a complex, chronic medical condition who is exhibiting physical symptoms without a clear organic cause, or a child who is exhibiting more traditional symptoms of anxiety such as fears and worries that are significantly disruptive, the quicker we get involved, the more we can help."

Chronic stomachaches, headaches, nausea, difficulty eating or sleeping, unexplained tantrums, or panic symptoms such as sudden onset crying, sweating, shakiness or dizziness may be a result of anxiety. "A 4-year-old who has a tummy ache the night before attending preschool isn't typically faking the stomach pain," Dr. Pastyrnak says. "It can be very real, and it is a pain that is anxiety-driven."

Anxiety is a defense mechanism of the human body, and it is often a response to either real or perceived danger. "Symptoms of anxiety can be triggered by an event, such as speaking in front of the class, or going to the doctor," Dr. Pastyrnak says. "Sometimes, children experience significant anxiety without a clearly identified stressor or trigger due to their physical or genetic predisposition to experience those symptoms."

When a child is too young to be able to explain why they are stressed or overwhelmed, worried and sometimes frustrated parents often report the physical symptoms to their primary care physician, says Brittany Barber Garcia, PhD, a pediatric psychologist at Helen DeVos Children's Hospital whose specialties include the psychological assessment and treatment of children with chronic health conditions.

"The symptoms can range from a tummy ache or headache to back pain, leg pain, heart palpitations or hyperventilating," Dr. Barber Garcia says. "Pain is just one of the symptoms associated with anxiety, but it can be an important one."

Anxiety disorders are increasingly common among children and adolescents. Nearly 32 percent of adolescents in the United States have an anxiety disorder, according to national survey data reported by psychologists at the National Institute of Mental Health and published in the *Journal of the American Academy of Child and Adolescent Psychiatry*.

"The incidence rates for anxiety are on the rise, to the point where it has overtaken other common pediatric mental health issues such as attention-deficit/hyperactivity disorder or behavioral problems," Dr. Barber Garcia says. "The prevalence of anxiety is much more recognized in the mental health community, but it can be easily missed or minimized in the general pediatric community."

It is important to screen for, identify and properly treat anxiety disorders in children, from the very young through adolescents, she says.



According to data from more than 9,000 respondents in the National Comorbidity Survey Replication, without treatment, pediatric anxiety disorders increase the risk of adult anxiety disorders, as well as depression, substance abuse and suicide.

A number of factors are fueling stress and anxiety for children and adolescents, including increased pressure in school, the popularity of social media and the barrage of unfiltered information available on the television and internet, Drs. Pastyrnak and Barber Garcia say.

"Kids are on social media 24/7," Dr. Barber Garcia says. "And they don't really get a time to 'turn off' or disconnect from their devices and relax. Many people are still quick to minimize the effect this pressure to be constantly 'on' has on anxiety, when in reality, the impact of that stress can be huge, especially for kids who are vulnerable."

News reports and graphic videos of world events can heighten anxiety for both children and adults. Young children who don't understand the information but hear or see adults expressing concern can become worried. "Kids who are prone to anxiety may be more reactive to media images," says Dr. Pastyrnak. "Younger children are less likely to understand the nature of the story or image and become frightened, but are unable to explain their fear."

According to NIMH, young children may benefit from a psychological evaluation and therapy for anxiety if they:

- Have frequent tantrums or are intensely irritable much of the time
- Often talk about fears or worries
- Complain about frequent stomachaches or headaches with no known medical cause

- Exhibit changes in eating habits
- Are in constant motion and cannot sit quietly
- Sleep too much or too little, have frequent nightmares or seem sleepy during the day
- Are not interested in playing with other children, or have difficulty making friends, or exhibit increased clinginess or dependence on parents
- Repeat their actions, or check things many times out of fear that something bad may happen

indicator of an anxiety-related issue," she says. "If the symptoms impact other areas of functioning, such as missing out on school activities, seeing friends or going to events but having to leave early, that is another indicator. Third, if you observe changes in mood or behavior such as restlessness, a lack of sleep or a lack of restful sleep, becoming withdrawn or disconnected, even if you are unsure if it is a sign of anxiety, it is a good time to refer."

““ The incidence rates for anxiety are on the rise, to the point where it has overtaken other common pediatric mental health issues such as attention-deficit/hyperactivity disorder (ADHD) or behavioral problems. ””

**Brittany Barber Garcia, PhD**

The difference between "normal" stress or anxiety and a diagnosable anxiety disorder requiring therapy is typically the frequency and/or severity of the symptoms and whether or not it disrupts the child's daily functioning, Dr. Pastyrnak explains.

Primary care physicians who screen for an anxiety disorder may choose to instruct parents on anxiety management strategies, or refer them to a behavioral health specialist, or both. The decision to refer may depend upon how stressed the child is, how stressed the child's parents are and how seriously the anxiety is interfering with the child's life.

Dr. Barber Garcia lists three criteria for referral:

"If the parents or the primary care physician are hearing reports of more worry or seeing physical symptoms or pain more days than not, even on non-school days, that could be a significant

Treatment can include cognitive behavioral therapy in order to address the physical symptoms, negative thoughts and behaviors sparked by the anxiety. CBT can include relaxation techniques and breathing exercises, as well as strategies to manage worries. Psychiatric therapy and medication are options for more escalated, severe anxiety symptoms, Dr. Barber Garcia says.

"Our specialists will evaluate each child individually, looking at symptoms of anxiety as well as other potential physical and mental health symptoms, and make recommendations for the proper treatment," she says. "Many of our clinics are multidisciplinary in nature, meant to evaluate the child as a whole person, and include medical, physical and psychological evaluations. This provides parents and primary care physicians with a complete picture of each child and, more importantly, allows for multiple avenues of care."



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## Surgical Technique Improves Cleft Palate Outcomes

The surgical technique being used at Spectrum Health Helen DeVos Children's Hospital to repair a cleft palate adds tissue, rather than tightening the tissue that is already in place. This technique is yielding significantly better speech outcomes than others.

"It is a highly modified version of a technique that had long been forgotten," says John Girotto, MD, section chief of pediatric plastic surgery and dermatology, a surgeon who specializes in cleft lip, cleft palate and craniofacial surgery, as well as jaw reconstruction and orthognathic surgery.

The surgical technique being used at Spectrum Health Helen DeVos Children's Hospital to repair a cleft palate adds tissue, rather than tightening the tissue that is already in place. This technique is yielding significantly better speech outcomes than others.

The technique was developed and refined by Dr. Girotto's colleague, pediatric plastic and craniofacial surgeon Robert Mann, MD. The two surgeons are among the coauthors of "The Double Opposing Z-Plasty Plus or Minus Buccal Flap Approach for Repair of Cleft Palate: A Review of 505 Consecutive Cases," a paper published in May 2017 in the journal *Plastic and Reconstructive Surgery*.

Cleft lip and cleft palate are facial birth anomalies that describe an opening affecting the upper lip and the roof of the mouth, or palate, when the parts that form the baby's face and palate fail to join before birth. The cause is not known.

A cleft lip or palate is one of the most common facial birth defects, affecting approximately one in every 700 births in the United States each year.

For a cleft palate, the soft part of the palate at the back of the mouth may be involved, or the cleft may affect the bony part of the palate, the hard palate. These defects can cause feeding problems, poor dental development, trouble with speech, and frequent colds, sore throats and ear infections.

Dr. Mann has refined the buccal flap surgery, which uses tissue from the inside of the cheek to be added in the repair of these clefts. Approximately 40 children undergo cleft lip/palate repair surgery at Helen DeVos Children's Hospital each year.

In the paper, the doctors explain that standard methods of cleft palate repair rely on existing palatal tissue to achieve closure. These procedures often require relaxing incisions, causing scars and growth restriction, and may result in insufficient palatal length and suboptimal positioning of the velar musculature.

To assess the buccal flap technique, the authors reviewed the outcomes of 505 patients, all treated with the double opposing Z-plasty plus or minus buccal flap approach. Outcomes included nasal resonance during speech, the need for secondary speech surgery and postoperative complications. A comparison was made between patients treated with double opposing Z-plasty alone and those treated with double opposing Z-plasty plus buccal flaps.

The average nasal resonance score was 1.38 and was equivalent in both the double opposing Z-plasty



alone and with buccal flap groups, despite significantly wider and more challenging clefts in the buccal flap group, 56 percent as opposed to 8 percent.

The doctors concluded that the double opposing Z-plasty plus or minus buccal flap approach is a useful alternative to standard palate repairs. Speech outcomes were excellent even in wider clefts, and postoperative complications were minimal. Additionally, buccal flaps allow the benefits of the Furlow repair to be applied to any size cleft, without the need for relaxing incisions.

Dr. Giroto says he and his fellow plastic surgeons at Helen DeVos Children's Hospital are currently conducting research into the long-term results of the buccal flap cleft palate repair technique. "Our preliminary data indicate more than 90 percent of these surgical patients reach their teens without the need for extra surgeries," he says.

Dr. Giroto and Dr. Mann have taught courses on the technique at the American Society of Plastic Surgeons and the American Cleft Palate-Craniofacial Association. Dr. Giroto is a candidate for ACPA vice president in 2019.

He says the surgeons at Helen DeVos Children's Hospital, with more than 75 years of combined experience, are one facet of the hospital's multidisciplinary, personalized care for cleft palate repair. Other caregivers include speech therapists, dentists, nutritionists to assist with feeding issues, and psychological and social support groups.

"Ours is a comprehensive service individualized to give each child the best chance at long-term, quality outcomes," Dr. Giroto says. "That is our standard of care."

“The surgeons at Helen DeVos Children’s Hospital, with more than 75 years of combined experience, are one facet of the hospital’s multidisciplinary, personalized care for cleft palate repair.”

John Giroto, MD

## Residency Program, Fellowships Thriving

The residency program at Spectrum Health Helen DeVos Children's Hospital continues to flourish, adding 20 new residents each year for a total of 60 in the three-year program.

Interim Program Director Kira Sieplinga, MD, says half of the 2019 graduating residents are applying for a number of highly competitive fellowships across the country. "Ten years ago, each class would graduate about 12 residents, with more interested in general pediatrics," Dr. Sieplinga says. "More recently, we have seen an increase in residents interested in specialties from all across the county."

The expansion of the hospital's services has acted as a magnet for potential residents and fellows.

"Growing expertise brings more complex patients, and our residents are eager to provide the day-to-day care for these specialty patients," she says.

She says goals for the next five years include adding fellowships and strengthening the residency experience in medical education research and specialty research while also maintaining a solid education in primary care.

"We have a great core faculty in place," Dr. Sieplinga says. "We believe this is the right time to build upon an already strong program. Our goals are ambitious but doable because the stage has been set."

### Helen DeVos Children's Hospital Pediatric Fellowship Programs

- Pediatric Critical Care Medicine Fellowship: Accepts one or two fellows per year
- Pediatric Emergency Medicine Fellowship: Accepts one fellow per year
- Pediatric Hematology/Oncology Fellowship: Accepts one or two fellows per year
- Pediatric Hospital Medicine Fellowship: Accepts two fellows per year
- Pediatric Palliative Care Fellowship: Accepts one fellow per year



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## CPAP Is Preferred Respiratory Support for Preemies

Continuous positive airway pressure is the preferred noninvasive respiratory support method utilized by neonatologists for most preterm infants who exhibit respiratory distress at Spectrum Health Helen DeVos Children's Hospital.

"With this specific population, high-flow nasal cannula is an adjunct form of respiratory support but not the primary form, because available evidence indicates HFNC does not provide advantages over CPAP, and it doesn't provide the positive pressure needed," says neonatologist Nga N. Dinh, MD.

Dr. Dinh says either CPAP, low-flow nasal cannula or HFNC is administered at the Gerber Foundation Neonatal Center at Helen DeVos Children's Hospital depending on several factors, including the infant's gestational age at birth, the infant's corrected gestational age, the oxygen requirement and how hard the infant must work to breathe.

facility in West Michigan to offer this level of care. It is also the largest neonatal unit in Michigan. The center's Small Baby Unit is designed specifically to meet the medically complex needs of babies born at or before 27 weeks.

Dr. Dinh says other hospitals providing newborn care in the region are limited by their level of care designation; the designation defines the respiratory support methods they may administer. A Level I unit, for example, cannot provide CPAP for a long period of time.

Because of their designated level of care, preterm infants born in other regional medical facilities, who require more advanced respiratory therapy, are often transported by Helen DeVos Children's Hospital's dedicated neonatal transport team to the Gerber Foundation Neonatal Center.

"Some referring hospitals that cannot administer CPAP for long periods use HFNC prior to the baby being transported to our neonatal center," Dr. Dinh says. "But it is not our preferred method."

She says there are several advantages to employing CPAP over HFNC. CPAP increases functional residual capacity, reduces right-to-left shunting by reducing the ventilation-perfusion mismatch, and decreases airway resistance by increasing the pharyngeal cross-sectional area.

Dr. Dinh says clinical trials have shown that CPAP reduces the need for intubation/mechanical ventilation. By avoiding endotracheal intubation and mechanical ventilation, the constant distending pressure maintained in the lung by CPAP may also provide some physiologic benefits regarding lung protection and development.

The Gerber Foundation Neonatal Center is a designated Level IV neonatal intensive care unit (NICU), providing the highest degree of quality care for at-risk newborns. Helen DeVos Children's Hospital is the only medical facility in West Michigan to offer this level of care.

The Gerber Foundation Neonatal Center is a designated Level IV neonatal intensive care unit, providing the highest degree of quality care for at-risk newborns. Helen DeVos Children's Hospital is the only medical

Conditions for which CPAP has been used clinically include:

- Respiratory distress syndrome (RDS)
- Apnea of prematurity
- Postextubation management in premature infants
- Postoperative respiratory management
- Meconium aspiration syndrome
- Transient tachypnea of the newborn
- Laryngo-, broncho- and/or tracheomalacia
- Persistent pulmonary hypertension of the newborn

RDS is a condition in which babies are not able to produce an adequate amount of surfactant, most commonly due to prematurity. This condition results from abnormalities in the composition or function of surfactant, a mixture of certain fats (phospholipids) and proteins that lines the lung tissue and makes breathing easy. Without normal surfactant, the tissue surrounding the air sacs in the lungs (alveoli) adhere after exhalation, causing the alveoli to collapse. As a result, filling the lungs with air on each breath becomes very difficult, and the delivery of oxygen to the body is impaired. This leads to difficulty breathing and an inability to get enough oxygen. The lack of oxygen can damage the brain and other organs.

According to the American Academy of Pediatrics Committee on Fetus and Newborn, multicenter randomized controlled trials indicate that early use of CPAP with subsequent selective surfactant administration in extremely preterm infants results in lower rates of bronchopulmonary dysplasia and death when compared with treatment with prophylactic or early surfactant therapy.

Dr. Dinh says one multicenter study published in 2016 in the *New England Journal of Medicine*, "Nasal High-Flow Therapy for Primary Respiratory Support in Preterm Infants," followed a population in nine NICUs in Australia and Norway who received either HFNC or CPAP. The study examined infants born at 28 weeks 0 days to 36 weeks 6 days who were less than 24 hours old and had not previously received endotracheal ventilation or surfactant treatment.

In the study, the HFNC group received initial gas flow of 6 to 8 liters per minute (LPM), while the CPAP group received starting pressure of 6 to 8 cm H<sub>2</sub>O. Treatment failure occurred in 71 of 278 infants (25.5 percent) in the high-flow group, and in 38 of 286 infants (13.3 percent) in the CPAP group. The difference in the primary outcome between treatment groups was so significant that trial recruitment was halted at the recommendation of an independent data and safety monitoring committee.

The advanced level of care and expertise provided by the multidisciplinary team at the Gerber Foundation Neonatal Center delivers the precise care preterm babies need, quickly and efficiently. "There are many cases," Dr. Dinh says, "when even a brief period of CPAP therapy, administered via the proper method, can open up a baby's lungs enough to begin to function normally."

“There are many cases when even a brief period of CPAP therapy, administered via the proper method, can open up a baby’s lungs enough to begin to function normally.”

Nga N. Dinh, MD



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## Palliative Care Team Serves as Advocates

Palliative care is primarily concerned with improving quality of life; the sooner children with chronic, complex medical conditions are referred to the palliative care program at Spectrum Health Helen DeVos Children's Hospital, the greater the benefit they and their families will experience.

"The role of the palliative care team is to control pain, coordinate care between different medical teams and to help families as they face potentially difficult medical decisions," says Bradd Hemker, MD, section chief of pediatric pain and palliative medicine. "We are the extra layer of support these families so often need."

Pediatric palliative care focuses on the prevention and relief of suffering through attentive assessment and compassionate treatment of pain and other symptoms. The palliative care team led by Dr. Hemker partners with families, the child's medical team and the primary care physician to develop a collaborative plan of care that meets the goals and needs of the child and family.

"We are advocates on behalf of children with serious life-threatening or life-altering illnesses, as well as their families and their primary providers," he says. "With each family, the most important thing we want to know is, 'How can we best advocate for your goals?'"

The palliative care program at Helen DeVos Children's Hospital is the only physician-led pediatric palliative care program in West Michigan. It began with Dr. Hemker in January 2015 and has grown to include two physicians, two nurse practitioners and a social

worker. The first year, the team served approximately 120 families, and it now meets more than 100 new families yearly.

"We continue to see more referrals as primary care physicians and families come to understand that palliative care is not the same as hospice," Dr. Hemker says. "It's more 'full of life' than 'end of life.'"

Palliative care is appropriate at any age and at any stage of an illness, and can be provided along with treatment meant to cure. The palliative care team works with children who have a variety of medical conditions, including genetic disorders, cancer, prematurity, neurologic disorders, and heart and lung disease.

"The need for palliative care is different for each family," Dr. Hemker says. "From a diagnostic basis, we see kids across the board."

Deciding on palliative care begins with asking difficult questions. "One of the first is, 'Would you be surprised if this child died in the next year?'" Dr. Hemker says. "If the answer is no, then we should probably have a conversation."

"Another question would be, 'Do you expect this child to live to adulthood?' Again, if the answer is no, we should probably have some conversations about what may be coming down the road."

Because palliative care is concerned with the quality of life for a child and their family, it should be considered sooner rather than later. "Why wait?" Dr. Hemker asks. "We look at each

child and do our best to determine how we can make life better for them. The earlier we become involved, the more good we can do for the child and the family.”

In addition to improving the quality of life, the palliative care team addresses a number of issues, such as reducing or relieving physical, mental or emotional pain; coordinating care for complex patients; integrating medical advice from numerous specialties; assisting with medical decisions; and helping to address and overcome obstacles to care.

In the case of a terminal illness, the palliative care team will counsel and comfort a family as it is dealing with the inevitable, Dr. Hemker says. “We work on improving life even when a cure is not possible,” he says. “We’ll address their concerns and connect them with helpful resources.”

The team often meets with other immediate and extended family members. “We will answer questions for the child’s siblings, or explain things to grandparents who may not understand why the parents have chosen one treatment or course of action over another,” Dr. Hemker says.

“One of our goals is to take a burden off the parents’ shoulders so the family can concentrate more on living than on dying.”

He says the palliative care team will also consider making home visits when pain limits the child’s ability to travel, or when it is an end-of-life situation. “We enter into those really difficult spaces and situations and conversations,” he says. “We will ask the questions families don’t want to hear, but need to hear. Often, it can be better to do that around their kitchen table than in a sterile exam room.”

Dr. Hemker says palliative care can be difficult for the team members but can also be very rewarding. “I feel we do a lot of listening even when there are things we cannot completely change,” he says. “I am always amazed when a family says, ‘Thank you.’ Or when they say we made such a huge difference in their lives. That is so humbling.

“Sometimes, listening is the best thing we can do. It’s our way of helping; our way of fixing things that simply can’t be fixed.”

Pediatric palliative care focuses on the prevention and relief of suffering through attentive assessment and compassionate treatment of pain and other symptoms.

““ We continue to see more referrals as primary care physicians and families come to understand that palliative care is not the same as hospice. It’s more ‘full of life’ than ‘end of life.’ ””

Bradd Hemker, MD



## Meet Our New Providers



**Hovig Artinian, MD, FAAP**  
Pediatric Pulmonology &  
Sleep Medicine

**Hovig Artinian, MD, FAAP**, is a board-certified pediatrician specializing in pediatric pulmonology and sleep medicine. Dr. Artinian earned his master's degree in teaching from Johns Hopkins University in Baltimore, Maryland, and his medical degree from American University of the Caribbean School of Medicine in Sint Maarten. He completed his categorical pediatrics residency at UCSF Fresno, Valley Children's Hospital in Fresno, California; his pediatric pulmonology fellowship at Children's Hospital Los Angeles in Los Angeles; and his pediatric sleep medicine fellowship at Case Western Reserve University, Cleveland Medical Center in Cleveland, Ohio.

Dr. Artinian is a fellow of the American Academy of Pediatrics.

His clinical interests include pediatric sleep medicine, bronchopulmonary dysplasia, care of ventilator-dependent children, neuromuscular diseases, asthma and cystic fibrosis.



**M. Michael Bercu, MD**  
Pediatric Neurosurgery

**M. Michael Bercu, MD**, is a board-certified pediatric and functional neurosurgeon. Dr. Bercu earned his medical degree from The Hebrew University of Jerusalem School of Medicine in Jerusalem, Israel, and a master's degree from the School of Pharmacy. He completed his neurological surgery residency at Tel Aviv Sourasky Medical Center in Tel Aviv, Israel, and his pediatric neurological surgery and his functional neurological surgery fellowships at NYU Langone Medical Center in New York.

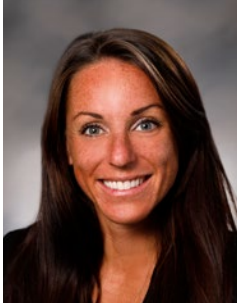
His clinical interests include complex and advanced neurosurgical procedures using minimally invasive techniques; treatment of pediatric brain tumors, spinal tumors, hydrocephalus and additional developmental or acquired disorders; treatment of spasticity and pain disorders; and stem cell research leading to novel treatments for patients suffering from traumatic brain and spine injuries and neurodegenerative disorders.



**Aditya Dewoolkar, MD**  
Pediatric Endocrinology

**Aditya Dewoolkar, MD**, is a board-eligible pediatrician specializing in endocrinology. Dr. Dewoolkar earned his medical degree from K.J. Somaiya Medical College in Mumbai, India. He completed his pediatrics residency at Western Michigan School of Medicine in Kalamazoo and his pediatric endocrinology fellowship at Louisiana State University Health Sciences Center in New Orleans.

His clinical interests include pediatric diabetes, hypoglycemia (low blood sugar), hypopituitarism, diabetes insipidus, thyroid disorders, growth disorders, disorders of puberty, adrenal disorders, and calcium and bone disorders.



**Lauren Fletcher-Morehouse, DO**  
Pediatric Ophthalmology

**Lauren Fletcher-Morehouse, DO**, is a board-certified physician specializing in pediatric ophthalmology. Dr. Fletcher-Morehouse earned her medical degree from A.T. Still University-Kirksville College of Osteopathic Medicine in Kirksville, Missouri. She completed her ophthalmology residency at St. John Macomb-Oakland Hospital in affiliation with Michigan State University in Madison Heights, Michigan, and her pediatric ophthalmology fellowship at Children's Hospital of Michigan in affiliation with Wayne State University in Detroit.

Her clinical interests include infant and childhood eye diseases, including strabismus (crossed eyes), adult strabismus, glaucoma, cataracts and eyelid abnormalities.



**Kelsey Gonring, PhD**  
Pediatric Psychology,  
Behavioral Health

**Kelsey Gonring, PhD**, is a licensed clinical psychologist specializing in pediatric psychology. Dr. Gonring earned her doctorate in clinical psychology from Marquette University in Milwaukee, Wisconsin. She completed her predoctoral internship and her postdoctoral fellowship in pediatric psychology at Rush University Medical Center in Chicago.

Dr. Gonring is a member of the Society for Pediatric Psychology and the American Psychological Association.

Her clinical interests include pediatric consultation-liaison, somatic symptom disorders, neurodevelopmental assessment and treatment of autism spectrum disorder and ADHD, and adolescent psychotherapy.



**Amanda Holsworth, DO**  
Allergy & Immunology

**Amanda Holsworth, DO**, is a board-certified physician specializing in pediatric and adult allergy and immunology. Dr. Holsworth earned her medical degree from Michigan State University College of Osteopathic Medicine in East Lansing. She completed her pediatric residency at Helen DeVos Children's Hospital in Grand Rapids and her allergy and immunology fellowship in Kansas City, Missouri, at Children's Mercy Hospital/UMKC School of Medicine.

Her clinical interests include pediatric and adult primary immunodeficiency, asthma, food allergies, seasonal and year-round nose and eye allergies (allergic rhinoconjunctivitis/hay fever), allergy immunotherapy/shots, stinging insect allergy, hives and swelling (urticaria and angioedema), hypereosinophilic disorders, contact allergic dermatitis, atopic dermatitis and mast cell disorders.

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