

2014

# Annual Report

THEN AND NOW



Texas Children's first patient, 3-year-old Lamaina Leigh Van Wagner, in 1954.



Texas Children's  
Hospital®





4,558

patient encounters in 1954

3,350,235

patient encounters in 2014

While the scope of our mission has changed since the founding of Texas Children's Hospital, our core elements remain the same –

**Excellence in patient care, education and research.**

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Last year was an incredibly productive year at Texas Children's Hospital. We celebrated another chapter of groundbreaking innovations and reached a historic milestone – our 60th birthday.

At 60, Texas Children's is the youngest of the nation's top children's hospitals, yet we are leading advancements in medicine for children and women around the world. We've done more in 60 years than most can imagine in twice the time.

Texas Children's has built recognized Centers of Excellence in pediatric subspecialties, and in the last 25 years alone, created the nation's first HMO for children; formed the largest pediatric primary care network in the country; and developed a global health program that's channeling care to children and women around the world.

In 2014, we broke ground on our second community hospital – Texas Children's Hospital The Woodlands – slated to open in 2017. The 548,000-square-foot facility will provide inpatient and outpatient specialty pediatric care and a new clinic to expand access to care for children with immune deficiencies.

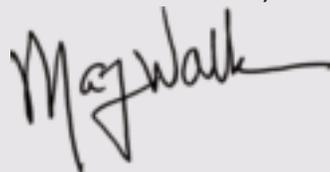
Also in 2014, we launched a strategic planning initiative to reinvest in Texas Children's ICUs, Operating Rooms and Emergency Center. These core areas are critical to our care of some of the nation's sickest children. To accommodate the growing demand in these areas, we are building a 19-floor pediatric tower at Texas Children's Hospital Main Campus,

which will house larger ICU rooms with family-centered spaces and new operating rooms, and we are renovating and expanding our Emergency Center.

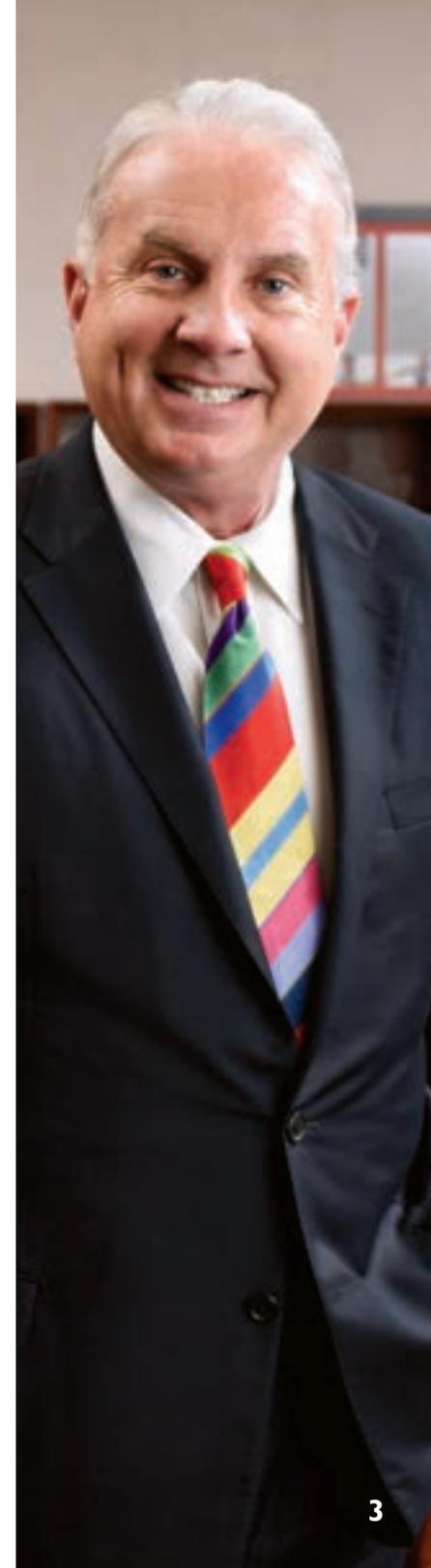
Subsequently, we also launched Promise last year. Promise is a comprehensive \$475 million campaign that will support our hospital priorities, including the expansion projects at the Main Campus and in The Woodlands. These endeavors help ensure we continue to keep our promise to serve all the children and families who come to us for care for many years to come.

As Texas Children's celebrates its rich and storied history, the 2014 Annual Report represents some, but certainly not all, of the hospital's significant contributions, growth milestones and accomplishments over the last 60 years, including inspirational patient outcome stories. Our unrelenting passion has driven us to dream, innovate and achieve seemingly impossible things. We have changed lives, inspired hope and made birthdays happier for families all over the world.

While there's still much to be done, we already have so much to celebrate. Here's to 60 years of mission-driven excellence.



Mark A. Wallace  
President and Chief Executive Officer

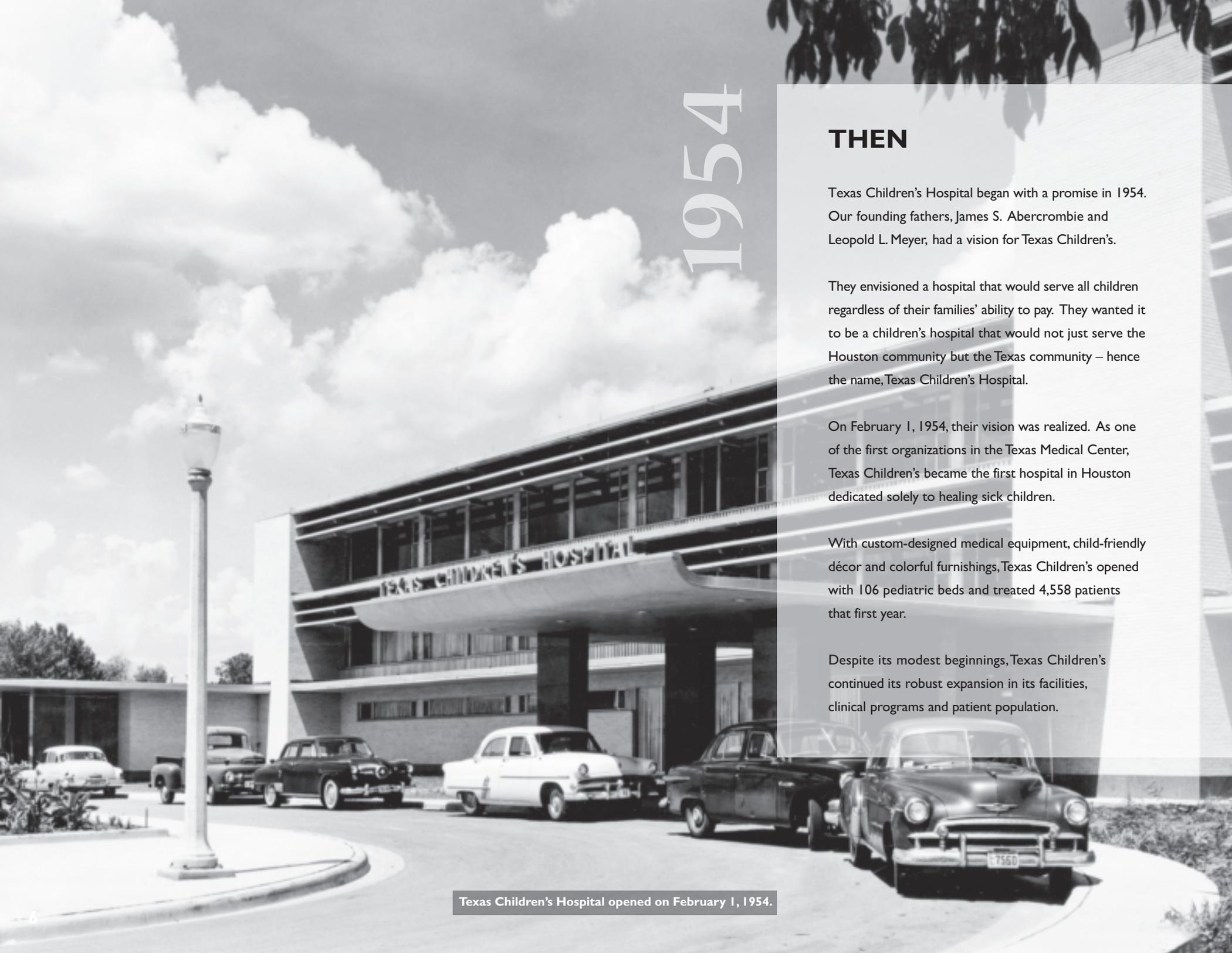




The groundbreaking of Texas Children's Hospital on May 23, 1951, marked the beginning of a new era in pediatric patient care.



On January 31, 2014, Texas Children's broke ground on its second community hospital – Texas Children's Hospital The Woodlands – which is slated to open in 2017.



# 1954

## THEN

Texas Children's Hospital began with a promise in 1954. Our founding fathers, James S. Abercrombie and Leopold L. Meyer, had a vision for Texas Children's.

They envisioned a hospital that would serve all children regardless of their families' ability to pay. They wanted it to be a children's hospital that would not just serve the Houston community but the Texas community – hence the name, Texas Children's Hospital.

On February 1, 1954, their vision was realized. As one of the first organizations in the Texas Medical Center, Texas Children's became the first hospital in Houston dedicated solely to healing sick children.

With custom-designed medical equipment, child-friendly décor and colorful furnishings, Texas Children's opened with 106 pediatric beds and treated 4,558 patients that first year.

Despite its modest beginnings, Texas Children's continued its robust expansion in its facilities, clinical programs and patient population.

Texas Children's Hospital opened on February 1, 1954.

## NOW

From 106 beds to 650, Texas Children's has grown into one of the nation's largest and most comprehensive pediatric and women's health care organizations, garnering more than 3.3 million patient encounters annually and achieving international recognition as a referral center.

Texas Children's now includes the Jan and Dan Duncan Neurological Research Institute; the Feigin Center for pediatric research; Texas Children's Pavilion for Women, a comprehensive obstetrics/gynecology facility, focusing on high-risk births; Texas Children's Hospital West Campus, a community hospital in suburban West Houston; and Texas Children's Hospital The Woodlands, a second community hospital planned to open in 2017. The organization also created Texas Children's Health Plan, the nation's first HMO for children; Texas Children's Pediatrics, the largest pediatric primary care network in the United States; Texas Children's Urgent Care clinics; and The Center for Children and Women, a primary care medical home for Texas Children's Health Plan members.

In 2014, Texas Children's was ranked no. 4 among all children's hospitals nationwide by *U.S. News & World Report*.

# 2014

Opened on March 27, 2012, Texas Children's Pavilion for Women represents one of the nation's premier centers for women's, fetal and newborn health.



(Main photo) Initial construction of Texas Children's Hospital in 1953. (Left to right) Texas Children's expands to seven floors in 1967; Texas Children's exteriors in 1984; early construction of the Clinical Care Center in 1999; Crown Plaza (future site of Texas Children's Pavilion for Women and Miracle Bridge) prior to implosion in 2006.



(Main photo) Texas Children's Hospital Main Campus today. (Left to right) Texas Children's Hospital West Campus; Texas Children's Pavilion for Women; rendering of Texas Children's Hospital The Woodlands slated to open in 2017; rendering of 19-floor pediatric tower expansion on Main Campus to be completed in 2018.

# PHYSICIAN *leaders*

*then*



**Dr. Russell J. Blattner**

Physician-in-Chief (1954-1976)



**Dr. Ralph D. Feigin**

Physician-in-Chief (1977-2008)



*now*



**Dr. Mark W. Kline**

Physician-in-Chief



**Dr. Charles D. Fraser, Jr.**

Surgeon-in-Chief



**Dr. Michael A. Belfort**

Ob/Gyn-in-Chief



**Dr. Dean B. Andropoulos**

Anesthesiologist-in-Chief



**Dr. George S. Bisset III**

Radiologist-in-Chief



**Dr. James Versalovic**

Pathologist-in-Chief



Dr. Gerardo Cabrera-Meza (center) examines a patient in the 20-bed neonatal intensive care unit (NICU) in 1979.



Dr. Stephen Welty oversees Texas Children's Newborn Center, one of the largest NICUs in the nation. More than 2,000 newborns are treated here each year.



Dr. Edward B. Singleton conducts a diagnostic scan of a patient in 1977. He expanded the Radiology Service to include state-of-the-art diagnostic imaging equipment.



Dr. Nadia Mahmood's patient undergoes a PET/MRI. Texas Children's is the first pediatric hospital in the nation to offer a PET/MRI scanner to better diagnose childhood diseases.



In the 1950s, a nurse's primary role was to care for patients at the bedside.



Today, a nurse's role has expanded to include making clinical decisions, conducting research and adapting to emerging technologies to enhance patient care.



A nurse cradles formerly conjoined twins, Karen and Kimberly Webber, after a pioneering procedure in 1964 to separate them at Texas Children's Hospital.



On April 11, 2014, conjoined twins Knatalye and Adeline Mata were born at Texas Children's Pavilion for Women. A team of NICU nurses took care of them until they were successfully separated in a 24-hour operation on February 17, 2015.

PATIENT

CARE





A pediatric nurse cares for a patient in the 1960s.

## THEN

### patient care

The story of Texas Children's unfolding history began with its first patient, 3-year-old Lamaina Leigh Van Wagner, who was referred by her pediatrician for a kidney disorder. Her brief yet historic visit on February 1, 1954, officially marked the opening of Texas Children's Hospital.

Fulfilling the founders' mission to heal sick children, early physician pioneers planted the seeds that would transform Texas Children's into an internationally renowned leader in pediatric patient care.

For 20 years, beginning with the hospital's inception, Dr. Dan G. McNamara served as Texas Children's first director of Cardiology – one of only three hospital services (including Radiology and Surgery) established at Texas Children's at the time. Fueled by his immense passion for innovation, McNamara and his team designed and customized the hospital's first cardiac catheterization lab, which significantly advanced the diagnosis of heart ailments in children.

After only eight years in operation, Texas Children's began struggling to accommodate the community's demand for services. With plans for expansion, Texas Children's first chief of Cardiovascular Surgery, Dr. Denton A. Cooley, helped establish the Texas Heart Institute to promote knowledge and treatment of adult and pediatric cardiovascular diseases. Texas Children's pediatric cardiologists also served as staff members of the Texas Heart Institute's pediatric department, where they collaborated on projects to improve heart outcomes in children. Since its inception in 1962, Cooley and his associates have performed more than 100,000 open-heart operations – more than any other center in the world.

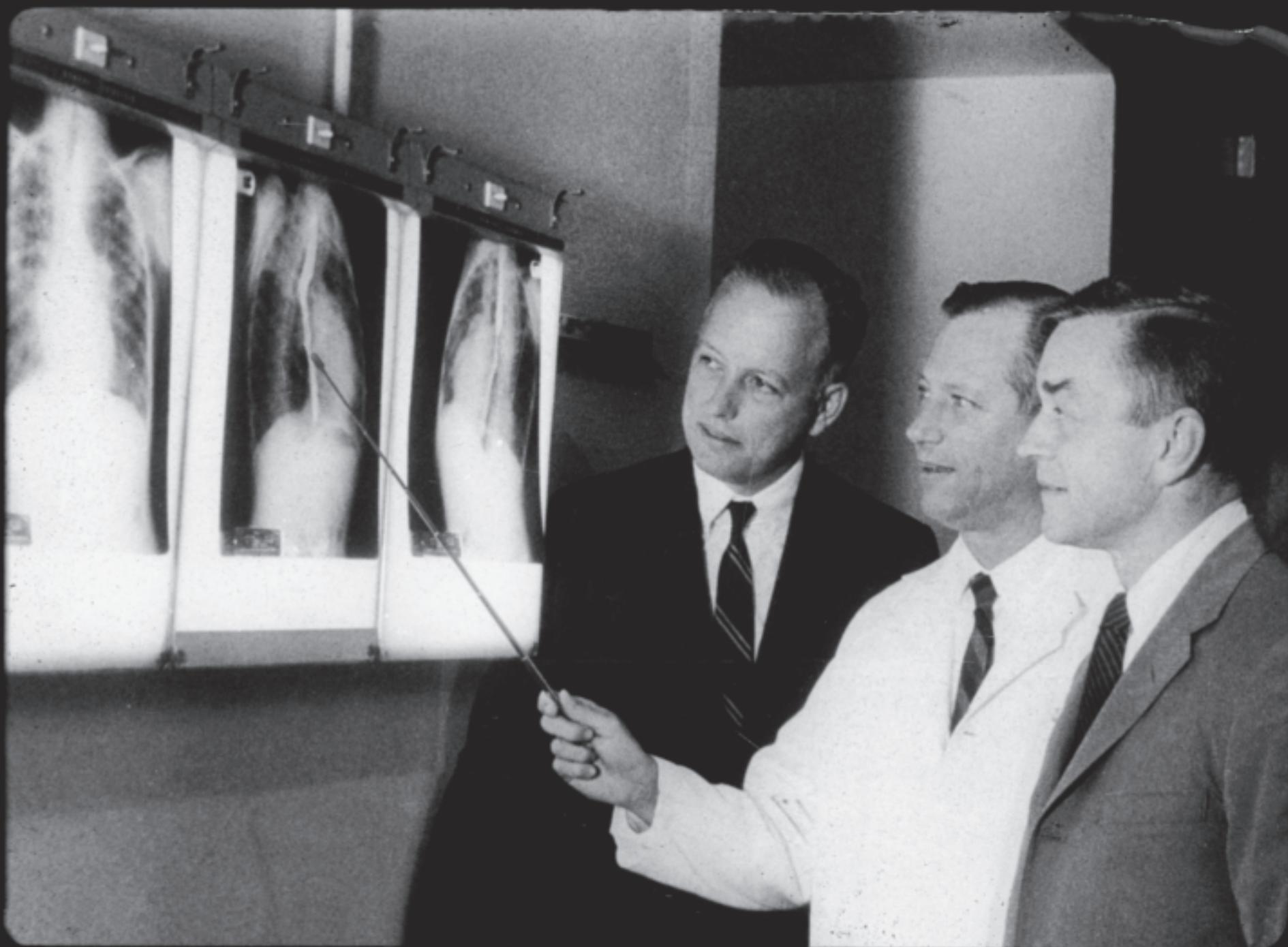
While McNamara and Cooley pioneered the field of cardiology, their counterpart, Dr. Edward B. Singleton, made his own mark on the newly established Radiology Department. Singleton was the first pediatric radiologist on staff at Texas Children's.

The Radiology Service at the time included Singleton, one technician and one X-ray examination room. Under Singleton's brilliant guidance, the Radiology Service grew by leaps and bounds. With the investment in state-of-the-art diagnostic equipment – including the arrival of the MRI in 1985 – pediatric radiographic procedures totaled more than 125,000 in 2004.

Meanwhile, in a small basement laboratory, Dr. Donald J. Fernbach established Texas Children's Hematology and Oncology Service in 1958. Fernbach was one of the first physicians to demonstrate the value of cytoxan in the treatment of acute leukemia, and successfully obtained a grant from the National Cancer Institute to begin the research hematology lab, which grew into Texas Children's Cancer and Hematology Centers – one of the largest and most prestigious oncology and blood disease institutes in the world.

The 1971 arrival of Dr. Murdina Desmond – the first neonatologist in Texas – paved the way for the development of Texas Children's Neonatology Service, with 20 beds and five isolation units. For more than 40 years, Desmond cared for the hospital's most fragile patients, including David Vetter, the famous "Bubble Boy," who suffered from Severe Combined Immunodeficiency. Research studies of his disease would lead to groundbreaking treatments at Texas Children's Hospital.

In the 1970s and 1980s, hospital services and specialties expanded rapidly, including the Gastroenterology and Nutrition Service, the Allergy and Immunology Service, and the Neurology Service, which would become one of the largest pediatric neurology programs in the United States.



The cardiac clinic was the first pediatric subspecialty clinic at Texas Children's Hospital. From left, Dr. Denton A. Cooley (first chief of cardiovascular surgery), Dr. Edward B. Singleton (pediatric radiologist and first physician on staff) and Dr. Dan G. McNamara (first pediatric cardiologist in Houston) examine the X-rays of one of the first patients in the clinic.



Neonatalogist Dr. Murdina Desmond evaluates a patient in the Meyer Center for Developmental Pediatrics in 1976.



Speech pathologist Sarah Raye evaluates the progress of her patient, Drayton Cole, at Texas Children's Hospital West Campus.



Aaron Crossland receives a kidney dialysis treatment at Texas Children's Renal Center.

**NOW**  
patient care

From the seeds planted by the first physician pioneers and cultivated by today's leaders, Texas Children's is creating a brighter and healthier future for children and women.

In 2012, Texas Children's entered a new era of patient care with the opening of Texas Children's Pavilion for Women, one of the nation's premier centers for women's, fetal and newborn health. Because taking care of children's health begins with taking care of mothers, the Pavilion for Women delivers high quality care to women during every stage of their reproductive lives.

From world-class neurology and cardiology departments to the largest pediatric cancer and hematology centers in the United States, Texas Children's offers specialty services for children who require complex care.

The Centers of Excellence at Texas Children's are shining examples of what can be achieved when passion, innovation and visionary leadership unite to advance patient care.

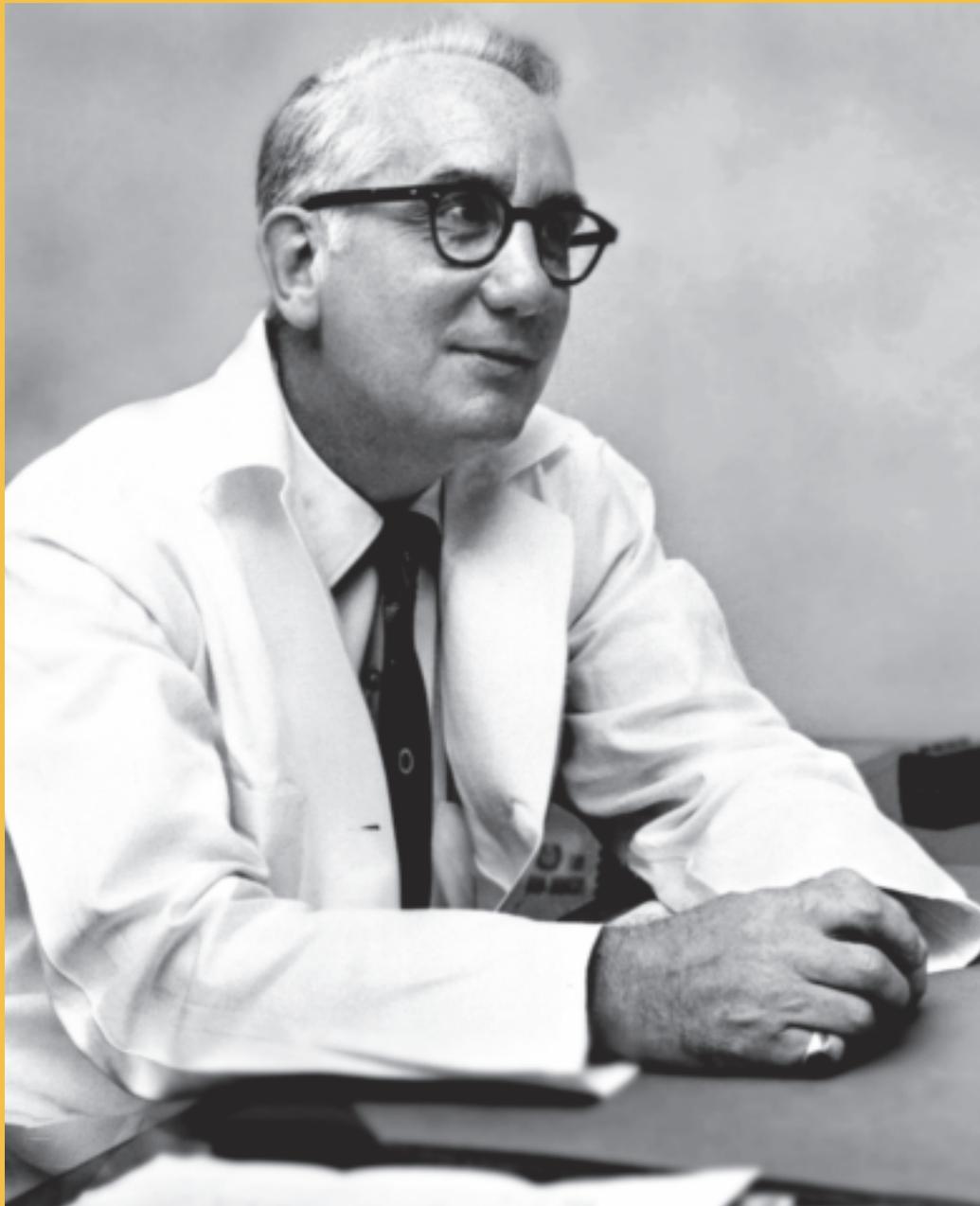
Several accomplishments include:

- Pioneering the MRI-guided laser ablation surgery to treat epilepsy by destroying brain lesions that cause uncontrollable seizures. Up to 90 percent of patients achieve seizure-free status at their six-month follow-up.
- Implementing a 100 percent human milk feeding protocol for babies in the neonatal intensive care unit, which has significantly reduced the rate of necrotizing enterocolitis by 77 percent.
- Creating one of the largest and most comprehensive pediatric ventricular assist device programs in the world, including leading a multi-year, multi-institution study to investigate the benefits of the Berlin Heart, the only pediatric mechanical circulatory device designed specifically for infants and children. Texas Children's also implanted the first pediatric total artificial heart into a patient awaiting transplant.
- Performing 95 solid organ transplants in 2014, making Texas Children's one of the largest pediatric solid organ transplant programs in the country. Transplanting 32 hearts, the heart transplant program was the largest in the country in 2014, the 30th anniversary of the first pediatric heart transplant at Texas Children's. With 16 transplants performed, Texas Children's Lung Program continues to be the only pediatric program that completes more than 10 lung transplants a year.

- Successfully treating fetuses with life-threatening congenital anomalies, including those with large lung masses and fetal teratomas. The survival rate for fetuses undergoing EXIT-to-resection in the treatment of large fetal lung masses is 100 percent.

Today, Texas Children's has grown beyond the wildest dreams of its founders. From the contributions of extraordinary leaders like the late Dr. Ralph D. Feigin to the visionary leadership of Texas Children's President and CEO Mark A. Wallace and the current six in-chiefs, Texas Children's has garnered acclaim as the largest children's hospital in the world and one of the top four pediatric hospitals in the nation.

# EDUCATION



Dr. Russell J. Blattner was Texas Children's first physician-in-chief. He established Texas Children's teaching and research affiliation with Baylor College of Medicine.

## THEN

### education

Sixty years ago, Texas Children's Hospital and Baylor College of Medicine established a teaching partnership with one common goal: to cultivate and recruit the next generation of world-class physicians and clinicians.

The influential pioneer who planted the seeds and nourished the growth of this academic affiliation was Dr. Russell J. Blattner, Texas Children's first physician-in-chief and the first chairman of the Department of Pediatrics at Baylor, where he spearheaded the development of the pediatric residency program.

Blattner believed that a new children's hospital should focus on teaching and research, as well as treating sick children. His vision for Texas Children's included an affiliation with Baylor as a pediatric center for teaching and research.

On February 1, 1954, Blattner's aspirations were fulfilled when it was decided that the chairman of the Department of Pediatrics at Baylor would also serve as the physician-in-chief at Texas Children's. This historic agreement made Texas Children's the only hospital in the Texas Medical Center that had a true medical school affiliation.

Building on Blattner's success, Dr. Ralph D. Feigin became Texas Children's second physician-in-chief in 1977. His goals were to develop and sustain an outstanding medical faculty and to expand their knowledge to ensure quality care and medical advances were passed on to future generations.

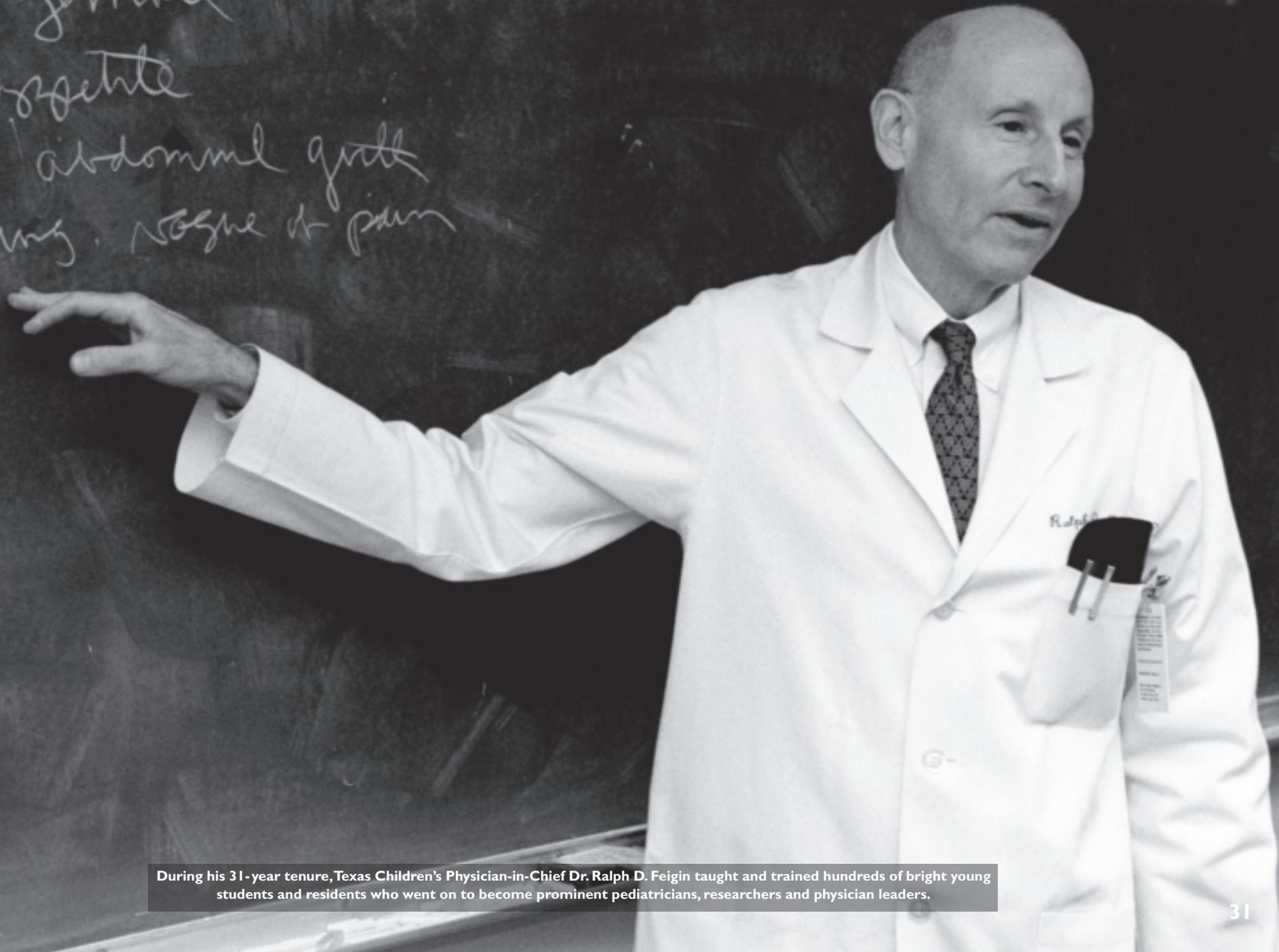
"Recruiting physicians who are the best of the best, investing in incentives and first-class training to attract new blood into pediatric medicine, and promoting research, are the crucial ingredients for a healthy tomorrow," Feigin once said.

During his 31-year tenure at Texas Children's, Feigin taught and trained hundreds of bright young students and residents who went on to become prominent pediatricians, subspecialists and researchers, even medical school deans, pediatric department chairs and section heads.

Texas Children's and Baylor expanded dramatically under Feigin's visionary leadership and grew in national and international stature, becoming one of the most prestigious teaching centers in the country.

After Feigin's death in 2008, Dr. Mark W. Kline was appointed as Texas Children's third physician-in-chief and chair of the Department of Pediatrics at Baylor. Like his predecessors, Kline continues Texas Children's legacy of cultivating the world's best and brightest medical minds.

most female  
↓ osseous  
↑ abdominal gut  
swelling, vague pain



During his 31-year tenure, Texas Children's Physician-in-Chief Dr. Ralph D. Feigin taught and trained hundreds of bright young students and residents who went on to become prominent pediatricians, researchers and physician leaders.



Texas Children's medical staff in 1956.



A group of enthusiastic young physicians discover their residency assignments during Match Day in 2014.



Residents attend a daily lunch lecture series to prepare for their promising future in pediatric medicine.

## NOW

### education

Today, with more than 1,000 faculty members in the Department of Pediatrics, Texas Children's Physician-in-Chief Dr. Mark W. Kline leads one of the largest and most prestigious pediatric residency programs in the United States, and likely the world.

In the past seven years under Kline's leadership, the Department of Pediatrics has more than doubled its number of faculty, from 500 to 1,106. Having the largest faculty with expertise in every recognized pediatric subspecialty gives Kline and other leaders the opportunity to recruit the best and brightest staff.

"Fantastic students are attracted by great teachers, and there is nothing more important that we do here than prepare our students and residents for their future in the medical profession, no matter where in the world that takes them," Kline said. "This is the legacy of Texas Children's and Baylor."

As Baylor's principal pediatric teaching site since 1954, Texas Children's invests nearly \$23 million annually in its teaching mission. The nation's top medical students, residents and fellows receive training here that is unparalleled in the country.

Since physicians in the United States and around the world refer many of their most medically challenging patients to Texas Children's, residents and fellows receive unique training opportunities that they would not likely experience in years of training at most other institutions.

The depth and breadth of Texas Children's residency and fellowship programs allows physicians to gain hands-on experience in a unique and varied spectrum of pediatric subspecialties, including pediatric critical care medicine, pediatric neurosurgery, medical genetics, perinatal surgery and global health.

Nine years ago, Kline created the first-ever pediatric global health residency

program in conjunction with Baylor International Pediatrics AIDS Initiative (BIPAI) at Texas Children's, an ambitious global health care program Kline oversees. Each year, five physician trainees spend a year of their residency providing care to sick children with HIV/AIDS and other illnesses in one of BIPAI's clinics across Africa or East Asia, where health care resources are severely limited.

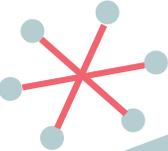
Texas Children's also offers the Perinatal Surgery Fellowship Program that combines fetal and pediatric surgery. "Fetal surgery has always been a unique subspecialty," said Texas Children's Ob/Gyn-in-Chief Dr. Michael A. Belfort. "This program allows physicians to cross-train in both maternal fetal medicine and pediatric surgery, resulting in well-rounded physicians who are skilled in both complementary specialties."

Texas Children's also provides the Pediatric Surgery Fellowship Program exclusively for physician assistants, and it's the first program of its kind in the country. The one-year program trains

fellows to become leaders in all areas of pediatric surgery, including cardiovascular surgery, neurosurgery, orthopedics, urology, otolaryngology, dental, plastic, craniofacial surgery and trauma services.

Continuing education is paramount to professional development for Texas Children's nurses. In addition to numerous resource tools to support clinical and nonclinical education for nurses at all levels, the Nurse Residency Program provides a collaborative work environment for registered nurses as they transition from academia to their expanded roles within the organization. In 2014, Texas Children's Department of Nursing welcomed its largest group of nurse residents – 52 new graduates.

Additionally, Texas Children's and Baylor offer outstanding training programs for residents and fellows in obstetrics and gynecology. Since 1957, more than 500 residents have graduated, pursuing a number of career paths, including subspecialty fellowship training, private practice and academic medicine.



**research**



Dr. Donald J. Fernbach (center) and his cancer research team in the early 1960s.

## THEN

### research

Since its flourishing partnership began in 1954, researchers at Texas Children's Hospital and Baylor College of Medicine have unlocked groundbreaking discoveries in the treatment of childhood diseases. For the early physician innovators, there was no such thing as boundaries, only endless possibilities.

Beginning in the 1950s, Dr. Russell J. Blattner guided hospital researchers to new discoveries in the study of polio and encephalitis. As the hospital's first physician-in-chief, Blattner garnered substantial grant funding to support Texas Children's burgeoning research programs.

One such grant came from the National Institutes of Health in 1964 to support the construction of the Clinical Research Center at Texas Children's Hospital, the first clinic in the United States to investigate pediatric infectious diseases. This significant milestone in Texas Children's and Baylor's history paved the way for the development of other prestigious research centers that would transform Texas Children's into a nationally recognized and global leader in pediatric research.

With the development of the oncology-hematology research lab at Texas Children's in 1958, advances in cancer treatments began to emerge. A National Cancer Institute grant – which continued uninterrupted from 1958 to 2004 – helped Dr. Donald J. Fernbach discover the value of cyclophosphamide, which became one of the most effective and widely used chemotherapy agents to treat leukemia and improve survival rates in children.

In 1979, Texas Children's Physician-in-Chief Dr. Ralph D. Feigin obtained \$1.5 million per year in funding from the United States Department of Agriculture (USDA) to support the Children's Nutrition Research Center (CNRC). The CNRC, operated by Baylor in cooperation with Texas Children's and the USDA, was established in 1978 as the only federal center dedicated to the study of children's nutrition in the United States.

In the 1980s, Texas Children's research funding grew exponentially from less than \$5 million to nearly \$15 million, which helped fund the growth of world-class pediatric research institutions, including the David Center to advance the diagnosis and treatment of immunodeficiency disorders, and the Gordon and Mary Cain Pediatric Neurology Research Foundation, which led to significant advances in the treatment of epilepsy and other childhood neurological disorders.

A landmark discovery in neurological research emerged in 1999, when Dr. Huda Zoghbi identified the defective gene, MECP2, that causes Rett Syndrome, a genetic neurological disease that usually affects young girls. Her pioneering efforts and the contributions of other bold researchers, helped propel Texas Children's to the forefront of investigations in neurological disorders in children.



Carol Ann Demaret holds her son, 6-year-old Texas Children's patient, David Vetter, prior to his first walk in a spacesuit in 1977. Vetter had Severe Combined Immunodeficiency, which required him to live in a plastic bubble to protect him from harmful bacteria.



Dr. Milton Finegold in the pathology lab in the 1980s.



Since 2010, scientists have advanced epilepsy research in the Cain Foundation Laboratories at the Jan and Dan Duncan Neurological Research Institute.



The Feigin Center, a central hub for pediatric research, expanded to 20 floors in 2009.



The Jan and Dan Duncan Neurological Research Institute, completed in 2010, is one of the world's first basic research institutes dedicated to childhood neurological diseases.

## NOW

### research

Today, Texas Children's is an internationally recognized leader in pediatric research, and continues to be a leading recipient of pediatric grant funding through the National Institutes of Health (NIH).

In 2014, Texas Children's researchers received nearly \$25 million in direct funding from the NIH and close to \$32 million from other federal sources to support groundbreaking pediatric research.

With funding of more than \$165 million annually, researchers conduct more than 1,000 clinical, basic science and translational research projects to identify groundbreaking treatments and cures for childhood diseases, aiming to put more diseases on the curable or preventable list.

The Feigin Center is Texas Children's central hub for pediatric research. With more than 600,000 square feet of space, Feigin researchers – representing nearly every pediatric field – have made landmark discoveries and fundamental

contributions to the treatment of childhood cancer and blood disorders, cardiogenic disorders, diabetes, immunodeficiency disorders, asthma, and HIV/AIDS, all of which have saved countless children's lives. Scientists also have learned how to genetically manipulate tumor cells to develop effective cancer vaccines.

While the Children's Nutrition Research Center conducts scientific investigations to help define guidelines for maternal, infant and childhood nutrition, Texas Children's Clinical Research Center continues to break new ground on the development of innovative therapies to treat pediatric infectious diseases. For example, scientists have made significant improvements in HIV care with emphasis on prevention of mother-to-infant HIV transmission, developed novel cell and gene therapy treatments for adult and pediatric cancers, and conducted the largest study of its kind to examine the impact of cytomegalovirus from infancy to adulthood.

Since its opening in December 2010, researchers at the Jan and Dan Duncan Neurological Research Institute (NRI) at Texas Children's have accelerated the pace of discoveries and the development of potential therapeutic targets to treat numerous neurological disorders from autism and bipolar disorder to epilepsy and Rett syndrome. Under the visionary leadership of Dr. Huda Zoghbi, the NRI is the world's first basic research institute to use a multidisciplinary research approach to understand and treat childhood neurological disorders.

The NRI includes more than 400,000 square feet of advanced research and office space. A \$15 million grant from the NIH funded the build out of a new laboratory floor, a customized nuclear magnetic resonance imaging suite and additional vivarium space, which were completed in early 2014.

Recent NRI research accomplishments include:

- Combining the power of fly genetics

and genomics, scientists have rapidly identified more than 165 molecular mutations responsible for rare neurological disorders, including Mendelian disorders, Leigh syndrome and inherited ataxias.

- Interrogating the role of the Atoh1 gene in a few cells in the brain stem, a key factor in Sudden Infant Death Syndrome. Scientists discovered mice lacking the Atoh1 gene in these cells were unable to breathe normally and subsequently died as newborns.
- Finding duplications of the SHANK3 gene in humans and in mice, which causes hyperactivity with seizures and bipolar disorder. This landmark discovery is paving the way for the development of innovative treatment options and therapies.

In 2014, NRI investigators published more than 90 papers and review articles in premier scientific journals, such as *Cell*, *eLife*, *Nature*, *Neuron*, *Science* and *Human Molecular Genetics*.



*In Brief*

2014

## FAMILY FERTILITY CENTER

helps families overcome complex fertility issues

On September 16, 2014, Texas Children's Pavilion for Women opened its new state-of-the-art in vitro fertilization (IVF) lab, featuring the latest technology and techniques in reproductive endocrinology to help couples achieve their dreams of starting a family.

The Family Fertility Center is the first in Houston to offer the Embryoscope, an embryo monitoring system that provides continuous, moving time-lapse images of embryos as they grow. This technology allows Texas Children's leading experts to identify the healthiest embryo to transfer to the patient, which has been shown to improve IVF success.

Other advanced equipment in the fertility lab includes specialized miniature incubators and a state-of-the-art alert system that provides real-time monitoring of embryo pH and temperature.

"To establish one of the top fertility centers in the nation, we used the expertise of world-renowned consultants and assembled a nationally prominent team to assist in the design and implementation of our lab," said Dr. William Gibbons, medical director of the Family Fertility Center and chief of Reproductive Medicine at Texas Children's Pavilion for Women. "Our vision is to offer our patients the most advanced fertility treatments available to improve pregnancy success rates and provide hope to patients with complex fertility issues."

A key component of Texas Children's Family Fertility Center is the fertility preservation program for women facing cancer. In collaboration with the University of Texas MD Anderson Cancer Center, one of the largest cancer centers in the world, Texas Children's Pavilion for Women provides patients with cancer the option of preserving their fertility before they undergo chemotherapy and/or radiation treatments.

## HUMAN MILK FAT

improves growth in premature infants

For premature infants, adequate growth while in the neonatal intensive care unit (NICU) is an indicator of better long-term health and developmental outcomes.

A Baylor College of Medicine study led by Texas Children's neonatologist Dr. Amy Hair, and published in the August 2014 issue of *The Journal of Pediatrics*, found that adding a human milk-based cream supplement in the diets of premature infants improved their growth outcomes in the NICU.

Hair's study examined 78 NICU infants weighing less than three pounds at Texas Children's Newborn Center and the University Health System at San Antonio. Half of the infants received an exclusive human milk diet of their mother's own milk or pasteurized donor breast milk and a protein fortifier. The other half received the exclusive human milk diet plus a cream supplement derived from pasteurized human milk fat.

Researchers found that premature infants who received the cream supplement had better growth outcomes in terms of weight and length than infants who received just the exclusive human milk diet.

"Premature babies can tolerate only a certain amount of feedings since their stomach and intestines are extremely sensitive," Hair said. "The cream supplement is a natural way to give them fat and boost their caloric intake without changing the volume of milk."

Texas Children's is the first hospital in the world to add human milk-based cream to the diets of infants weighing less than 3.3 pounds. Since implementing the exclusive human milk diet in 2009, the NICU has reduced the rates of necrotizing enterocolitis from the national average of 10-12 percent to 2 percent.

## NEW DAVID CLINIC

provides greater access to patient care for immune deficiencies

On June 4, 2014, David Elementary School in The Woodlands, Texas, presented Texas Children's with a donation of more than \$38,000 raised by students and families that will be used to construct the David Clinic at Texas Children's new community hospital in The Woodlands, which is slated to open in 2017.

The clinic will serve as an extension of the David Center at Texas Children's Main Campus. The center provides care and research for primary immune deficiencies, which are inborn diseases of the immune system that make children susceptible to auto immunity and infectious diseases.

"With the growth in and around Houston, it makes sense to put an extension of the David Center in David's own community and in our new hospital in The Woodlands to increase awareness and provide greater access to patient care and treatment," said Dr. Jordan Orange, chief of Immunology, Allergy and

Rheumatology at Texas Children's. The David Clinic and David Center are named in honor of David Vetter, the Texas Children's Hospital patient from the 1970s who suffered from Severe Combined Immunodeficiency, which required him to live in a plastic bubble to protect him from germs and bacteria.

"This rare illness that David succumbed to affects about one in 50,000 babies," Orange said. "Due to remarkable advances in immunology and treatment, this immune deficiency is almost 100 percent curable if identified within the first three months of life."

## WEST CAMPUS

recognized as a top children's hospital

For the second consecutive year, Texas Children's Hospital West Campus has been recognized as a Top Children's Hospital by the Leapfrog Group, an organization that provides the only national, public comparison of hospitals across safety, quality and efficiency dimensions.

On Dec. 2, 2014, Texas Children's Hospital West Campus was honored among an elite group of only nine children's hospitals selected out of more than 1,400 rural, urban and children's hospitals surveyed and is the only children's hospital in Houston to be recognized for this prestigious distinction.

"We are honored to again be recognized as a top performing children's hospital," said Michelle Riley-Brown, then-president of Texas Children's Hospital West Campus. "Our physicians, nurses and employees continuously strive to provide high quality care for our patients and families while keeping their safety our top priority."

In late 2014, Chanda Cashen Chacón became the new president of Texas Children's Hospital West Campus. Riley-Brown assumed a new position as president of Texas Children's Hospital The Woodlands.

## HEART TRANSPLANT PROGRAM

celebrates 30th anniversary

Texas Children's Heart Transplant Program celebrated its 30th Anniversary in 2014, with more than 300 transplants performed since 1984, making the program one of the most active and largest in the nation. The first transplant was performed by Dr. Denton A. Cooley and Dr. O.H. (Bud) Frazier.

"Our team's exceptional work over the past 30 years can be seen in the hundreds of success stories from our patient families," said Dr. Jeff Dreyer, medical director of Heart Failure, Cardiomyopathy and Cardiac Transplantation at Texas Children's and professor of pediatrics-cardiology at Baylor College of Medicine. "Our experience in treating patients with heart failure is leading the way in positive outcomes."

Texas Children's multidisciplinary team has transplanted hearts in children from newborns to young adults from across the United States. Due to their unique expertise, Texas

Children's Heart Transplant Program physicians have treated some of the rarest and most complex cases.

"Texas Children's has advanced all aspects of pediatric cardiovascular surgery, and our Heart Transplant Program is a shining example of this," said Dr. Jeffrey Heinle, surgical director of the Heart and Lung Transplant Program at Texas Children's and associate professor of surgery and pediatrics at Baylor.

For more than 30 years, Texas Children's has consistently led innovations in this field, bringing hope to children and adolescents in need of a heart transplant.

In 2014, Texas Children's Heart Center was ranked no. 2 in the nation in cardiology and heart surgery by *U.S. News & World Report*.

## FIRST-OF-ITS-KIND CENTER

dedicated to Ewing Sarcoma research

On February 13, 2014, Texas Children's Cancer Center unveiled the Faris D. Virani Ewing Sarcoma Center dedicated to the research of Ewing sarcoma, a rare form of bone cancer in children.

The center was established with a generous \$2 million gift from the Virani family that will support the development of better diagnostic and therapeutic approaches for treating this disease, with the ultimate goal of finding a cure.

Led by Dr. Jason Yustein, director of the Faris D. Virani Ewing Sarcoma Center and assistant professor of pediatrics at Baylor College of Medicine, the research team will perform pre-clinical and clinical research for children with Ewing sarcoma. The new center honors Asha and Farid Virani's son Faris' battle with Ewing sarcoma.

"Unfortunately, a significant number of patients with Ewing sarcoma

experience metastasis, or disease that has spread to multiple sites in their body," Yustein said. "There has been a lack of new chemotherapeutic agents introduced for patients with this disease, and current treatments are extremely intensive and often have both short- and long-term side effects that can negatively impact lifestyle and quality of life for Ewing sarcoma patients."

Ewing sarcoma is the second most common bone tumor in childhood. It often originates in large bones, such as the hip, shin, chest and arm bones. Because of the lack of understanding of the biology of Ewing sarcoma, only marginal advancements have been made in the care and management of patients with this disease.

The Faris D. Virani Ewing Sarcoma Center will focus its research efforts on advancing treatment options to improve outcomes in these patients.

## NEW COMMUNITY HOSPITAL

### *breaks ground in The Woodlands*

Texas Children's broke ground on January 31, 2014, on a new pediatric community hospital in The Woodlands. The 548,000-square-foot, state-of-the-art facility is slated to open in 2017 and will offer inpatient and outpatient specialty pediatric care.

"We stand at the forefront of an exciting new time in pediatric health care as we continue to grow, save more lives and create better futures for children everywhere," said Texas Children's President and CEO Mark A. Wallace. "Our next 60 years start today at the groundbreaking ceremony for our new community hospital right here in The Woodlands."

Designed especially to serve children and families, Texas Children's Hospital The Woodlands will offer specialty pediatric care in cancer, cardiology, neurology, orthopedics, diabetes and endocrinology, urology, sports medicine, gastroenterology and nutrition, plastic surgery, otolaryngology, allergy and

immunology, dermatology, adolescent medicine and physical rehabilitation.

The new hospital will include 24 emergency center rooms, 74 outpatient rooms, five radiology rooms, four operating rooms and 30 acute care beds at opening, with plans to grow to as many as 200 beds.

Along with serving families in The Woodlands area, Texas Children's anticipates the reach of The Woodlands campus to extend to families in counties throughout Greater North Houston, including Montgomery, Walker, Grimes, Liberty, Harris, Polk, San Jacinto and Hardin.

## URGENT CARE CENTERS

### *respond to need for specialized after-hours care*

The opening of two Texas Children's Urgent Care clinics in 2014 ensures patients receive convenient, after-hours care from a team of highly trained pediatric physicians and nurses.

"Many after-hours retail clinics in Houston are staffed by nonpediatric trained mid-level providers and nonpediatric trained physicians," said Dr. Stanley Spinner, chief medical officer of Texas Children's Pediatrics. "Since these clinics are primarily adult-focused, the delivery of care to our pediatric patients is less than optimal. We've seen patients return to our office following a visit to one of these clinics."

To meet the community's growing need for expert pediatric urgent care, Texas Children's Urgent Care opened its first clinic in Cinco Ranch in May 2014, where more than 600 patients were treated during the first month, exceeding expectations. Due to its success there, a second Texas Children's Urgent Care clinic opened

in the Memorial area in July 2014.

Texas Children's Urgent Care is open to all pediatric patients, not just patients of Texas Children's Pediatrics. The clinics deliver immediate, after-hours care for minor injuries and illnesses when most pediatricians' offices are closed and when symptoms aren't serious enough to warrant an emergency room visit.

Pediatricians treat a wide variety of minor health ailments including the flu, strep throat, asthma, fever, minor burns, ear infections, allergic reactions, sprains and more.

Patients who need fracture care and splinting, IV fluids, lab services, lacerations repair and X-rays may also receive after-hours care at Texas Children's Urgent Care.

A third Texas Children's Urgent Care clinic will open in The Woodlands in late 2015. Plans are underway to open several more pediatric urgent care facilities in the future.



The  
Stories  
2014





Amanda Spears and her son, Christian Zachary.

## AMANDA SPEARS

### credits simulation training for saving son's life

On January 13, 2014, Christian Zachary celebrated a milestone – he came home. Born eight weeks premature, Christian spent 251 days in Texas Children's Newborn Center – ranked no. 2 in neonatology by *U.S. News & World Report* in 2014.

"I was overjoyed that my son was coming home but nervous at the same time," Amanda Spears said.

Since Christian relied on a tracheostomy tube and ventilator to breathe, Spears needed to know exactly what to do if her son's tracheostomy tube accidentally dislodged at home causing him to stop breathing – a scenario that happened two weeks after going home.

Spears credits the simulation tracheostomy training program at Texas Children's Simulation Center with helping her save Christian's life.

"I immediately started chest compressions and providing manual breaths via an Ambu bag connected to his tracheostomy tube," Spears said. "Around the third

cycle of this, my son started breathing again before paramedics arrived."

While parents receive standard training on how to care for their baby's tracheostomy and ventilator before leaving the neonatal intensive care unit (NICU), the simulation course takes that training to a whole new level with a focus on emergencies.

"Parents learn to respond to emergency scenarios in a home-like environment," said Dr. Jennifer Arnold, a Texas Children's neonatologist and the medical director of the Simulation Center. "They learn the skills to confidently administer life-saving care if their baby experiences an airway emergency at home."

Using a high-tech, dual airway infant mannequin fitted with a tracheostomy tube, parents practice four airway emergencies: a tracheostomy tube obstruction, accidental dislodgement of the tracheostomy, power failure with cardiac arrest and an equipment malfunction, such as water dumping

from the humidified ventilator circuit into the tracheostomy tube.

"The high-tech mannequins are very realistic," said Texas Children's NICU nurse and tracheostomy care educator Heidi Simpson. "Just like real babies, they breathe, cry, have a pulse and turn blue when oxygen levels are low, enabling parents to immerse themselves into the simulation so that it feels real to them."

As parents work through an emergency scenario using the skills they learned in the classroom, Simulation Center educators watch from a separate, glass-partitioned room and video the mock drill to review later during a debriefing.

"Every time a parent makes a mistake in simulation, I am happy about it because it provides an opportunity to learn," Arnold said. "That is a mistake they are unlikely to repeat at home."

Texas Children's Hospital discharges up to 50 patients a year on ventilators,

and Arnold hopes the hands-on training for airway emergencies will reduce mortality and readmission rates.

Nationally, tracheostomy-related airway emergencies account for 3 percent of deaths during the first year of life in this high-risk patient population.

The tracheostomy simulation program began as a research project spearheaded by Texas Children's then-neonatal fellow Dr. Shilpa Hundalani. Due to its success, simulated tracheostomy training is now offered to all Newborn Center parents whose babies are going home with ventilators. The program is soon to be expanded to the pediatric critical care population.

"As we gather more resources and funding, we want to expand this program to other parts of the hospital and get more families involved," Arnold said. "We plan to conduct a large, multicenter study to demonstrate how this training is improving patient outcomes and saving countless lives."



Texas Children's simulation tracheostomy training program teaches parents the lifesaving skills to administer care if their baby experiences an airway emergency at home.



Parents work through several emergency scenarios using a high-tech, dual airway infant mannequin fitted with a tracheostomy tube.

## JULIANA GRAVES

### receives heart transplant at only 17 days old

To say Riki Graves' pregnancy was full of ups and downs would be a vast understatement. On her 38th birthday, just a few weeks after finding out that she and her husband, Chris, were expecting their second child, Graves was diagnosed with breast cancer.

After consulting with doctors at MD Anderson Cancer Center, Graves made the deeply personal decision to forego cancer treatments until after her baby was born.

"I wanted to provide my daughter with the strongest pregnancy and healthiest beginning to life possible," Graves said.

Soon after that, during her 20-week ultrasound, the Graves family was dealt a second blow. They found out that their unborn baby, a little girl whom they would name Juliana, had a serious heart condition.

Juliana was diagnosed with an unbalanced atrioventricular septal defect with severe biventricular dysfunction, a small aortic arch and severe atrioventricular valve regurgitation.

Although the terminology meant little to her, she understood Juliana would likely need several heart surgeries, and even then she might not survive.

"Hearing those words sent a panic through me that, even now, is hard to describe," Graves said.

After being referred to Texas Children's Fetal Center, Dr. Nancy Ayres, director of non-invasive imaging and fetal cardiology, was among the multidisciplinary team members who cared for Graves during her pregnancy.

On April 9, 2014, Juliana was born weighing 6 pounds, 14 ounces. Dr. Charles D. Fraser, Jr., Texas Children's surgeon-in-chief and chief of Congenital Heart Surgery, determined that Juliana's heart was too structurally abnormal and not strong enough for surgery. Juliana was placed on the transplant list on April 21. On April 26, at 17 days old, she received a new heart.

"It is rare to find an organ for her size and age," said Diana Orosco, a nurse coordinator assigned to Graves. "Historically, our center has not performed transplants on babies this young."

Dr. Jeffrey Heinle, surgical director of Texas Children's Heart and Lung Transplant Program, led the successful transplant surgery on Texas Children's youngest heart transplant patient to date.

"We feel so fortunate that Juliana was cared for by Texas Children's Hospital," Graves said. "From my maternal-fetal physician Dr. Mildred Ramirez, who was beyond supportive, to our fetal cardiology nurse coordinator Christie Moran, who helped us get settled in Houston, and all the doctors, fellows and nurses who helped us get through, we can't thank them enough."

Since her heart transplant, Juliana is doing fantastic. She recently celebrated her first birthday and is developing typically. She is learning how to walk and is not far behind peers her age.

After Juliana was born, Graves received radiation treatment for her breast cancer at MD Anderson and has been in remission since July 2014.



Riki Graves with her daughter, Juliana.







An energetic Bryce Singleton nine months after his liver transplant.

## BRYCE SINGLETON

### becomes first patient to receive MARS therapy as bridge to liver transplant

Except for a slight yellowing of the eyes, 9-year-old Bryce Singleton seemed perfectly fine. He was not experiencing discomfort, and he was eating, drinking and conversing normally. His mother, Bridgette Jackson, was told by an emergency room physician at a community hospital that it was probably a virus causing the jaundice. Call it a hunch or a mother's undeniable intuition, Jackson boldly requested a blood workup for her son.

"An hour later, our whole life changed," Jackson said.

Bryce's lab results showed severely elevated liver enzymes. Jackson requested a transfer to Texas Children's Hospital, where Bryce was immediately admitted. Her son's condition deteriorated over the next several days, leading to severe acute liver failure, a historic and lifesaving treatment, and eventually a new kidney.

With Bryce's liver failing, blood toxins increased, organs failed and he fell into a hepatic coma.

"He became diabetic, had to have a Foley catheter, a feeding tube, IVs in both arms, and he developed a bleed in his brain, pancreatitis and encephalopathy," Jackson tearfully recalled. "I was scared to death, but I knew I wasn't going to bury my son. He was going to walk out of the hospital, and I knew God was going to take care of him."

A liver transplant was the only life-saving option for Bryce. To help him become healthy enough for a liver transplant, a multidisciplinary team of doctors and specialists created a treatment regimen that included an extracorporeal liver support therapy called Molecular Adsorbent Recirculating System or MARS®. Bryce was the first patient at Texas Children's Hospital and in Texas to receive this groundbreaking treatment.

Similar to kidney dialysis, MARS® removes protein-bound and water soluble toxins from the blood. MARS® therapy is critical in treating patients who develop hepatic encephalopathy due to the buildup of toxins in plasma that cannot be removed by conventional dialysis machines. If instituted early, this intervention can help preserve multi-organ function and help bridge the patient to transplant.

On April 23, 2014, a medical team led by Texas Children's Director of Liver Transplantation Dr. John Goss, performed Bryce's liver transplant. He was healthy enough to be discharged 19 days later on May 12.

Now 10 years old, Bryce has resumed a normal life. Current maintenance protocols dictate daily immunosuppressant medications for the rest of his life. But there is a possibility that Bryce's medicinal regimen may change. According to his physician, Texas Children's transplant hepatologist Dr. Beth Carter, there are active trials to determine a subset of patients who are able to come off of immunosuppressant medications.

"I'm extremely happy and satisfied with the level of care Bryce received," Jackson said. "I'm confident that if anything happens again, Texas Children's will go above and beyond and give Bryce the care and treatment he needs."





## TAYLOR HONEA

### thriving after extensive pelvic surgeries to remove basketball-sized tumor

Taylor Honea was always an active child, but when pains in her right shin began to slow her down, her parents, Lori and Brody Honea, knew something wasn't right. After multiple doctors dismissed Taylor's complaints as nothing more than growing pains, her parents became increasingly anxious seeing their then-7-year-old daughter in so much pain. It wasn't until they got a full body MRI that they began to get some answers.

The MRI indicated that Taylor's tiny pelvis was engulfed by a basketball-sized tumor. Part of the tumor was resting on her sciatic nerve, which was why she was having pain in her shin. Taylor's hometown doctor in Waco referred Taylor and her family to Texas Children's Hospital, where they learned Taylor had a malignant peripheral nerve sheath tumor, a rare form of cancer that typically does not respond to chemotherapy and affects the connective tissue surrounding the nerves.

"You don't see this type of cancer much in general, and it is rare in children," said Dr. Surya Rednam, the oncologist at Texas Children's Hospital who treated Taylor. "It's a very aggressive form of cancer, and Taylor's case was especially complicated seeing that the tumor was in her pelvis."

Regardless of the complexity of Taylor's case, a team of multidisciplinary experts, including general surgeons, neurosurgeons, plastic surgeons, urologists, radiation oncologists and Rednam, came together and devised a treatment plan that would be carried out during three months and three surgeries, totaling 70 operating room hours.

Taylor's first surgery began on February 24, 2014, and her last surgery was completed on March 13.

During those surgeries, the team removed the five-pound tumor that filled Taylor's pelvis and any cancerous cells left behind. Because of the severity of her cancer, the team also removed Taylor's sciatic nerve, tailbone and the right side of her sacrum, a triangular bone that connects the spine to the pelvis. Screws and rods were inserted to reconnect her spine to her hip bones.

"Taylor's surgery was so complex that one specialist could not have possibly cared for every aspect of her procedure," said Dr. Andrew Jea, a pediatric neurosurgeon and director of the Neurosurgery Spine Program at Texas Children's. "This probably could not have been accomplished at any other children's hospital, other than Texas Children's Hospital, because of our breadth and depth of experience, and our spirit of innovation."

Rednam agreed and said, "It was very impressive how much of the tumor the surgeons were able to remove."

As a result, Taylor is doing very well. She is cancer free. She is pain free, and she is walking independently. Although she still sees her doctors at Texas Children's Hospital regularly, there are no other surgeries planned for the now 8-year-old other than a minor procedure to reverse her colostomy.

"She's doing great," Taylor's mother, Lori Honea, said. "She is back to being a kid."

That normalcy, Honea said, is due to Taylor's tenacity and the unwavering dedication and expertise provided by her team of specialists at Texas Children's Hospital.

"I'm still amazed by everyone there," Honea said of her daughter's care team. "I don't believe Taylor would be doing as well as she is had we not gone to Texas Children's."



Taylor endured three major surgeries to remove a five-pound tumor from her pelvis.







Grayson Canezaro at 6 months old.

## GRAYSON CANEZARO

### receives first-ever two-port fetoscopic procedure to repair spina bifida

When Althea Canezaro found out she was pregnant, she was thrilled to give her son, Blaine, a sibling. But, her 21-week ultrasound revealed something she didn't expect – spina bifida. In 2014, she and her son, Grayson, are believed to be the first in the United States to undergo a minimally invasive two-port, fetoscopic procedure to repair spina bifida in utero, thanks to Texas Children's Fetal Center.

Myelomeningocele, a form of spina bifida, is the most common permanently disabling birth defect with no known cure. The defect occurs when part of the spine fails to close properly in utero and fuses with the skin.

"My physicians in Baton Rouge immediately referred me to Texas Children's Fetal Center," Canezaro said.

The Canezaro family made the 275-mile trek from their home in Baton Rouge, Louisiana, to Houston to meet Texas Children's Ob/Gyn-in-Chief Dr. Michael A. Belfort and his team, who explained the delicate surgery and how it would

change the course of their son's life.

"Each doctor took the time to answer all of my questions, which put my nerves at ease," Canezaro said. "Even though this was the first experimental procedure, I had no fear in me."

Texas Children's team of fetal surgeons proposed a new, experimental approach that builds upon the success of the open fetal surgery technique to treat spina bifida, but with a focus on reducing risks to the mother.

While open fetal surgery improves motor function in spina bifida patients treated in utero – as proven in a landmark trial known as the Management of Myelomeningocele Study – the procedure requires a six-centimeter opening in the uterus, increasing the risk of uterine rupture and other pregnancy complications.

To counter these risks, Belfort and Texas Children's pediatric neurosurgeon Dr. William Whitehead collaborated with physicians from Vall D'Hebron

Hospital in Barcelona, Spain, to develop a fetoscopic method that involves two four-millimeter uterine incisions.

"By navigating two small ports with the aid of a fetoscope, our goal is to minimize complications to the mother's uterus," Whitehead said. "The potential risks that occur after open fetal surgery – like preterm delivery, the need for cesarean section for every delivery, and placenta accreta – make the fetoscopic approach more attractive."

Years of preparation and training went into developing this surgical innovation. It began with Drs. Belfort and Whitehead practicing the technique on sheep before creating their own unique, experimental prototype. The pair built a low-cost simulator using a polyurethane ball that replicated the mother's uterus. Inside the ball, a doll covered in chicken-skin acted as the fetus and a simulated defect was created and repaired. They performed more than 30 simulated procedures. After receiving Institutional Review Board approval for this experimental procedure,

Texas Children's fetal experts performed the in utero spina bifida fetoscopic closure on their first patient on July 29, 2014. At 23 weeks' gestation, surgeons successfully closed the opening in Grayson's spine.

Seven weeks later, Grayson was delivered by emergency cesarean section on September 21, 2014. He spent six weeks in the NICU. Today, Grayson is doing remarkably well.

"He has not developed hydrocephalus and has full movement of his legs," Canezaro said. "We are grateful to Dr. Belfort and his team for helping our son achieve this milestone."

While the fetoscopic procedure is in the early stages of experimentation and refinement, Belfort said, "I'm excited to see what the future holds when it comes to repairing anomalies fetoscopically. Our hope is that this innovation will lead us to a new era of fetal medicine and surgery."



Fetal surgeons perform the first minimally invasive two-port fetoscopic repair to treat spina bifida in the womb.



## GLOBAL HEALTH PROGRAMS

### *extend cancer and hematology patient care beyond borders*

Dr. Parth Mehta's favorite memory is of five children sitting around a small table piecing together a puzzle. The kids, most of them bald, smile as Mehta snaps their photo inside a Texas Children's operating clinic in Botswana. Of the five, four survived their cancer.

While one death is devastating, none of these patients in Botswana would have received the necessary treatment a few years ago. Resources for diagnosis and treatment had been scarce. Most children in Botswana with blood disorders or cancer died early, usually without a diagnosis.

Since 2007, Texas Children's Cancer Center's Global Oncology Initiative has revolutionized care for hundreds of sick children in Botswana and other parts of sub-Saharan Africa. In addition to Botswana and Angola, Texas Children's added a new cancer and hematology program in Malawi following a site assessment visit in 2014. Together, these clinics provide life-saving care to patients.

As director of Texas Children's Cancer Center's Global Oncology Program, Mehta became the first pediatric oncologist in Botswana eight years ago. Back then, only 22 cases of pediatric cancer had been diagnosed. Today, a collaborative team of physicians from Texas Children's Cancer and Hematology Centers delivers care to more than 200 patients in Botswana. More than 450 children have been treated for blood disorders and cancer since 2007.

"With a population of 2 million in Botswana, we faced an overwhelming challenge," Mehta said. "Children were dying from diseases that have a 95 percent cure rate in the United States. Medications were scarce and no one really knew how to treat these patients until our team arrived."

Under the visionary leadership of Texas Children's Physician-in-Chief Dr. Mark W. Kline, Texas Children's and Baylor College of Medicine had already established several health centers to bring the most advanced pediatric HIV/AIDS

treatments to children in the developing world. Since 1996, the Baylor International Pediatrics AIDS Initiative (BIPAI) has grown exponentially and is now one of the largest HIV/AIDS treatment programs in the world, providing medication and care to more than 200,000 children and families in eight countries.

Building on this same passion, Dr. David Poplack, director of Texas Children's Cancer and Hematology Centers, is spearheading efforts to enhance the quality of life and reduce mortality rates for children with cancer and blood disorders in low and middle income countries in sub-Saharan Africa, specifically Uganda, Botswana, Malawi and Angola, with plans to expand programs to other regions in the future.

"Our role has been to put 'medical boots' on the ground," Poplack said.

"We send our physicians and nurses to train local doctors and nurses in these locations, building skills and leadership for pediatric hematology-oncology programs in these countries for the future."

About 80 percent of worldwide pediatric cancer cases occur in developing countries, where the survival rate is less than 40 percent. In industrialized countries, like the U.S., survival rates are more than 80 percent. For the critically ill children in Africa, bringing a child to a clinic in a nearby town used to be difficult – a plight Nigerian native Dr. Gladstone Airewele knows all too well.

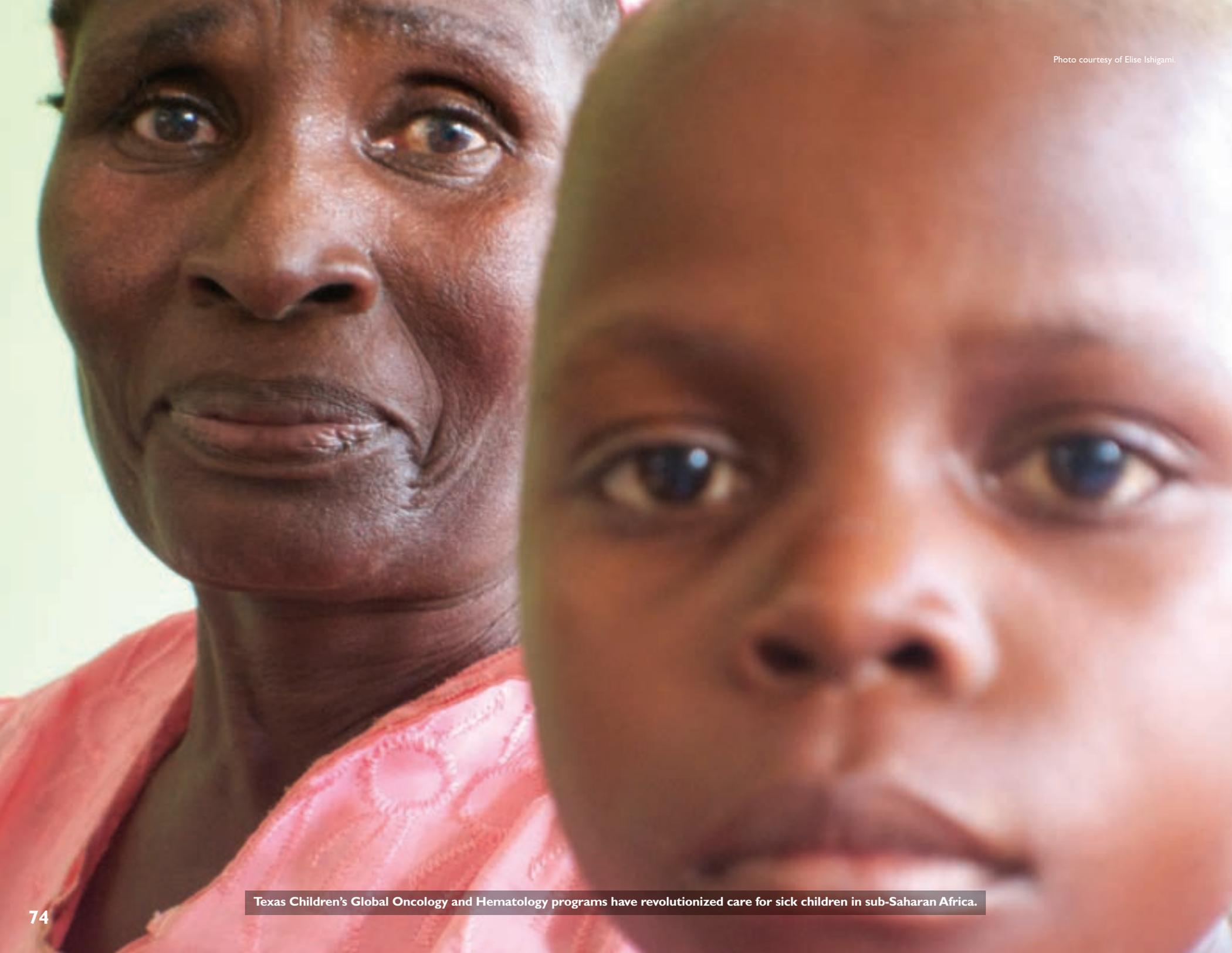
Airewele is director of Texas Children's Global Hematology Program. He says a simple blood test to detect sickle cell disease is often the difference between life and death for thousands of African babies who might otherwise die from this dangerous inherited blood disorder.

"It's gratifying to see children come to the clinic, receive life-saving care and leave with a better prognosis than they ordinarily would if it weren't for this program," Airewele said.

Mehta adds, "Medicine is not about borders, cities and states. One must take care of children everywhere."



At the BIPAI Center of Excellence in Malawi, Africa, patients receive care through Texas Children's Cancer and Hematology Centers.



Texas Children's Global Oncology and Hematology programs have revolutionized care for sick children in sub-Saharan Africa.





2014

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## Texas Children's Network

*Systemwide growth in numbers*

- 2,600+ faculty, residents and fellows and 10,313 dedicated employees
- 40+ pediatric subspecialties treated
- 3.3 million annual patient encounters

## Texas Children's Hospital

*Ranked as one of the nation's top children's hospitals by U.S. News & World Report*

- Opened in 1954
- Located in Houston in the Texas Medical Center
- Academic partner to Baylor College of Medicine

## Texas Children's Hospital West Campus

*First Houston community hospital designed and built for children*

- 514,000-square-feet on 55 acres
- 35,000+ emergency center visits annually
- 1,500+ admissions annually
- 12-bed pediatric intensive care unit
- 32 acute care beds, pediatric surgery suites and recovery rooms

## Texas Children's Pavilion for Women

*Comprehensive obstetrics/gynecology facility that houses a full spectrum of maternal and fetal medicine services*

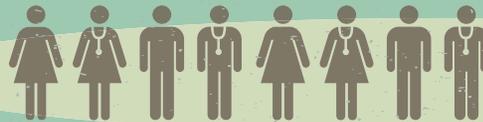
- 115 beds
- 5,500+ births every year
- 3 dedicated Ob/Gyn practices
- 120+ physicians and midwives
- World class Family Fertility Center
- Expert pelvic health care
- 90+ fetal interventions and surgeries annually in Texas Children's Fetal Center®

## Texas Children's Hospital The Woodlands

*New, 548,000-square-foot community hospital opening in 2017*

- Pediatric emergency center
- Surgical suites and recovery rooms
- 70+ outpatient rooms
- Extensive subspecialty care

# Comprehensive CHILDREN'S & WOMEN'S OB/GYN HEALTH CARE



## NETWORK



## GROWING ACROSS THE GLOBE

*Treating patients from nearly 60 countries and all 50 states*

**Texas Children's Health Plan**  
*Nation's first pediatric health maintenance organization (HMO)*

- Founded in 1996
- 375,000+ members in more than 20 counties
- Provides high-quality health care for Medicaid and CHIP members
- Members-only access to two locations of The Center for Children and Women

**Texas Children's Health Centers**  
*Community subspecialty care*

- Provides pediatric subspecialty care
- 5 locations in Greater Houston area
- Medical services, therapy care, diagnostic capabilities
- 168,000 patient encounters in 2014

**Texas Children's Global Reach**

*Treating patients from nearly 60 countries*

- Baylor International Pediatric AIDS Initiative  
*Total of 15 centers and satellite clinics in parts of sub-Saharan Africa and Romania*
- Operating three oncology and hematology programs in Botswana, Malawi and Angola

**Texas Children's Pediatrics**  
*Largest pediatric primary care network in the United States*

- Nearly 50 locations
- 200+ physicians
- 1.1+ million annual patient visits

**Texas Children's Urgent Care**  
*Expert after-hours pediatric patient care in the community*

- 2 Houston locations  
*Cinco Ranch in Katy and Memorial in Houston*

## STATEMENT OF OPERATIONS\*

Fiscal Year 2014 (in thousands)

Net patient service revenue .....	\$1,530,616
Medicaid insurance plan premium revenue .....	876,795
Supplemental Medicaid funding .....	59,352
Other operating revenue .....	92,002
<b>Total operating revenue .....</b>	<b>2,558,765</b>
Less operating expenses .....	2,459,078
<b>Available for reinvestment in the mission .....</b>	<b>\$77,980</b>

\*Fiscal year 2014 = October 1, 2013 to September 30, 2014



### Texas Children's Hospital

6621 Fannin Street  
Houston, TX 77030  
832-824-1000  
texaschildrens.org

## PATIENT STATISTICS

<b>Total admissions .....</b>	<b>32,446</b>
Texas Children's Hospital Main Campus .....	19,147
Texas Children's Hospital West Campus .....	1,983
Texas Children's Pavilion for Women .....	11,316
<b>Total census days .....</b>	<b>189,056</b>
Texas Children's Hospital Main Campus .....	147,388
Texas Children's Hospital West Campus .....	7,613
Texas Children's Pavilion for Women .....	34,055
<b>Total inpatient/outpatient surgeries .....</b>	<b>27,945</b>
Texas Children's Hospital Main Campus .....	21,390
Texas Children's Hospital West Campus .....	4,573
Texas Children's Pavilion for Women .....	1,982
<b>Total Emergency Center visits .....</b>	<b>117,275</b>
Texas Children's Hospital Main Campus .....	75,825
Texas Children's Hospital West Campus .....	41,450
<b>Total patient encounters .....</b>	<b>3,350,235</b>
Texas Children's Hospital Main Campus .....	45%
Texas Children's Hospital West Campus .....	9%
Texas Children's Pavilion for Women .....	6%
Texas Children's Pediatrics .....	35%
Texas Children's Health Centers .....	5%
Texas Children's Health Plan .....	1%
<b>Texas Children's Health Plan members .....</b>	<b>396,669</b>
Medicaid .....	327,540
Children's Health Insurance Plan (CHIP) .....	69,129

## COMMUNITY INVESTMENT

Calendar Year 2013 (in millions)

The programs described in this report reflect the community benefit provided by Texas Children's Hospital in calendar year 2013. Totalling more than \$155 million, the specific areas of support include:

Financial assistance and means-tested government programs.....	\$43.3
Community health improvement .....	\$6.3
Health professional education.....	\$30.5
Subsidized health care services.....	\$2.0
Research.....	\$65.4
Cash and in-kind contributions.....	\$8.3

## ACADEMIC PARTNERSHIP

Texas Children's Hospital is proud of its affiliation with academic partner Baylor College of Medicine, home to one of the largest, most diverse and successful pediatric programs in the nation. Baylor's pediatrics program ranked no. 9 among all pediatrics programs on the *U.S. News & World Report* list of America's Best Graduate Schools and no. 21 among all research-intensive U.S. medical schools. Below are current statistics for Baylor.

Faculty.....	1,265
Residents.....	370
Clinical and PostDoc Fellows.....	123
External annual research funding.....	\$102.3M

## TEXAS CHILDREN'S LEADERSHIP

### ADMINISTRATIVE

Mark A. Wallace, President and CEO  
Linda W. Aldred, Senior Vice President  
Paola Alvarez-Malo, Assistant Vice President  
Mary Jo Andre, Senior Vice President/Chief Nursing Officer  
Christopher M. Born, President, Texas Children's Health Plan  
Chanda Cashen Chacón, President, Texas Children's Hospital West Campus  
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Katherine O. Tittle, President, Texas Children's Pediatrics  
Sherry Vetter, Assistant Vice President  
Jacqueline R. Ward, Vice President  
Randall P. Wright, Executive Vice President

### MEDICAL

Dean B. Andropoulos, M.D., Anesthesiologist-in-Chief  
Michael A. Belfort, M.D., Ph.D., Ob/Gyn-in-Chief  
George S. Bisset III, M.D., Radiologist-in-Chief  
Gary A. Dildy III, M.D., Chief Quality Officer – Ob/Gyn  
Lane F. Donnelly, M.D., Chief Quality Officer – Hospital-Based Services  
William J. Dreyer, M.D., 2015 President, Medical Staff  
Charles D. Fraser, Jr., M.D., Surgeon-in-Chief  
Angelo P. Giardino, M.D., Ph.D., Chief Quality Officer  
Jeanine M. Graf, M.D., Medical Director, Texas Children's Hospital West Campus  
Charles T. Hankins, M.D., Medical Director, Texas Children's Hospital The Woodlands

Lisa M. Hollier M.D., Chief Medical Officer – Ob/Gyn, Texas Children’s Health Plan  
 Mark W. Kline, M.D., Physician-in-Chief  
 Thomas G. Luerssen, M.D., Chief Quality Officer – Surgery  
 Allen L. Milewicz, M.D., Surgical Director, Texas Children’s Hospital West Campus  
 Heidi Schwarzwald, M.D., Chief Medical Officer – Pediatrics, Texas Children’s Health Plan  
 Joan E. Shook, M.D., Patient Safety Officer

Stanley W. Spinner, M.D., Chief Medical Officer, Texas Children’s Pediatrics  
 Stephen A. Stayer, M.D., 2014 President, Medical Staff  
 James Versalovic, M.D., Ph.D., Pathologist-in-Chief  
 David E. Wesson, M.D., Associate Surgeon-in-Chief  
 Eric A. Williams, M.D., Chief Quality Officer – Medicine

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 Vice President.....Kevin C. King  
 Vice President.....Freda Wilkerson Bass  
 Vice President.....Michael C. Linn  
 Treasurer.....C. Park Shaper  
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Josephine E. Abercrombie

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### BOARD OF TRUSTEES

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Edward S. McCullough	



(Main photo) The cast from "I Love Lucy" visits patient Virginia Kuke in 1956. (Left - top to bottom) Comedian Bob Hope visits patient in 1958; Roy Rogers and Dale Evans visit a patient in 1968; Ventriloquist Sherry Lewis shows off Lamb Chop to a patient; Country music star Ricky Van Shelton visits with a patient.



(Main photo) Actress Hillary Duff visits double lung and liver transplant patient Chase McGowen. (Right - top to bottom) Figure skater Tara Lipinski visits a patient. Sesame Street's Elmo and Grover meet patient Ava Lina; Actor Chris Rock visits patient Brittane Baade; Sponge Bob and Dora the Explorer greet patient Matthew Lucas; the Backstreet Boys visit a fan.

# PHILANTHROPY

## THEN

When Texas Children's Hospital opened its doors six decades ago, the closest children's hospital was a full day's train ride away.

Polio crippled thousands of children each year, and children with cancer or heart disease faced almost certain death. Since newborn intensive care units were nonexistent, doctors could do little for premature babies except try to keep them warm.

In the 1940s, a small group of Houston leaders—physicians and others in the community—saw a need for a dedicated pediatric hospital and set to work to make that dream come true. Proceeds from The Pin Oak Charity Horse Show in 1947 helped establish the Texas Children's Hospital Foundation. In 1950, Leopold L. Meyer secured a gift of \$1 million from James S. "Jim" and Lillie Abercrombie to build a hospital for children. There was only one condition—that it be "open to every sick or hurt child with no restrictions on religion, color, or whether or not they can pay."

Texas Children's Hospital began with that promise. Over the years, Texas Children's has changed countless young lives and has been instrumental in developing many groundbreaking treatments and technologies that give hope to children around the world. Texas Children's has grown from three stories and 106 beds to one of the largest and best pediatric hospitals in the nation, winning numerous accolades along the way.

None of this would have been possible, however, without generous supporters. So much of what Texas Children's has achieved is because of them. Texas Children's supporters come from all walks of life, from across the nation and around the world, but they share a common vision and a promise: to improve the lives of children.

**Mr. and Mrs. James S. Abercrombie and Leopold Meyer at The Pin Oak Charity Horse Show in 1968 (left).**



## NOW

Many things have changed since 1954, but Texas Children's promise has not—nor has the dedication and commitment of our friends and supporters in the community. Philanthropy helps Texas Children's build new facilities, expand existing programs, recruit top physicians and researchers and launch new projects.

Transformational gifts from just the last 10 years have allowed Texas Children's to do all these things and more. **Jan and Dan Duncan** made a \$50 million gift—the largest the organization has ever received—for the Jan and Dan Duncan Neurological Research Institute. That was followed by a wonderful \$5 million gift from **Cynthia and Anthony Petrello**, who were instrumental in shaping the vision for the Institute. **David and Mary Wolff** donated \$5 million for the land on which Texas Children's Hospital West Campus is now located, and that gift was followed by several generous contributions from the **Lauren and Lara Camillo Family Trusts** to support the construction of the West Campus facilities and an expansion that was needed soon after the hospital opened. **Laura and John Arnold** made the lead gift of \$25 million for Texas Children's Pavilion for Women.

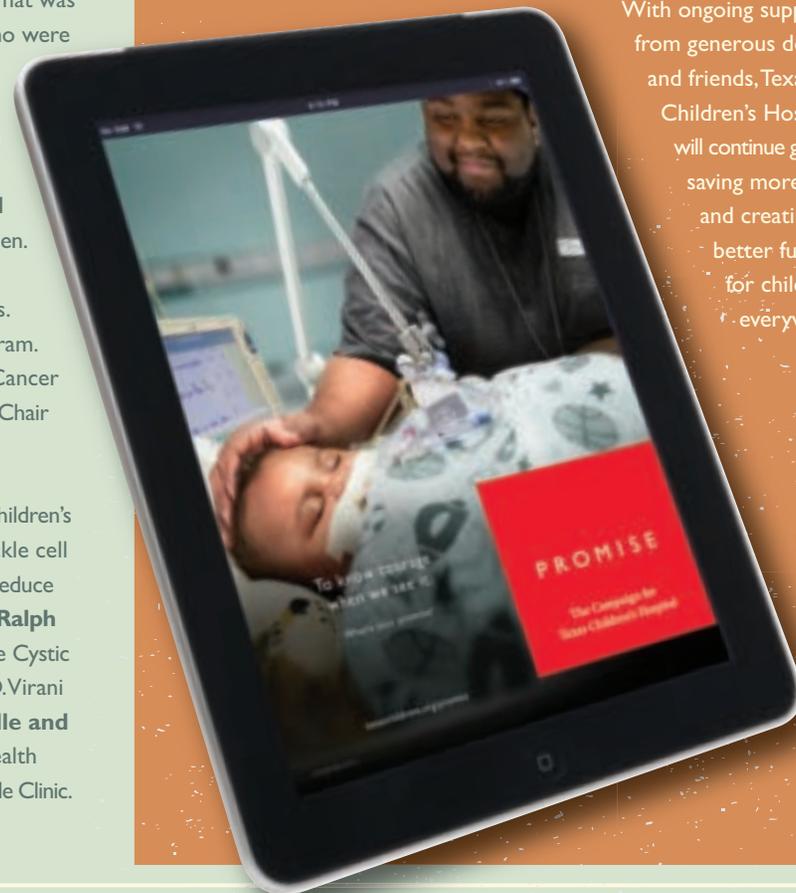
Texas Children's also received incredible programmatic support in the last 10 years. A \$6 million gift came from **Chevron** for the Texas Children's Global Health Program. **Lester and Sue Smith** contributed more than \$32 million for Texas Children's Cancer Center, and **Maureen and Jim Hackett** established the Maureen Hackett Endowed Chair for Reproductive Psychiatry with a \$2 million gift.

In 2014 alone, more than 49,000 donors contributed \$70.3 million to support Texas Children's Hospital. Lead gifts last year include \$2.5 million from **Chevron** to support the sickle cell program in Angola and the SAIL program in La Guajira, Colombia, which aims to help reduce malnutrition and maternal mortality in the indigenous population; \$2 million from **Ralph O'Connor** to establish the Ralph S. O'Connor Endowed Chair for the Director of the Cystic Fibrosis Care Center; \$2 million from **Asha and Farid Virani** to establish the Faris D. Virani Ewing Sarcoma Center at Texas Children's Cancer Center; \$2 million from **Michelle and Dave Feavel** to establish the Dr. Kelly DeScioli Endowed Fund in Global Child Health Endowment; and \$1 million from the **Jerold B. Katz Family** for the SuperKids Mini-Mobile Clinic.

Texas Children's Hospital Promise campaign ad (right).

Today, Texas Children's continues to be a leader in the exciting and ever-changing world of pediatric health care. For the patients and families we serve, we continue to keep our promise to provide the specialized care they need, when and where they need it most. Our current fundraising effort, *Promise: The Campaign for Texas Children's Hospital*, will help us do exactly that through the construction of Texas Children's Hospital The Woodlands and the expansion of our critical, surgical and emergency care services at the Main Campus.

With ongoing support from generous donors and friends, Texas Children's Hospital will continue growing, saving more lives and creating better futures for children everywhere.



“Our vision for the future is not just about buildings, but the dedicated people working here to ensure the finest care possible for each child and every woman who comes to Texas Children’s. However, growing our facilities ensures we can deliver the right care at the right time and place to all who need us.”

– Mark A. Wallace

*look how we’ve grown!*

**224,000**  
square feet in 1954

**4,978,940**  
square feet in 2014

more than

**6,300,000**  
total square feet projected by 2018



