For more information, visit texaschildrens.org/surgery

To make an appointment, call 832-824-2778
Dear colleagues, parents and friends,

I am pleased to share with you the 2015 Texas Children’s Hospital Department of Surgery Annual Report. With more than 26,700 operating room cases and more than 144,800 clinic visits, this year has been full of activity and growth. This report covers the highlights of our year, including incredible patient stories and important programmatic developments.

Texas Children’s Hospital and its surgical team are frequently referred the most complex cases. In 2015, we welcomed the opportunity to care for Knatalye Hope and Adeline Faith Mata, conjoined twins from Lubbock, TX. After more than a year of planning, the twins were separated in a 25-hour surgery that involved multiple surgical subspecialties. As one of the few successful separations of this type of conjoined twins, the story made international headlines and gave millions of people reason to cheer. The happy and active 2 year olds are thriving today.

We continue to develop all of our surgical divisions to better meet the needs of our patients and families. Over the past year, our Otolaryngology Division, led by Dr. Ellis Arjmand, grew from eight to 21 surgeons. It is now the largest pediatric otolaryngology division in the U.S.

Dr. John Dormans joined Texas Children’s in 2015 to lead our Orthopaedics Division. His vision and tremendous leadership experience position us well for growth in the coming years.

Our advanced practice provider (APP) team continues to grow. We have added 25 additional APPs to our surgical staff, bringing our total to 80. We are also exceptionally proud of our Pediatric Surgery Fellowship Program for Physician Assistants, the first program of its kind, which is now in its third year.

Texas Children’s Hospital The Woodlands is in its final construction stages and remains on target to open in 2017, with the outpatient building opening in fall 2016. We are actively recruiting a team of surgeons to meet the specific needs of this community. This will be the second community hospital and third pediatric hospital in the Texas Children’s network of care.

The $575 million CareFirst initiative, aimed at improving care and the patient/family experience in high-acuity areas such as surgery and intensive care, is moving ahead at full speed. In 2015, construction began on a new pediatric tower at our main campus in the Texas Medical Center which will expand our surgical and critical care areas to better meet the needs of every patient.

I hope you enjoy reading about our outstanding team and their activities. I am privileged to work with these dedicated surgeons and their passionate, committed and talented colleagues.

With respect and gratitude,

Charles D. Fraser, Jr., M.D.
Surgeon-in-Chief
DEPARTMENT OF SURGERY

Texas Children’s Hospital and Baylor College of Medicine

Texas Children’s Hospital is one of the nation’s largest and most comprehensive specialty pediatric hospitals, with more than 3.5 million patient encounters in 2015. Texas Children’s also operates Texas Children’s Health Plan, the nation’s first health maintenance organization (HMO) created just for children, and Texas Children’s Pediatrics, the nation’s largest primary pediatric care network with over 50 offices and care centers throughout the greater Houston community.

The main campus of Texas Children’s Hospital is located near downtown Houston in the Texas Medical Center, the largest medical center in the world. The main campus includes nearly 500 licensed inpatient beds; the Clinical Care Center for outpatient visits; the Feigin Center for pediatric research; and Texas Children’s Pavilion for Women, a comprehensive OB/GYN facility with a focus on high-risk births. Located nearby is the Texas Children’s Hospital® Jan and Dan Duncan Neurological Research Institute, a basic research institute dedicated to solving childhood neurological diseases. To serve the rapidly growing population in West Houston, Texas Children’s Hospital West Campus opened in 2011 with acute care and critical care beds, an emergency center, surgical suites and more than 20 subspecialty clinics. In 2017, a second community hospital, Texas Children’s Hospital The Woodlands, will open.

The mission of Texas Children’s is to create a healthier future for children and women throughout our global community by leading in patient care, education and research. Renowned worldwide for our expertise and breakthrough developments in clinical care and research, Texas Children’s Hospital ranked #4 among top children’s hospitals in the nation and ranked in all 10 pediatric subspecialties in U.S. News & World Report’s list of America’s Best Children’s Hospitals.

Texas Children’s Hospital is affiliated with Baylor College of Medicine in the areas of pediatrics, pediatric surgery, and obstetrics and gynecology. Baylor is ranked by U.S. News & World Report as one of the nation’s top 10 medical schools for pediatrics. Currently and throughout our 61 year partnership, Texas Children’s Hospital serves as Baylor’s primary pediatric training site. The collaboration between Texas Children’s Hospital and Baylor is one of the top five such partnerships for pediatric research funding from the National Institutes of Health.

With a staff of more than 11,000 employees and more than 2,000 board-certified physicians, pediatric subspecialists, pediatric surgical subspecialists and dentists, Texas Children’s offers more than 40 subspecialties, programs and services. Physicians are employees of Baylor College of Medicine, not Texas Children’s Hospital. Because they practice at Texas Children’s Hospital, they may be referred to as “our team” or “Texas Children’s physicians” throughout this report.
The Department of Surgery at Texas Children’s Hospital represents a dedicated team of pediatric-focused surgeons across nine surgical divisions: Congenital Heart Surgery, Dental, Neurosurgery, Ophthalmology, Orthopaedics, Otolaryngology, Pediatric General Surgery, Plastic Surgery and Urology. In conjunction with our partners in Anesthesiology, Pediatric and Adolescent Gynecology, and Transplant Services, we have more than 90 surgeons who are Baylor College of Medicine faculty and more than 700 Texas Children’s Hospital and Baylor College of Medicine employees focused on ensuring children get the surgical care they need.

Our team’s tireless efforts are evident in our more than 26,700 operating room cases and over 144,800 outpatient visits completed in 2015, our substantial external research funding, and the many articles and presentations given nationally and internationally each year.

We are dedicated to meeting our mission and vision with five community health centers and two Texas Children’s Hospital locations. We take great pride in caring for children from all 50 states and 59 countries around the globe.
### DEPARTMENT OF SURGERY OVERVIEW

<table>
<thead>
<tr>
<th>SURGICAL DIVISION</th>
<th>CLINIC VISITS</th>
<th>OPERATING ROOM CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital Heart Surgery</td>
<td>1,734</td>
<td>914</td>
</tr>
<tr>
<td>Dental</td>
<td>3,333</td>
<td>1,090</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>6,578</td>
<td>888</td>
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<tr>
<td>Ophthalmology</td>
<td>23,508</td>
<td>1,515</td>
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<tr>
<td>Orthopaedics</td>
<td>34,262</td>
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<tr>
<td>Otolaryngology</td>
<td>30,814</td>
<td>9,788</td>
</tr>
<tr>
<td>Pediatric and Adolescent Gynecology*</td>
<td>7,725</td>
<td>243</td>
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<tr>
<td>Pediatric General Surgery</td>
<td>12,193</td>
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<tr>
<td>Plastic Surgery</td>
<td>9,486</td>
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<tr>
<td>Urology</td>
<td>15,179</td>
<td>2,349</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>144,812</strong></td>
<td><strong>26,771</strong></td>
</tr>
</tbody>
</table>

*Pediatric and Adolescent Gynecology is a division of Obstetrics and Gynecology.

### OPERATING ROOM CASES AND CLINIC VISITS

**by year**

Operating room cases are defined as cases when operating room staff and supplies are used. Cases with multiple procedures count as one case and are attributed to the service line of the primary surgeon. Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital locations. Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
Department of Surgery Research Seed Grants

The Texas Children’s Hospital Department of Surgery awards seed grants to surgeons and researchers annually to help generate the preliminary data necessary for National Institutes of Health (NIH) grant applications and other extramural funding.

Grants are selected based on the merit of the proposal and the ability of the researcher to complete the grant within a specified timeframe and budget. Nearly $275,000 in funding was issued to researchers in 2015.

The 2015 seed grant recipients and the titles of their projects are:

Iki Adachi, M.D. – Congenital Heart Surgery  
*Pediatric myocardial alterations in response to ventricular assist devices*

Edward P. Buchanan, M.D. – Plastic Surgery  
*Psychometric assessment of the medical interview in the pediatric population*

Mohamed A. Hussein, M.D. – Ophthalmology  
*Exploring the role of the choroid and the autonomic innervation in the development of retinopathy of prematurity*

LingKun Kong, M.D. – Ophthalmology  
*Intravitreal polymer nanoparticle drug delivery system for treatment of retinopathy of prematurity*

Carlos M. Mery, M.D. – Congenital Heart Surgery  
*Development of a novel open fetal cardiac surgical intervention for creation of an atrial septal defect in patients with hypoplastic left heart syndrome and an intact or highly restrictive atrial septum*

Sanjeev A. Vasudevan, M.D. – Pediatric Surgery  
*A “pan-omic” analysis of vascular invasion in pediatric solid tumors*

Outcomes & Impact Service

The focus of the work of the Outcomes & Impact Service at Texas Children’s Hospital is to measure clinical outcomes that matter to patients, and the impact of care on the quality of life and functional status of our patients over time. Our ultimate goal is to deliver the highest value of health care to the patient.

By tracking outcomes, we learn about what happens to our patients, and we also learn about our performance as a health care delivery organization. We know we must continue to strive toward excellence in care delivery. In addition to providing statistics, we strive to engage patients and families in a conversation about the choices they face that will impact their health.

Our team includes outcomes nurses dedicated to different clinical specialties, computer programmers, data architects and specialists, and a statistician who works closely with clinical and administrative teams to measure, improve and share our outcomes.
The goals of our service are to:
• Track and improve our clinical outcomes.
• Understand the impact of those outcomes on the lives of our patients and families over time.
• Make our outcomes data available in a form accessible by the general public.
• Partner with patients and families in understanding outcomes data.
• Help patients and families know what questions to ask when seeking medical treatment.

For more information, please visit [texaschildrens.org/outcomes-and-impact-service](http://texaschildrens.org/outcomes-and-impact-service).

**Advanced Practice Provider Program**

The Advanced Practice Provider (APP) Program at Texas Children’s Hospital includes more than 400 nurse practitioners, nurse anesthetists and physician assistants (PAs) across 35 departments. APPs are involved in all stages of care, from the emergency room to inpatient and outpatient care, and from clinics to the operating rooms, in Texas Children’s locations across Houston. Within the Department of Surgery, the APP Program has grown from eight APPs to 80 APPs in the past four years.

In 2015:
• More than 25,300 outpatient clinic visits were conducted.
• APPs stood as the surgical first assistants in over 5,000 procedures and operating room cases.

APPs are the leaders of many clinical programs. In Urology, PAs manage voiding dysfunction cases, and the Neurosurgery Division now has a surgery APP managing the Traumatic Brain Injury Clinic. All surgery divisions have expanded the roles of their APPs into inpatient care management.
Pediatric Surgery Physician Assistant Fellowship

The Pediatric Surgery Physician Assistant Fellowship completed its second year in 2015. The fellowship is a 12-month didactic and clinical program designed to extensively train PAs to become leaders in all areas of pediatric surgery. This is a unique opportunity for the fellows to gain hands-on experience among the full spectrum of pediatric surgical subspecialties, including Congenital Heart Surgery, Dental, Pediatric General Surgery, Neurosurgery, Orthopaedics, Otolaryngology, Plastic Surgery and Urology, as well as Trauma Services. This year we will be adding rotations in Ophthalmology, Interventional Radiology and Pediatric Gynecology.

The fellowship program has been highlighted by the American Academy of Physician Assistants on four occasions in the last year as the most innovative fellowship program in the country. In 2015, there were 85 applicants for a total of six 2016 fellowship positions, an increase of 50 percent from the previous year. For more information, please visit texaschildrens.org/surgerypafellow.

International Reach

The Department of Surgery is committed to sharing knowledge anywhere in the world pediatric surgery expertise is needed. Our surgeons regularly travel and give their time in many underserved areas.

In 2015, our surgeons demonstrated their commitment to international patients though surgical trips to Ecuador, Guatemala, Honduras, India, Jamaica, Kenya, Malawi, Mexico, Nepal, Nigeria, Peru, Russia and Vietnam. Additionally, Texas Children’s Hospital continued a formal agreement with ABC Medical Center in Mexico City to provide consulting and training for its congenital heart surgery program.
Texas Children’s Hospital Surgical Team Collaborates to Separate Conjoined Twin Girls

On Feb. 17, 2015, a multidisciplinary team of 12 surgeons from seven specialties, six anesthesiologists, eight nurses and support staff performed one of the first successful separation surgeries for thoraco-omphalo-ischiopagous twins. The surgery lasted about 25 hours, with the actual separation occurring at 18 hours. The team, led by pediatric general surgeon Darrell Cass, M.D., spent nearly 10 months planning and preparing for the separation and involved multiple disciplines including Pediatric Surgery, Plastic Surgery, Cardiovascular Surgery, Urology, Orthopaedic Surgery, Pediatric Gynecology and Liver Transplant Surgery.

Knatalye Hope and Adeline Faith Mata were born at 31 weeks with a combined weight of 7 pounds and 9 ounces. They were conjoined throughout the chest and abdomen, sharing a chest wall, lungs, pericardial sac, diaphragm, liver, intestines, colon and pelvis. Although there were no major complications, the girls did develop hydronephrosis and breathing insufficiency as their lungs struggled with the weight of their combined bodies. Their diaphragm muscles were uncoordinated because they were connected, yet had two brains controlling them. The surgical team decided to allow the twins time to develop before attempting to separate them.

At eight months, the twins underwent a five-hour surgery led by plastic surgeons Larry Hollier, M.D., and Edward Buchanan, M.D., to place tissue expanders into their chest and abdomen area in preparation for separation. This surgery required a recovery time of six to eight weeks, during which time additional fluid was added to the balloon-like expanders, allowing the skin to be stretched gradually.
Meanwhile, Rajesh Krishnamurthy, M.D., chief of Radiology Research and Cardiac Imaging, built a 3D model of the twins’ anatomy. The detailed model, which included a detachable, transparent liver, aided in planning the pelvic portion of the separation surgery.

Texas Children’s Simulation Center used two mannequins that matched the twins’ weight exactly to simulate the separation. The entire multidisciplinary team went through two walk-throughs of the separation, helping them figure out how to best position the twins on the operating table to permit placement of central venous access and how to conduct a cardiac resuscitation should one or both twins suffer a cardiorespiratory arrest. Around 10 issues were identified and revised in the simulation, which saved time and optimized safety during the actual surgery.

Since the separation surgery, the twins have recovered smoothly. Both twins required more operations after their separation, with more expected over the next few years. Knatalye was discharged only two months after separation. Adeline, who had more baseline lung problems and needed a tracheostomy, was discharged a little later. In February 2016, the twins celebrated the one year anniversary of their separation, and the clinical teams celebrated an incredible success story, as the girls continue to grow into healthy, strong, independent toddlers.
The Congenital Heart Surgery Division provides individualized and comprehensive surgical care for all aspects of pediatric and adult congenital heart disease. We are experienced in the rarest of cases such as ectopia cordis and other infrequently seen conditions. Texas Children’s Heart Center performs over 900 surgical procedures annually with outcomes among the best in the nation. In 2015, the Heart Center was ranked #2 in the nation for pediatric cardiology and heart surgery by U.S. News & World Report.

We treat children of all ages, including preterm and low-birth-weight newborns, and we personalize treatments and procedures that best suit the situation of each child and family. This tailored approach includes cardiopulmonary bypass and neuroprotection strategies focused on the patient’s condition and needs, helping to achieve optimal functional outcomes. The center’s Heart, Lung and Heart-Lung Transplant Programs, among the nation’s largest and most successful, are also part of the Congenital Heart Surgery Division.
NEW PHYSICIAN: LAUREN KANE, M.D.

In 2015, the Congenital Heart Surgery Division welcomed Lauren Kane, M.D., to Texas Children’s Heart Center. Dr. Kane is a cardiovascular surgeon whose clinical and research interests include the full spectrum of congenital heart surgery, with a particular interest in neonatal palliation and outcomes-based research. Dr. Kane was recruited from The University of Texas Health Science Center at San Antonio where she served as assistant professor of Congenital Heart Surgery. She earned her medical degree from The University of Texas Medical School at Houston. Dr. Kane completed her surgical residency at The University of Texas Southwestern in Dallas, a fellowship in cardiothoracic surgery at Emory University and a fellowship in congenital heart surgery at Children’s Hospital Los Angeles.

REDUCED WAITLIST TIMES FOR PEDIATRIC HEART TRANSPLANT PATIENTS

Long waitlist times often lead to a higher risk of death for children awaiting a heart transplant. Unlike livers or kidneys, hearts can only be received from deceased donors. Children on the waitlist are prioritized by severity and matched by size to the donor. In 2015, Texas Children’s Hospital reduced wait time from 181 days to 102 days by revising their waitlist protocols for donor heart size and patient severity status.

NEW PEDIATRIC HEART FAILURE ICU

In 2015, Texas Children’s Heart Center opened a new, first-of-its-kind pediatric Heart Failure Intensive Care Unit. This highly specialized 12-bed unit focuses on treating children with heart failure as well as those requiring intensive care before and after heart transplant. Texas Children’s Hospital is the first in the nation to offer this highly specialized level of pediatric critical care. The unit is overseen by Paul Checchia, M.D., medical director of the Cardiovascular Intensive Care Unit, and Lara Shekerdemian, M.D., chief of Critical Care at Texas Children’s Hospital.
Total operating room volumes include heart and lung transplantations. Operating room case volumes and clinic visits include procedures and outpatient visits completed by physicians at Texas Children’s Hospital surgical locations.
The Risk Adjustment in Congenital Heart Surgery (RACHS-1)\(^1\) categorization is a widely used risk stratification model to analyze outcomes in congenital heart surgery. The most common surgeries for congenital heart defects are stratified into six risk categories. Surgeries with higher risk are placed in higher categories with category six representing congenital heart surgeries associated with the greatest risk.

For questions or more information about our outcome data or processes, please contact Kathy Carberry, R.N., M.P.H., director of the Outcomes & Impact Service at kecarber@texaschildrens.org.

Overall risk-adjusted hospital mortality rate for our program in 2015 was 1.6%.\(^2\) Data collected by the Society of Thoracic Surgeons (STS) shows the national hospital discharge mortality rate at 2.9%.\(^3\)

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**MORTALITY RATE BY RACHS-1 CLASSIFICATION IN 2015**

<table>
<thead>
<tr>
<th>Primary procedure</th>
<th>Number of procedures</th>
<th>Number of discharge mortalities</th>
<th>% Mortality</th>
<th>STS national benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total for Risk Category 1</td>
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<td>0</td>
<td>0.0%</td>
<td>0.4%</td>
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<tr>
<td>Total for Risk Category 2</td>
<td>240</td>
<td>1</td>
<td>0.4%</td>
<td>1.0%</td>
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<tr>
<td>Total for Risk Category 3</td>
<td>241</td>
<td>7</td>
<td>2.9%</td>
<td>3.2%</td>
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<tr>
<td>Total for Risk Category 4</td>
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<td>0.0%</td>
<td>5.2%</td>
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<tr>
<td>Total for Risk Category 5-6</td>
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<td>2</td>
<td>15.4%</td>
<td>13.4%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>632</td>
<td>10</td>
<td>1.6%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>


\(^2\) 007-RACHS-1 Index Surg CHD Volume.

\(^3\) STS Data Harvest Report published June 2015.
CHARLES D. FRASER, JR., M.D., is surgeon-in-chief, co-director of Texas Children’s Heart Center and chief of the Congenital Heart Surgery Division at Texas Children’s Hospital. His academic appointments include professor of Surgery in the Michael E. DeBakey Department of Surgery (tenured) at Baylor College of Medicine, professor of Pediatrics at Baylor College of Medicine and adjunct professor of Bioengineering at Rice University. Dr. Fraser holds the Clayton Chair in Surgery and the Donovan Chair in Congenital Heart Surgery at Texas Children’s Hospital. Dr. Fraser has a clinical appointment at the Texas Heart Institute, where he serves as director of the Adult Congenital Heart Surgery Program.

Dr. Fraser’s education began as an undergraduate at the University of Texas at Austin, where he graduated with honors in mathematics. He received his medical degree with honors from the University of Texas Medical Branch at Galveston. His residency and fellowship training took place at The John Hopkins Hospital. He completed additional fellowship training in congenital heart surgery at the Royal Children’s Hospital in Melbourne, Australia. After joining the faculty at Cleveland Clinic, Dr. Fraser was recruited to Texas Children’s Hospital in July 1995 to establish a dedicated pediatric congenital heart surgery program.

To view more Congenital Heart Surgery Division biographies, visit texaschildrens.org/heart.
The Dental Division at Texas Children’s Hospital sees more than 3,300 patient visits each year to ensure children with special needs or complex medical diagnoses receive the dental care they need. In collaboration with Texas Children’s Nephrology Service, Neuroscience Center, Heart Center, Cancer Center and other referrals, we treat dental patients as outpatients, inpatients or in the operating room. With expertise in a full range of procedures, our team coordinates each patient’s care with his or her pediatric subspecialists.

Sometimes dental treatment, such as the removal of teeth or the replacement of fillings, is needed before surgery or anesthesia can take place or other health care needs can be addressed. In addition, we ensure that the annual dental needs, such as prophylaxis or fillings, of children with special needs are met.
The Dental Division also participates in the multidisciplinary Craniofacial Program to address genetic abnormalities of the face and head. This collaborative effort brings together experts from Dermatology, Genetics, Neurosurgery, Otolaryngology, Plastic Surgery, Radiology and Speech Therapy.

**NEW PHYSICIAN: AMY HUYNH-TRAN, M.D.**

In 2015, the Dental Division welcomed Amy Huynh-Tran, M.D., who was appointed as an assistant professor in the Dental Department at Baylor College of Medicine. Dr. Huynh-Tran will see patients in the Dental Clinic at the main campus of Texas Children's Hospital. She most recently completed a pediatric dentist residency at the University of Rochester/Eastman Institute for Oral Health. She also performed a general practice residency in 2007 at the Harvard School of Dental Medicine, Brigham and Women’s Hospital.

**PARTNERSHIP WITH UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER**

Texas Children’s Hospital has partnered with the University of Texas Health Science Center at Houston School of Dentistry to give dental residents an opportunity to experience pediatric dentistry practice. Two residents at a time have an opportunity for a pediatric rotation at Texas Children’s where they will learn how dental care impacts many childhood health conditions. In 2015, 12 University of Texas residents included Texas Children’s Dental Clinic as part of their clinical rotation.

**DENTAL OPERATING ROOM CASES AND CLINIC VISITS**

*by year*

Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations. Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
A. BRUCE CARTER, D.D.S., is chief of the Dental Division and Dental Clinic at Texas Children’s Hospital. He received his doctorate of dental surgery at the University of Texas Health Science Center at Houston, where he also received his pedodontic certificate. After a solo practice and teaching at his alma mater, he joined Texas Children’s Hospital as chief of the Dental Clinic in 1984. He is a member of the American Board of Pediatric Dentistry Diplomates, the Greater Houston Dental Society, the Texas Dental Association, the American Dental Association and the American Academy of Pediatric Dentistry. In conjunction with a grant from the National Institutes of Health, Dr. Carter studied and published several articles on the oral manifestations and health of pediatric HIV patients.

To view more Dental Division biographies, visit texaschildrens.org/dental.
The Neurosurgery Division at Texas Children’s Hospital, part of the hospital’s Neuroscience Center, is one of the most dynamic and experienced pediatric neurosurgery programs in the nation. Ranked #2 in neurology and neurosurgery by *U.S. News & World Report*, we complete nearly 900 surgical cases each year to address a broad range of neurological disorders in infants, children and young adults.

Six board-certified pediatric neurosurgeons provide surgical treatment of neurological diseases and conditions, including epilepsy; hydrocephalus; and tumors or malformations in the brain, spine and peripheral nervous system. We are committed to discovering groundbreaking diagnoses and treatment approaches and to training the next generation of neurosurgeons.

A team of nurse practitioners, registered nurses, administrative and research staff also works together in support of the Neurosurgery Division to ensure that patients with complex conditions receive the care and attention they deserve.
Dr. Sandi Lam was selected by the American College of Surgeons and the American Association of Neurological Surgeons as the Health Policy Scholar for 2015.

GLOBAL IMPACT
As a worldwide leader in the field of neurosurgery, the faculty is regularly invited to present and mentor at facilities around the world. Daniel Curry, M.D., director of Surgical Epilepsy and Functional Neurosurgery, presented to fellow physicians and surgeons in Milan, Italy, about MRI-guided laser ablation, and in Mumbai, India, about the surgical care of patients with cerebral palsy.

Andrew Jea, M.D., director of the Neurospine Program, presented at the American Academy of Neurosurgery meeting in Heidelberg, Germany, about the effect of weekend and after-hours surgery on morbidity and mortality rates in pediatric neurosurgery.

Robert Dauser, M.D., formed a collaboration with Mary Bunge, Ph.D., and the internationally renowned Miami Project to Cure Paralysis housed at the University of Miami. Dr. Dauser has a long history in spinal cord injury research focusing on methods to overcome the glial scar that serves as a mechanical barrier to neuronal regeneration.

QUALITY IMPROVEMENT FOCUS
Quality improvement tracking and methods have been brought to the forefront to ensure continued excellence in the Neurosurgery Division. Thomas Luerssen, M.D., serves dual roles as chief of the Neurosurgery Division and chief quality officer for all of Surgery.

Additionally, Sandi Lam, M.D., and Elaine Pan, Ph.D., have concentrated their research on ways to add value (increasing quality and decreasing costs) to delivering pediatric neurosurgical care. Their first project, in collaboration with Plastic Surgery, resulted in the development of a craniofacial clinical care pathway and one of the first perioperative surgical homes at Texas Children’s Hospital for this special patient population. After institution of this pathway, Drs. Lam and Pan have shown a decrease in length of stay for patients undergoing craniosynostosis surgery, as well as a drop in blood transfusion requirements.
HEALTH POLICY SCHOLAR NOMINATION

In 2015, Sandi Lam, M.D., was selected by the American College of Surgeons and the American Association of Neurological Surgeons as the Health Policy Scholar for 2015. This prestigious scholarship includes participation in the Leadership Program in Health Policy and Management at Brandeis University’s Heller School as well as a year of national health policy work with both organizations.

<table>
<thead>
<tr>
<th></th>
<th>2015 Goal</th>
<th>2015 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurosurgical shunt infection rate</td>
<td>&lt; 5%</td>
<td>1.25%</td>
</tr>
<tr>
<td>Craniotomy(^4) complications(^5)</td>
<td>&lt; 5%</td>
<td>1.19%</td>
</tr>
<tr>
<td>Postoperative cerebral-spinal fluid leak(^6)</td>
<td>&lt; 5%</td>
<td>3.73%</td>
</tr>
</tbody>
</table>

NEUROSURGERY OPERATING ROOM CASES AND CLINIC VISITS

by year

Operating room cases and clinic visits include procedures and outpatient visits completed by Texas Children’s Hospital physicians at Texas Children’s Hospital surgical locations.

\(^4\)Craniotomy for tumor, vascular, trauma, ICH and craniofacial reconstruction.

\(^5\)Arterial injury, change in neuromonitoring that persists through procedure, unplanned transfusion of blood products, intraoperative CPR or death.

\(^6\)Laminectomy, spinal instrumentation, repair of congenital malformation.
THOMAS G. LUERSSEN, M.D., F.A.C.S., F.A.A.P., is chief of Neurosurgery and chief quality officer for Surgery at Texas Children's Hospital. He is also professor of Neurological Surgery and director of the Pediatric Neurosurgery Program in the Department of Neurosurgery at Baylor College of Medicine. Dr. Luerssen attended medical school at Indiana University and completed his residency in neurosurgery at Indiana University Medical Center. He completed fellowship training at Children’s Hospital of Philadelphia and then joined the faculty at the University of California San Diego. His clinical and research focus was traumatic brain injury in childhood.

Later, Dr. Luerssen returned to Indiana University and spent 18 years as director of the Pediatric Neurosurgery Service at the James Whitcomb Riley Hospital for Children. In 2006, he was recruited to Texas Children’s Hospital to be chief of Neurosurgery and was named chief quality officer for Surgery in 2009. Dr. Luerssen is the past chairman of the Joint Section on Pediatric Neurological Surgery of the American Association of Neurological Surgeons and Congress of Neurological Surgeons and past president of the American Society of Pediatric Neurosurgeons. He has also held the positions of director, vice chair and chair of the examination committee for the American Board of Pediatric Neurological Surgery.

To view more Neurosurgery Division biographies, visit texaschildrens.org/neurosurgery.
The Ophthalmology Division at Texas Children’s Hospital provides surgical care for anomalies, disorders and injuries of the eyes. Since its inception, the Ophthalmology Division has grown into one of the premier pediatric ophthalmology surgery programs in the nation.

Surgical and medical eye care is provided by 12 ophthalmologists and one optometrist. We have experience treating virtually all childhood eye disorders. The division has dedicated surgeons in each of the following specialty areas: strabismus (misaligned eyes), eyelid and facial anomalies, inherited retinal disorders, retinoblastoma, retinopathy of prematurity, corneal and external diseases, refractive surgery, cataracts and neuro-ophthalmological disorders.

Strabismus also commonly affects adult patients, thus the division has dedicated ocular alignment specialists to care for adult patients with strabismus or double vision. Services are available in four locations, including main campus, Texas Children’s Hospital West Campus, Texas Children’s Health Center Cy-Fair and Texas Children’s Health Center The Woodlands.
NEURO-OPHTHALMOLOGY DIAGNOSTIC TESTING SERVICES

The Ophthalmology Division continues to evolve with new technologies to better serve patients. A new state-of-the-art Ocular Diagnostics Division now offers imaging and analysis modalities such as enhanced depth imaging optical coherence tomography, autofluorescence photography, fluorescein angiography and indocyanine green chorioangiography. An electrophysiology laboratory was opened in late 2015 for both pediatric and adult patients. Veeral Shah, M.D., Ph.D., evaluates patients with retinal or optic nerve disease through electroretinography testing and visual evoked potential testing.

REFRACTIVE SURGERY SERVICE

Evelyn Paysse, M.D., is a pioneer in the use of refractive surgery to prevent irreversible vision loss from amblyopia (lazy eye) in children with high refractive errors who are unable or unwilling to wear glasses. In 2015, she developed protocols designed to improve outcomes in children requiring this treatment and has traveled throughout the world teaching these techniques. Dr. Paysse is the principal investigator of a multicenter study of refractive surgery in children.

NEW CORNEA AND EXTERNAL DISEASE SERVICE

In 2015, the Ophthalmology Division expanded services for children with corneal and external disease problems. Led by Zaina Al-Mohtaseb, M.D., this new service provides surgical and medical care for children with acquired and congenital corneal and external disease issues. Services provided include corneal transplantation, complex cataract surgery with lens implantation, and treatment of refractory corneal infectious diseases.
OPHTHALMOLOGY OPERATING ROOM CASES

by year

2011 2012 2013 2014 2015
47 73 337 150 344
1,177 1,244 1,162 1,267 1,271
1,224 1,317 1,399 1,162 1,271

TEXAS CHILDREN’S HOSPITAL
TEXAS CHILDREN’S HOSPITAL WEST CAMPUS

Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.

OPHTHALMOLOGY CLINIC VISITS

by year

2011 2012 2013 2014 2015
1,705 2,877 3,483 4,007 4,693
2,346 2,748 3,609 4,138 5,650
10,499 10,570 11,180 12,069 13,355
14,550 16,195 18,272 12,269 23,508

TEXAS CHILDREN’S HOSPITAL
TEXAS CHILDREN’S HOSPITAL WEST CAMPUS
TEXAS CHILDREN’S HEALTH CENTERS

Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
DAVID K. COATS, M.D., is chief of Ophthalmology at Texas Children’s Hospital and professor of Ophthalmology and Pediatrics at Baylor College of Medicine. He received his medical degree from Texas Tech University School of Medicine in 1987, followed by an internship in South Carolina and residency at the Storm Eye Institute at the Medical University of South Carolina. He completed a fellowship in pediatric ophthalmology and adult strabismus at Indiana University in Indianapolis in 1994 and joined the staff at Baylor College of Medicine in 1996. Dr. Coats is president of the Texas Ophthalmologic Association.

To view more Ophthalmology Division biographies, visit texaschildrens.org/ophthalmology.
In 2015, the Orthopaedics Division welcomed a new chief and began a robust expansion of staff, equipment and operations. John P. Dormans, M.D., joined Texas Children’s Hospital as chief of Orthopaedics and professor of Orthopaedic Surgery and Pediatrics at Baylor College of Medicine. Dr. Dormans was named the L.E. Simmons Endowed Chair of Orthopaedics, an honor that supports orthopaedic research, education, clinic program development and advocacy at Texas Children’s.

To help meet increasing demand for services – and prepare for an expansion of Orthopaedics at Texas Children’s Hospital West Campus and the opening of Texas Children’s Hospital The Woodlands in 2017 – Dr. Dormans has recruited six physicians, three advanced practice providers (APPs), and three clinical and research fellows this year, with plans to double the size of the Orthopaedics faculty and administrative support staff by summer 2016.
Other priorities include creating a robust clinical research program, enhancing efficiency through dedicated surgical schedulers, creating a collaborative care model, starting journal clubs and revamping the department’s conference schedule.

**COMPREHENSIVE AND SPECIALTY CARE**

The Orthopaedics Division at Texas Children’s Hospital has extensive expertise in the treatment of all types of bone, neuromuscular and spine disorders and a variety of orthopaedic injuries, from minor fractures to complex problems. With seven specialty clinics and more than 30 physicians and APPs, Texas Children’s Orthopaedics Division treats children in Houston, across the nation and internationally, providing individualized care for patients from newborns to young adults.

We specialize in trauma, sports medicine, hip and spine disorders, musculoskeletal tumors and skeletal dysplasia and contribute to more than 14 multidisciplinary specialty programs and clinics, including those for concussions, pediatric deformity correction and limb reconstruction, neuromuscular disorders, spina bifida and teen patients transitioning to adult care. More than 50 percent of the surgical procedures completed in Texas Children’s Level I Trauma Center in 2015 were related to Orthopaedics.

Our comprehensive musculoskeletal support team consists of physical and occupational therapists, orthopaedic technicians, social workers and child life specialists. Our partnership with the Texas Children’s Hospital Sports Medicine Program combines orthopaedic surgeons, sports medicine physicians, pediatric athletic trainers and over 30 sports physical therapists who work together to provide the best care for more than 12,500 sports medicine and physical therapy patients annually.

This year the division improved pediatric fracture appointments system-wide by initiating same-day evaluation appointments and online referrals. In addition, fracture appointments have been expedited, and more patients have been seen by pediatric subspecialty-trained orthopaedic surgeons.

**RESEARCH**

The goal of the Orthopaedic Surgery and Scoliosis Research team is to improve pediatric orthopaedics through quality clinical and basic research. We are improving scoliosis care in children through spine research, studying children with early onset scoliosis and collaborating in a multicentered effort to improve spine surgery outcomes.

Our projects evaluate hip deformities, infections, trauma, clubfoot, bone cysts and a full range of orthopaedic abnormalities. Our involvement in these projects ranges from internal research to multicentered projects with various institutions across the U.S. and Canada. In addition, Brendan Lee, M.D., an internationally renowned geneticist and chair of the Department of Molecular and Human Genetics at Baylor College of Medicine, is the founder and director of the Skeletal Dysplasia Clinic at Texas Children’s Hospital. His translational research program combines laboratory studies with clinical research involving patients with skeletal dysplasia. To date, we have two clinical researchers and a research fellow, and we are continuing to grow our research team.
Additionally, Texas Children’s Orthopaedics hopes to further our research team through multiple open fellowship programs and an opportunity to observe our providers.

**IMAGING SYSTEMS**

The Orthopaedic Division at Texas Children’s Hospital strives to use the most advanced techniques and equipment to treat orthopaedic disorders. In 2015, the division acquired the O-ARM Surgical Imaging System, a multidimensional surgical imaging platform designed for use in spine, orthopaedic and trauma-related surgeries. The O-ARM provides real-time, intraoperative imaging of a patient’s anatomy with high-quality images and an expansive view in both two and three dimensions.

The EOS Imaging System, a Nobel Prize winning technology, was installed at Texas Children’s Hospital in 2015, making us the first pediatric institution in the southwest United States to offer this service. EOS is an innovative technology for orthopaedic imaging of patients with scoliosis, joint replacements, back and leg pain, and more. Unlike a traditional X-ray that captures one small area of the body, EOS provides a life-size picture of the patients’ full skeleton as they stand or sit comfortably. Research shows that this technology enables more accurate diagnoses and provides faster imaging. Full body, upright and 3D images of the bone result in enhanced image accuracy and measurements, leading to more informed treatment planning and quality of care. Full body images are taken in less than 15 seconds with a total exam cycle under four minutes for the most complex spine exams, versus the standard 15 to 20 minutes.

Additionally, patients receive lower radiation dosage with EOS. This machine uses up to nine times less radiation than a computed radiography X-ray and up to 20 times less than a CT scan, which is especially helpful to maintain the safety of pediatric patients who need to be imaged frequently.

**SPINE PROGRAM**

The Spine Program at Texas Children’s Hospital provides comprehensive care to more than 2,000 patients per year who have a range of issues and conditions that affect the spine, including spinal injuries and spinal deformities. The multidisciplinary team includes Orthopaedic Surgery, Neurosurgery, Anesthesiology, Nutrition, Pulmonary Medicine and a unique quality outcomes team.
**HIP PRESERVATION PROGRAM**

The Hip Preservation Program treats adolescent and young adult patients for hip pain, injury or any known hip disorder. The clinic is focused on obtaining accurate and timely diagnoses and providing state-of-the-art treatment aimed at hip preservation. Adolescents and patients in their early 20s and 30s are best managed by orthopaedic experts with experience and special training in pediatric hip issues. Some patients require surgery that is offered only at Texas Children’s Hospital and a few other facilities around the country. Surgical intervention is used to preserve the hip and prevent the need for early hip replacement.

**MUSCULOSKELETAL TUMOR PROGRAM**

A specialized team of providers from the Musculoskeletal Tumor Program cares for children with malignant and benign tumors in the bone and soft tissue. A multidisciplinary care team consisting of Orthopaedic Surgery, Oncology, Pathology, Radiology, Nursing, Plastic Surgery and Physical Therapy provides comprehensive care for patients from diagnosis to final treatment and beyond.

**ORTHOPAEDICS CLINIC VISITS**

by year

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Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
Operating room case volumes include procedures performed by Texas Children's Hospital, Baylor College of Medicine and private practice physicians at Texas Children's Hospital surgical locations.
JOHN P. DORMANS, M.D., is chief of Orthopaedics at Texas Children’s Hospital and tenured professor of Orthopaedic Surgery and Pediatrics at Baylor College of Medicine. Prior to Texas Children’s, Dr. Dormans practiced at Children’s Hospital of Philadelphia, where he was chief of Orthopaedic Surgery from 1996 to 2014.

Dr. Dormans has served as president of multiple international, national, regional and local organizations including the Pediatric Orthopaedic Society of North America, Scoliosis Research Society, the U.S. division of the International Society of Orthopaedic Surgery and Traumatology, and Orthopaedics Overseas. Dr. Dormans helped lead Children’s Hospital of Philadelphia as the president of the Medical Staff and chair of the Board of Directors Surgical Group.

Dr. Dormans graduated from Indiana University and received his medical degree from the Indiana University School of Medicine in Indianapolis. He completed his residency in orthopaedic surgery at Grand Rapids Michigan State University, followed by a clinical pediatric orthopaedic fellowship at The Hospital for Sick Children in Toronto, Ontario. His postgraduate training includes programs at Harvard’s School of Public Health and Children’s Hospital of Philadelphia.

To view more Orthopaedic Division biographies, visit texaschildrens.org/orthopaedics.
Otolaryngology

The Otolaryngology Division at Texas Children’s Hospital provides advanced surgical and medical care for the entire spectrum of ear, nose, throat, head and neck diseases and disorders. Clinical services are provided at main campus, West Campus and all Texas Children’s Health Centers. In addition to caring for patients with complex conditions, the pediatric fellowship-trained physicians in the division also provide care for children in the community with common pediatric otolaryngology conditions such as middle-ear disease, and tonsil and adenoid disease. State-of-the-art audiology, along with diagnostic and therapeutic speech services, are also provided.
NEW PHYSICIAN HIRES AND SUBSPECIALTY EXPANSION

With the addition of seven new physicians in 2015, the Otolaryngology Division at Texas Children’s Hospital now has 21 otolaryngologists, making it the largest pediatric ear, nose and throat program in the country. Having a more robust staff strategically positioned throughout the Houston area has already proven successful. Patient volume has increased more than 40 percent this year, and that growth is expected to continue with the addition of even more faculty members.

Among the division’s new hires, Tara Rosenberg, M.D., adds expertise in the treatment of vascular anomalies and cleft lip and palate. Daniel Chelius, Jr., M.D., and Elton Lambert, M.D., contribute to the program’s strength in the treatment of head and neck diseases. Tony Hughes, M.D., leads the Otolaryngology Program at Texas Children’s Health Center The Woodlands. At Texas Children’s Hospital West Campus, Carol Liu, M.D., provides services for children with ear disease and hearing loss, and Shraddha Mukerji, M.D., focuses on program expansion.

Deepak Mehta, M.D., a nationally recognized expert in complex airway surgery, was recruited from the Children’s Hospital of Pittsburgh to serve as Ear, Nose and Throat (ENT) director of Texas Children’s Aerodigestive Center, which was founded in 2012 by Julina Ongkasuwan, M.D. Working with a multidisciplinary team that includes Pulmonology, Gastroenterology and Speech Pathology, the Aerodigestive Center provides state-of-the-art assessment and management of patients with airway and swallowing disorders.

In 2015, Dr. Ongkasuwan directed her efforts toward the expansion of the Voice Clinic, which provides specialized treatment for a wide range of pediatric voice disorders, such as hoarseness, vocal fold nodules and vocal fold paralysis. The Voice Clinic’s multidisciplinary team includes Dr. Ongkasuwan (dual fellowship-trained in pediatric otolaryngology and voice) and two speech pathologists.
Additionally, the division will expand its subspecialties in four key areas that have great potential for growth: airway reconstruction surgery, sleep medicine, vascular malformations and the treatment of hearing impairment. The Hearing Impairment Program includes cochlear implant surgery, which expanded to Texas Children’s Hospital West Campus in 2015. With this expansion, we now offer a full service of restoring hearing to patients with deafness in West Houston.

BABIES BORN WITH RARE, MASSIVE TERATOMAS RECEIVE HIGHEST QUALITY SURGICAL CARE

In the span of just a few months, experts at Texas Children’s Hospital delivered two babies with extremely large and rare cervical teratomas. On Aug. 12, 2015, a baby was born with a 20-cubic inch, 180-gram tumor internally blocking her airway and protruding from her mouth and nose. On Nov. 10, 2015, a baby was born with a 95-cubic inch, 1,050-gram tumor attached inside and outside her throat and mouth. Known as “fetus in fetu,” this type of teratoma is so rare that only four similar cases have been identified in medical literature.

Both babies were diagnosed by Texas Children’s Fetal Center™ and monitored closely until they could be delivered via EXIT procedure at 36 weeks. EXIT procedures leave the placenta and umbilical cord attached, maintaining fetal circulation until an airway can be established.

In the first case, the teratoma completely blocked the infant’s throat, and a challenging tracheostomy was performed on an airway approximately 3.5 mm wide. Sixteen days later, the mass was removed entirely by endoscope, avoiding additional external scars. Otolaryngologist Binoy Chandy, M.D., and Fetal Center co-director Darrell Cass, M.D., led the multidisciplinary team coordinating care for mother and child.

In the second case, the infant’s airway was also obstructed by the teratoma, but otolaryngologist Deepak Mehta, M.D., was able to perform an extremely challenging intubation, avoiding the need for a tracheostomy. A few days later, the entire teratoma was successfully removed, and the defects in the infant’s mouth and throat were repaired. Dr. Mehta and Fetal Center surgeon Timothy Lee, M.D., led the multidisciplinary team coordinating care for mother and child.

Both babies are doing extremely well and are on the road to a full recovery.
Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.

Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
ELLIS M. ARJMAND, M.D., M.M.M., PH.D., is the chief of Otolaryngology at Texas Children's Hospital and the Bobby Alford Endowed Chair in Pediatric Otolaryngology at Baylor College of Medicine. Dr. Arjmand joined the Baylor faculty as professor and chief of the Pediatric Otolaryngology Division in 2014 following academic appointments at Cincinnati Children's Hospital and the Children's Hospital of Pittsburgh. He obtained his medical degree and Ph.D. at Northwestern University in Chicago, and a master's degree in medical management from Carnegie Mellon University in Pittsburgh. He completed his residency and fellowship training at Washington University in St. Louis. Dr. Arjmand's clinical interests include pediatric ear disease, congenital and acquired hearing loss, airway disorders and sinus disease. He is nationally known for his research on pediatric hearing loss and for his expertise in the areas of health economics and health care quality improvement.

To view more Otolaryngology Division biographies, visit texaschildrens.org/otolaryngology.
One of only a few established programs for surgical treatment of pediatric and adolescent gynecologic disorders in the United States, and the largest program of its kind in Texas, the Pediatric and Adolescent Gynecology Division at Texas Children’s Hospital is committed to providing the highest level of clinical care, research and education. Part of the Department of Obstetrics and Gynecology at Baylor College of Medicine and Texas Children’s Hospital, the surgeons offer personalized treatment for common and rare gynecological problems in patients ranging from newborns to 21-year-olds. Specialties include vaginal trauma, congenital anomalies and adnexal cysts or masses. Additionally, we operate one of the few fellowship programs in the U.S. and Canada for pediatric and adolescent gynecology.

As an international referral center, the Pediatric and Adolescent Gynecology Division treats a large population of young women with congenital anomalies of the Müllerian ducts, which result in malformation of the uterus and/or vagina. Depending on the disorder, surgical and nonsurgical treatments as well as counseling are offered to help patients and their families cope with the diagnosis and possible future fertility issues.
NEW PHYSICIAN: OLUYEMISI A. ADEYEMI-FOWODE, M.D.

Oluyemisi A. Adeyemi-Fowode, M.D., joined the Pediatric and Adolescent Gynecology Division following her fellowship here in 2014. She is also an assistant professor in the Department of Obstetrics and Gynecology at Baylor College of Medicine. She earned her medical degree at the University of Wisconsin in Madison. She then completed her residency in obstetrics and gynecology at Baylor College of Medicine.

Dr. Adeyemi-Fowode is board certified by the American Board of Obstetrics and Gynecology, and has a passion for educating and training leaders in the field of pediatric and adolescent gynecology. Her interests include minimally invasive surgery, disorders of sexual development, anomalies of the reproductive tract, menstrual irregularities and contraception.

LAPAROSCOPIC OUTCOMES FOR CHILDREN AND ADOLESCENTS

Faculty and researchers in the Pediatric and Adolescent Gynecology Division reviewed five years of retrospective data on gynecologic laparoscopy outcomes. The group compared the outcomes of using a laparoscopic approach to surgically manage a wide range of pelvic conditions in pre-menarcheal versus menarcheal female children and adolescents over a five-year period. There were 158 cases from this time period that were eligible for review in this study.

This is the first and largest study to date that examines surgical outcomes for all indications of gynecologic laparoscopy in pediatric and adolescent patients at a single institution. This study is also the first to compare pathologies and outcomes among pre-menarcheal and menarcheal females.

PRIMARY INDICATION FOR SURGERY

In these patients, acute abdominal pain is a common indication for surgery.

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In both study groups examined, adnexal pathology was the most common abnormal intraoperative finding. Of the adnexal pathology, adnexal cysts with concurrent adnexal torsion was the most common finding across both groups. In the pre-menarcheal group, the most common secondary condition was adnexal torsion without cysts. In the menarcheal group, adnexal cyst(s) with concurrent torsion was the second most common finding.

**STUDY CONCLUSIONS**

Minimally invasive surgery is generally safe and well tolerated by patients for a wide variety of pelvic conditions in both younger children and older adolescent females. Physicians who are evaluating pre-menarcheal females who have acute abdominal pain should consider adnexal torsion among the differential diagnoses.

**PEDIATRIC AND ADOLESCENT GYNECOLOGY OPERATING ROOM CASES**

*by year*

Operating room case volume includes procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.
Jennifer E. Dietrich, M.D., M.Sc., is chief of Pediatric and Adolescent Gynecology at Texas Children’s Hospital and an associate professor in Obstetrics and Gynecology and Pediatrics at Baylor College of Medicine. She is also director of the Pediatric and Adolescent Gynecology Division, the fellowship director for Pediatric and Adolescent Gynecology, and the CME director for the Department of Obstetrics and Gynecology at Baylor.

Dr. Dietrich obtained her medical degree from the Medical College of Wisconsin in Milwaukee and completed her residency in obstetrics and gynecology at Baylor. She went on to complete fellowship training in pediatric and adolescent gynecology at the University of Louisville in Kentucky. During her fellowship, she also obtained a master’s degree in public health and clinical investigation. Dr. Dietrich is currently on the editorial board of the Journal of Pediatric and Adolescent Gynecology and has served on the Board of the North American Society for Pediatric and Adolescent Gynecology. Beginning in April of 2017, she will serve as president of the North American Society for Pediatric and Adolescent Gynecology.

To view more Pediatric and Adolescent Gynecology Division biographies, visit texaschildrens.org/pediatric-and-adolescent-gynecology.
The Pediatric General Surgery Division at Texas Children’s Hospital strives to provide optimal care across the surgical spectrum, from the most routine cases to the most rare and complex. Here every child receives personalized care from the physician best suited to the case. The range of surgical procedures performed by the division include fetal surgery; abdominal and thoracic surgery; minimally invasive surgery including laparoscopic and thorascoscopic diagnosis and treatment; thyroid, endocrine and biliary surgery; and adolescent bariatric surgery. Our research programs are supported by the National Institutes of Health, private foundations, Texas Children’s Hospital and Baylor College of Medicine.
THYROID TUMOR PROGRAM
In 2015, in collaboration with the Endocrinology Section, Pediatric General Surgery revamped Texas Children’s Thyroid Tumor Program to enhance the diagnosis and treatment of children and young adults with thyroid tumors, cancer and diseases. Approximately 2 percent of children develop solitary thyroid nodules – lumps that can grow on an otherwise normal thyroid gland. Most of these are benign, but a few are malignant and can develop into thyroid cancer. The Surveillance Epidemiology and End Results program estimates 1,200 children will be diagnosed with thyroid cancer in the U.S. this year. Receiving care at a dedicated pediatric hospital is critical to optimal outcomes as thyroid issues in children can differ greatly from thyroid issues in adults. Led by Monica E. Lopez, M.D., pediatric surgeon, and Ioanna Athanassaki, M.D., pediatric endocrinologist, the Thyroid Tumor Program strives to provide best-in-class care and dedicated tracking of patient outcomes to refine and improve management of patients with these diseases.

NEW PHYSICIAN HIRE: SUNDEEP G. KESWANI, M.D.
In 2015, pediatric and fetal surgeon Sundeep G. Keswani, M.D., joined the division. He is the principal investigator of a National Institutes of Health (NIH) funded laboratory with expertise in fetal regenerative wound healing, gene therapy applications, bone marrow contribution to tissue repair, and fetal diagnosis and treatment. Currently, he is the principal investigator of R01 and K08 grants from the National Institute for General Medical Sciences at the NIH. The goal of his research is to understand the underlying mechanisms of how the fetus heals without scarring to achieve postnatal regenerative tissue repair in various organ systems. Dr. Keswani completed his surgical residency at Louisiana State University and a fellowship in fetal surgery and surgical research at Children’s Hospital of Philadelphia and the Hospital of the University of Pennsylvania. He subsequently trained in pediatric surgery at St. Louis Children’s Hospital and the Washington University School of Medicine.

FETAL ENDOSCOPIC TRACHEAL OCCLUSION
The multidisciplinary team at Texas Children’s Fetal Center™ has completed 13 successful in-utero fetal interventions to treat congenital diaphragmatic hernia (CDH) since 2012. The minimally invasive and reversible fetal endoscopic tracheal occlusion procedure involves placing a small balloon into the fetus to plug the trachea. The balloon is left in place for several weeks and then removed by a similar procedure weeks before the anticipated delivery. The successful plugging/unplugging of the trachea can improve lung growth and outcomes in patients diagnosed with CDH. Texas Children’s Hospital is one of only a few centers in the United States granted an FDA exemption to conduct this research and is the most active center in the nation providing this promising treatment.

BARIATRIC STUDY SHOWS REVERSAL OF TYPE 2 DIABETES
The results of the largest in-depth study of its kind on teen weight-loss surgery were published in November 2015 in The New England Journal of Medicine. Researchers at Texas Children’s Hospital, Cincinnati Children’s Hospital Medical Center and three other sites around the country concluded that adolescents who underwent bariatric surgery demonstrated significant long-term improvements in their weight, metabolic health and quality of life.
Teen-LABS (Longitudinal Assessment of Bariatric Surgery) is an NIH-funded, multicenter, prospective clinical study that examines the long-term safety and health effects of surgical weight loss procedures and is the most comprehensive analysis of bariatric outcomes to date in adolescents. The study enrolled 242 adolescents, ages 13 to 19, all of whom were severely obese with an average weight of 325 pounds before surgery. Three years after surgery, average weight had decreased by more than 90 pounds, or 27 percent. The majority of participants showed reversal of a number of key obesity-related health problems. Reversal of type 2 diabetes was seen in 95 percent, and normalization of kidney function was seen in 86 percent. Hypertension corrected in 74 percent, and lipid abnormalities reversed in 66 percent.

GRANT AWARDED FOR HEPATOBLASTOMA RESEARCH
In 2015, the Macy Easom Cancer Research Foundation awarded pediatric surgeon Sanjeev Vasudevan, M.D., a $75,000 grant for research on hepatoblastoma, a pediatric liver cancer that usually affects children under the age of 5. Dr. Vasudevan’s research uses new imaging techniques to investigate intraoperative, real-time visualization of a tumor and blood vessels, which will allow surgeons to look at the actual structure of the liver during surgery without relying on previous scans that may not show the immediate condition of the liver. Ketankumar Ghaghada, Ph.D., assistant professor in Pediatric Radiology at Baylor, is co-principal investigator on this research study. The project team is made up of multidisciplinary specialists from Surgery and Radiology.

GLOBAL IMPACT
The surgeons of the Pediatric General Surgery Division strive to bring the excellent patient care available at Texas Children’s Hospital to children around the world. In 2015, faculty, with support from the Texas Children’s Hospital and private foundations, traveled to Africa, Guatemala and Russia for surgical outreach. Oluyinka Olutoye, M.D., Ph.D., leads the surgical activities for the Texas Children’s Global Health Initiative. He has also coauthored a publication in the Journal of Surgical Education titled, “Integrating global health into surgery residency in the United States.”
Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.

Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
JED G. NUCHTERN, M.D., is chief of Pediatric General Surgery at Texas Children’s Hospital and professor of Surgery and Pediatrics at Baylor College of Medicine. A graduate of Princeton University, Dr. Nuchtern received his medical degree from Harvard Medical School. He completed his general surgery training at the University of Washington and a research fellowship at the National Institutes of Health. He received advanced training in pediatric surgery at Baylor College of Medicine. In addition to a clinical focus on surgical oncology and general pediatric surgery, Dr. Nuchtern conducts a basic research program that focuses on molecular target discovery in neuroblastoma, a pediatric cancer. Dr. Nuchtern is a fellow of the American Academy of Pediatrics and the American College of Surgeons (ACS). He is a member of the ACS Commission on Cancer and the Children’s Oncology Group, a national consortia of pediatric oncology clinicians and research professionals.

To view more Pediatric General Surgery Division biographies, visit texaschildrens.org/pediatric-surgery.
In 2015, the Plastic Surgery Division at Texas Children’s Hospital grew to six full-time plastic surgeons, making it the largest group of full-time pediatric plastic surgeons at a children’s hospital in the United States. The division specializes in surgical treatment of injuries or disorders that prevent children from functioning fully or looking and feeling their best. We provide comprehensive care to pediatric patients with complex surgical needs at the hospital’s main campus as well as at Texas Children’s Hospital West Campus. The team includes a full-time fellowship-trained orthodontist who collaborates on surgical treatment and orthodontia for children with congenital craniofacial anomalies and/or cleft palate. Our innovative surgical techniques and treatment of cleft lip and cleft palate draws patients from across the nation with deformities ranging from mild to extremely complex.
**BREAST CLINIC**
In 2015, the Plastic Surgery Division expanded its services to include a breast clinic for teenage patients who need to have or have had breast reduction surgery. Laura Monson, M.D., is leading the clinic alongside a multidisciplinary team including physicians, nurses, social workers and specialists as needed.

**CLEFT LIP AND PALATE CLINIC**
The Cleft Lip and Palate Clinic expanded in 2015 to include a nurse practitioner, Athena Krasnosky, M.S.N., A.P.R.N., C.P.N., P.-P.C. Krasnosky helps to ensure the primary care needs of our cleft lip and palate patients are met, resulting in a reduced number of last-minute surgery cancellations due to patient illness.

**QUALITY CARE RESEARCH**
In 2015, the Plastic Surgery Division became one of only three hospitals in the U.S. to field-test the Cleft Q instrument for patients with cleft lip and palate. Cleft Q measures self-esteem, physical, speech and social concerns. Patients who score below average are referred to a psychologist for evaluation. Additionally, patient data is being collected on cleft lip and palate patients using the International Consortium for Health Outcomes Measurement Standard Set, as part of a quality improvement initiative for patient outcomes. These standard sets measure patient demographics and domains pertaining to physical appearance, speech difficulties, hearing issues, feeding issues and post-operative complications.
PLASTIC SURGERY OPERATING ROOM CASES
by year

Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.

PLASTIC SURGERY CLINIC VISITS
by year

Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
LARRY H. HOLLIER, JR., M.D., F.A.C.S., is chief of Plastic Surgery at Texas Children’s Hospital and professor and chief of the Plastic and Reconstructive Surgery Division at Baylor College of Medicine. Additionally, he serves as associate surgeon-in-chief for Clinical Affairs and medical director of Advanced Practice providers. He earned his medical degree from Tulane University and completed his plastic surgery residency at the University of Texas Southwestern Medical Center in Dallas, where he remained for fellowships in hand and microvascular surgery. He also completed a fellowship in craniofacial surgery at New York University Medical Center. Dr. Hollier specializes in pediatric craniofacial surgery, hand surgery, facial fractures, cranial vault remodeling, and midfacial and mandibular distraction. He has authored more than 200 articles in scholarly and professional publications as well as 37 book chapters, and made dozens of presentations to professional audiences worldwide on a range of topics related to plastic and reconstructive surgery. He has traveled extensively in Asia, Central America and Africa, performing surgeries on children in underserved populations. Dr. Hollier is the chairman of the medical advisory board of Smile Train, the largest charity in the world devoted to cleft care. In 2014, he was named surgical director of the Operating Rooms and surgical director of Patient Experience at Texas Children’s Hospital.

To view more Plastic Surgery Division biographies, visit texaschildrens.org/plasticsurgery.
One of the most active pediatric transplantation programs in the nation, Transplant Services at Texas Children’s Hospital provides complex, multifaceted medical and surgical care for newborns to young adults in need of heart, kidney, liver and lung transplants.

Our staff provides a comprehensive, interdisciplinary team approach through all aspects of the transplant process, from initial referral to hospitalization and outpatient management. Our pediatric transplant team works closely with patients, families and referring physicians to help make the evaluation process as convenient and efficient as possible.
The pediatric transplant landscape is complex and highly regulated. The Solid Organ Transplant Program at Texas Children’s Hospital is a member of the United Network for Organ Sharing (UNOS) and is fully accredited by the Centers for Medicare and Medicaid Services (CMS). In order to meet the CMS Quality Assessment and Performance Improvement requirements and to ensure the best possible care, Texas Children’s recently made a significant investment by adding a medical director of Transplant Quality, Ryan Himes, M.D.; two quality specialists; a clinical educator; a compliance specialist; and a clinical data specialist.

**TRANSPLANT SYMPOSIUM**

The 2015 Pediatric Transplant Symposium at Texas Children’s Hospital was the second transplant conference of its kind held at Texas Children’s. The purpose of this one-day educational symposium was to share emerging scientific research and innovations, create new collaborative partnerships and learn more about the care of pediatric transplant patients.

The agenda included a diverse range of topics presented by leaders in the transplant field, including current ethical debates; cutting-edge advancements in abdominal and thoracic transplantation; and general transplant topics such as medical management, pharmacology, rejection and infectious diseases. One presentation was delivered by a Texas Children’s patient, who gave participants a unique glimpse into the daily life of a transplant patient and her family. A variety of posters on current research, case studies and performance improvement projects were available for viewing and discussion. The next symposium is scheduled for September 2016.

**EXTRACORPOREAL LIVER SUPPORT THERAPY**

Children facing liver failure are among the most challenging patients to care for in the intensive care setting because liver failure can often lead to multi-organ failure. As the toxins build, these children are at risk for developing hepatic coma, the end-stage of liver failure.

In 2014, Texas Children’s Hospital became the first hospital in Texas to use extracorporeal liver support therapy on a pediatric patient. The Molecular Adsorbent Recirculating System (MARS®), a liver dialysis therapy now offered at the hospital, helped a 9-year-old patient with hepatic coma become healthy enough to be a candidate for liver transplant.

MARS removes protein-bound and water-soluble toxins by combining regular dialysis with albumin-assisted dialysis, reducing plasma toxins and allowing patients to wake up from hepatic coma. With early intervention, the MARS system provides liver support and can help improve or preserve multi-organ function by facilitating an improved environment for hepatic regeneration and clinical recovery. This liver dialysis method does not replace all functions of the liver, but it provides significant support to help prevent further deterioration and many times can improve overall patient health.
Operating room case volumes include procedures performed by Texas Children’s Hospital and Baylor College of Medicine physicians at Texas Children’s Hospital surgical locations. Of the 27 kidney transplantations completed in 2015, nine were living donors and 18 were deceased donors.


As of Dec. 31, 2015.
**Transplantations**

*by patient age*

- **2015**
  - 22.1%
  - 22.1%
  - 17.4%
  - 9.3%
  - 29.1%

**One-Year Pediatric Transplant Patient Survival Rates**

*Based on transplants performed 07/01/2012-12/31/2014. Pediatric age < 18.*

<table>
<thead>
<tr>
<th>Organ</th>
<th>Texas Children's Hospital</th>
<th>SRTR Expected</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart (N=47)</td>
<td>96.9%</td>
<td>96.6%</td>
<td>96.9%</td>
</tr>
<tr>
<td>Kidney (N=29)</td>
<td>95.6%</td>
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<tr>
<td>Liver (N=87)</td>
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<td>Lung (N=34)</td>
<td>97.1%</td>
<td>94.8%</td>
<td>97.1%</td>
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<tr>
<td></td>
<td></td>
<td>95.2%</td>
<td>94.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>86.9%</td>
<td>95.2%</td>
</tr>
</tbody>
</table>

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*Scientific Registry of Transplant Recipients (SRTR). Program Specific Reports. Table II - www.srtr.org.*

*Per SRTR, there are too few events to calculate statistically powerful expected patient survival values for pediatric kidney and lung recipients.*
THREE-YEAR PEDIATRIC TRANSPLANT PATIENT SURVIVAL RATES11, 12
Based on transplants performed 01/01/2010-06/30/2012. Pediatric age < 18.

<table>
<thead>
<tr>
<th>Organ</th>
<th>Texas Children’s Hospital</th>
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</thead>
<tbody>
<tr>
<td>Heart (N=29)</td>
<td>93.1%</td>
<td>87.5%</td>
<td>87.5%</td>
</tr>
<tr>
<td>Kidney (N=28)</td>
<td>100%</td>
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<td>Liver (N=75)</td>
<td>93.3%</td>
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</tr>
<tr>
<td>Lung (N=27)</td>
<td>85.2%</td>
<td>66.0%</td>
<td>66.0%</td>
</tr>
</tbody>
</table>

12Per the SRTR, there are too few events to calculate statistically powerful expected patient survival values for pediatric kidney and lung recipients.

JOHN A. GOSS, M.D., is the medical director of Transplant Services at Texas Children’s Hospital and surgical director of Liver Transplantation at Texas Children’s Hospital, St. Luke’s Episcopal Hospital and the Michael E. DeBakey Veterans Affairs Medical Center. He is also professor of Surgery and chief of the Abdominal Transplantation Division at Baylor College of Medicine. He received his medical degree from Creighton University in Omaha and completed his residency in general surgery at the Barnes Hospital at the Washington University School of Medicine Surgical Program. Subsequently, Dr. Goss completed a two-year multi-organ transplant fellowship in the Division of Liver and Pancreas Transplantation at the University of California School of Medicine in Los Angeles, where he was appointed assistant professor. He has been awarded the American Surgical Career Development Award, an American Liver Foundation Award and a Juvenile Diabetes Foundation Award for his efforts and leadership in transplantation. Throughout his career, Dr. Goss has performed more than 1,000 transplantation procedures.

To view more Transplant Services biographies, visit texaschildrens.org/transplant.
As one of the largest groups of fellowship-trained pediatric urologists in the United States, Texas Children’s Urology Division provides comprehensive evaluation, diagnosis, treatment and follow-up care for infants, children, adolescents and young adults with congenital and acquired disorders of the genitourinary tract. We provide surgical services for all genitourinary conditions and have a specialized focus on minimally invasive, robotic and laparoscopic surgical techniques, including extremely delicate procedures in newborns and infants, anorectal malformations, urological conditions caused by neurological problems such as spina bifida and management of stone disease.
The Urology Division provides care for complex disorders requiring extensive surgical reconstruction including disorders of sex development (intersex), bladder extrophy, genital reconstruction and complete urinary reconstruction. As part of the Minimally Invasive Surgery Program, we have state-of-the-art treatment modalities for endoscopy, laparoscopic surgery and robotic surgery.

In 2015, Texas Children’s Hospital was ranked #3 in Urology by U.S. News & World Report.

TEXAS CHILDREN’S HOSPITAL WEST CAMPUS EXPANDS UROLOGY SERVICES
In 2015, Urology Services at Texas Children’s Hospital West Campus were expanded to include after-hours and Saturday clinics to accommodate the needs of many patients and families. An advanced practice provider, registered nurse, medical assistant and ambulatory service representative are available during the extended hours to help patients with pediatric urological needs, with an attending urologist available at all times, if needed.

VOIDING DYSFUNCTION CLINIC
Duong Tu, M.D., and the Urology advanced practice providers developed the Voiding Dysfunction Clinic to treat patients with abnormal urination patterns. Patients are assessed through physical, laboratory and medical tests to treat urinary urgency and diurnal and nocturnal enuresis that is abnormal for the child’s age. The clinic allows patients to receive a thorough assessment and specialized care for these conditions.
Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital surgical locations.

Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
DAVID ROTH, M.D., is chief of Urology at Texas Children’s Hospital and chief of Pediatric Urology at Baylor College of Medicine, where he is also professor of Urology and Pediatrics and serves as the Edmond T. Gonzales, Jr., M.D., Endowed Chair in Pediatric Urology. Board certified by the American Board of Urology, Dr. Roth earned his medical degree from the University of Southern California in Los Angeles. After completing his surgical and urologic residency programs at Baylor, he went on to pursue advanced specialized training in urology. He completed a fellowship in pediatric urology surgery at Children’s Hospital of Michigan in Detroit. As a prominent leader in the field of pediatric urology for over 30 years, Dr. Roth has distinguished himself in a variety of research, clinical and academic roles. His clinical interests include urinary tract infection and reflux, congenital abnormalities of the genitalia and urinary tract obstruction of the newborn. His primary research is directed toward improving surgical outcomes in children with urologic disease. He has authored more than 75 book chapters and publications in various academic and medical journals and is the recipient of numerous honors and awards, including his recognition and inclusion on the list of Best Doctors in America each year since 1996.

To view more Urology Division biographies, visit texaschildrens.org/urology.
Surgery Inpatient Services

Inpatient Services at Texas Children’s Hospital provides treatment and care for children who need specialized, pediatric-focused patient care. Inpatient Services offers five specialized units for patients experiencing trauma, heart disease and life-threatening problems and who require special care nursing and monitoring:

- Acute Care Surgical Unit
- Cardiovascular Intensive Care Unit
- Heart Failure Intensive Care Unit
- Pediatric Intensive Care Unit
- Progressive Care Unit
ACUTE CARE SURGICAL UNIT
The acute care surgical floor is a 36-bed surgical care unit that admits patients of all ages from infancy to adolescence. The unit receives a wide variety of postoperative surgical patients from Orthopaedics, Otolaryngology, Pediatric General Surgery, Plastic Surgery and Urology. We have four beds dedicated to trauma patients and a team of nurses that focuses solely on our trauma patient population.

CARDIOVASCULAR INTENSIVE CARE UNIT/HEART FAILURE INTENSIVE CARE UNIT
The 21-bed Cardiovascular Intensive Care Unit (CVICU) admits newborns, infants, children and young adults with heart disease. In July 2015, we expanded the CVICU with the addition of a 12-bed Heart Failure Intensive Care Unit. The CVICU cares for children undergoing surgery for congenital heart disease; infants, children and adolescents with end-stage heart failure before and after heart transplantation; and children whose hearts can no longer adequately support them. We have a very busy mechanical support program that places children with end-stage heart failure on heart pumps to take over the heart function while they are waiting for a heart transplant. The multidisciplinary team includes cardiovascular intensivists trained in pediatric cardiology, cardiovascular anesthesiology and pediatric critical care. They work alongside cardiac surgeons, highly specialized nurses, respiratory therapists, nurse practitioners and physician assistants to provide the best care for our patients.

PEDIATRIC INTENSIVE CARE UNIT
The 31-bed Pediatric Intensive Care Unit (PICU) cares for infants and children with life-threatening infections and severe lung diseases requiring extracorporeal membrane oxygenation support, and for those who have been in serious accidents. The PICU is staffed with critical care physicians, advanced practice providers, and residents and fellows training in pediatric critical care. The medical team works seamlessly with a highly skilled multidisciplinary team of PICU nurses, respiratory therapists, pharmacists, social workers and child life specialists to care for each patient.

PROGRESSIVE CARE UNIT
The Progressive Care Unit (PCU) is a 36-bed unit that admits patients ranging in age from infancy to adulthood who require special care nursing and monitoring. Many patients depend on technological support, notably those with tracheostomies. Our multidisciplinary team of advanced practice providers, physician assistants, nurses and respiratory and physical therapists care for both acute and chronic conditions. Registered nurses coordinate all nursing care provided, which includes therapies that may be directed by other disciplines with special emphasis given to respiratory, neurological and surgical disorders. The PCU’s family-centered approach encourages parents to stay with and learn to care for their child in preparation for their return home.
LARA S. SHEKERDEMIAN, M.D., F.R.A.C.P., F.J.F.I.C.M., M.H.A., is chief of Critical Care and co-director of Texas Children’s Heart Center. She also serves as the vice chair of Clinical Affairs for the Department of Pediatrics and professor of Pediatrics at Baylor College of Medicine. She graduated from Birmingham University Medical School in 1990. She was awarded her postgraduate doctoral degree for her thesis, “Cardiopulmonary interactions in congenital heart disease,” from the University of Birmingham in 1997. Dr. Shekerdemian trained in pediatrics and pediatric cardiology and undertook postgraduate research in London. She trained in critical care in London and Toronto. She was previously on faculty at Great Ormond Street Hospital in London and was most recently the chief of Critical Care at The Royal Children’s Hospital in Melbourne. Her research and clinical interests include extracorporeal life support, brain injury in infants and children with heart disease, and outcomes in children after admission to the intensive care unit.

For more information about the Pediatric Intensive Care Unit (PICU), visit texaschildrens.org/departments/critical-care.
Operating Room and Perioperative Services

Designed for women and children, the Operating Rooms and Perioperative Services at Texas Children’s Hospital provide comprehensive and specialized capabilities for surgeries ranging from routine to extremely complex. More than 26,700 surgical cases were completed in 30 operating rooms across the Texas Children’s Hospital system in 2015. From admission to recovery, our support team of more than 700 strives to ensure an optimum experience for patients and physicians.

Many of the surgical suites are fully equipped and integrated with endoscopic equipment including advanced fetoscopes. For specialized surgical interventions such as fetal, heart and transplant surgery, we offer customized equipment and specially trained support staff. When children are too sick to be moved to an operating or procedure room, a mobile team, which includes a fellowship-trained pediatric anesthesiologist, travels throughout the hospital to perform bedside procedures.
In April 2015, a very large multidisciplinary team successfully separated the conjoined Mata twins (see page 10 for this story). Surgical simulations and 3D models were innovative tools used to prepare all surgical team members for this complicated procedure.

**SIMULATION CENTER**

Our commitment to children goes beyond equipment and expertise. To help ease the anxiety many children and their families feel before surgery, our robust Child Life Department offers a “virtual OR” simulator to help explain the surgery process. Colorful pajamas and child-friendly, scented anesthesia masks help children relax and feel more at ease.

Texas Children’s Simulation Center teaches surgical teams how to work together in stressful situations, build teamwork and optimize patient safety. One of the only simulation centers in Houston and one of a few in the nation, our Simulation Center uses the latest technology to produce a realistic clinical setting focused on providing the best care for women and children.

**ENHANCED PATIENT AND FAMILY EXPERIENCE**

Most surgical divisions have experienced significant growth in surgical faculty, helping improve access for those who need care. For example, the Otolaryngology Division has grown from eight physicians to 21 in a two-year period and is now the largest in the country. The Orthopaedics Division added two physicians to their team in 2015 and continues to grow.

To help meet the increased demands for operating room time and to increase the overall patient experience, elective Saturday scheduling was utilized for the first time this year, along with longer operating room and recovery hours each work day. The initiative was so successful that it will continue as a regular offering.

Many other initiatives were implemented to improve the patient/family experience. These include a full redesign of the Clinical Care Center ambulatory surgery preoperative admission and family waiting spaces (to be completed in 2016), direct delivery of discharge medications to the Post Anesthesia Care Unit, service recovery training for staff, and a dedicated staff member to round and help keep families informed throughout their perioperative experience.

**EXCELLENCE IN NURSING**

The Perioperative Department encourages and supports nurses through certification and education. Twenty-two perioperative nurses received nursing certification in fiscal year 2015, while several other nurses are in school pursuing bachelor's or master's degrees.

The OR Skin Champion Team, comprising surgical nursing staff at Texas Children’s Hospital, received first place at the recent Clinical Symposium on Advances in Skin and Wound Care. Our registered nurses (RNs) have given podium presentations based on their evidenced-based care.

Growing the pool of future staff is critical to the expanding surgical department, as evidenced by the creation of the Operating Room Nurse Residency Program to train graduating and experienced RNs to be qualified OR nurses. This residency program is the only one of its kind in the country. Eight nurses graduated in 2015.
Trauma Services and the Center for Childhood Injury Prevention

As a Level I pediatric trauma center, Texas Children’s Hospital provides around-the-clock coverage to evaluate and treat the most severely injured pediatric patients.

Teamwork is crucial in the rapid and decisive actions needed to treat traumatic injuries. This group of pediatric surgeons and surgical subspecialists; emergency medicine physicians; critical care physicians; anesthesiologists; nurses; child life specialists; social workers; rehabilitation specialists; physical, occupational and respiratory therapists; and other support staff work together effectively and efficiently when seconds matter.
Dedicated space for trauma cases is available in the Emergency Center, our main operating room suite and inpatient units. Approximately 70 percent of all trauma cases come from within the Metro Houston catchment area, which consists of nine counties covering more than 9,500 square miles. Over 50 percent of the trauma patients cared for at Texas Children’s Hospital are transferred from other hospitals. The average time to accept a transfer is 15 minutes, well below the 30-minute threshold that is allowed by federal regulation.

TRAUMA EDUCATION

To enhance the Trauma team’s multidisciplinary performance and ensure the best outcomes for our patient population, many opportunities for trauma education are offered at Texas Children’s Hospital. The Emergency Nursing Association’s two-day Trauma Nursing Core Course is offered monthly. This course enhances proficiency in the care of trauma patients by standardizing approaches and enhancing cognitive knowledge and psychomotor skills. We also offer an emergency nursing pediatric course, a trauma care after resuscitation course and a pediatric care after resuscitation course for nursing professionals throughout the greater Houston area and around Texas. Texas Children’s Hospital is committed to maintaining and further developing trained providers who can deliver care right from the time of injury, regardless of their role or practice setting.

To build proficiency in trauma assessment and patient care, we partner with the Operating Room and Perioperative Services Simulation Center to conduct monthly trauma simulations. To enhance the care delivered by the team and achieve optimal outcomes, outreach trauma and critical care simulation training education is provided for both EMTs and paramedics. Emergency nursing education is offered to hundreds of nurses each year within the greater Houston area and across Texas. This not only provides trained nurses in communities around Texas, it also builds a pool of instructors to maintain these trained nurses in underserved areas throughout the state.

TRAUMA ADMISSIONS

by year

Trauma admissions at Texas Children’s Hospital in the Texas Medical Center.
TRAUMA ADMISSIONS
by surgical division

- ORTHOPAEDICS: 43%
- PEDIATRIC GENERAL SURGERY: 34%
- NEUROSURGERY: 16%
- PLASTIC SURGERY: 3%
- OTHER: 4%

Other includes: Congenital Heart Surgery, Ophthalmology, Otolaryngology, Pediatric and Adolescent Gynecology, Plastic Surgery and Urology.

TRAUMA ADMISSIONS
by injury location

- EXTERNAL: 10%
- HEAD: 23%
- ARM: 27%
- LEG: 14%
- FACE: 4%
- ABDOMEN: 22%

Data from January 2015 to August 2015.

External encompasses skin injuries including cuts, bruises and abrasions.
TRAUMA ADMISSIONS by severity
Injury Severity Scores (ISS)

2015

- MINOR INJURY, ISS 1-9: 83%
- MODERATE INJURY, ISS 10-15: 9%
- MAJOR INJURY, ISS 16-24: 5%
- SEVERE INJURY, ISS ≥25: 3%

THE PEDIATRIC INPATIENT REHABILITATION PROGRAM
Physical Medicine and Rehabilitation Services are provided to children with traumatic injuries as part of the care at Texas Children’s Hospital. These services received a dramatic bolster in 2012 with the opening of our Pediatric Acute Inpatient Rehabilitation Program. In addition to providing rehabilitation services for inpatients, the program has eight dedicated beds for Pediatric Acute Inpatient Rehabilitation. Of these, 10 to 15 percent include patients rehabilitating following a traumatic injury. In 2014, the Pediatric Acute Inpatient Rehabilitation Program received the distinction of a three-year Commission on Accreditation of Rehabilitation Facilities (CARF) Accreditation. This honor is held by only 29 centers in the United States, and Texas Children’s Hospital is the only CARF-accredited program in Texas.

QUALITY IMPROVEMENT
Texas Children’s Trauma Services aims to continuously evaluate and improve the quality of care given to trauma patients from the perspective of our patients, parents, providers and system. Our trauma process improvement program monitors and evaluates patient care and system performance, while ensuring implementation of a culture of safety. The trauma team participates in The American College of Surgeons’ Trauma Quality Improvement Program and attends the annual scientific meeting and training. In 2015, the team attended the Trauma Outcomes and Performance Improvement Course and completed a quality improvement initiative aimed at decreasing the length of stay in the Emergency Center for trauma transfer patients.
The Center for Childhood Injury Prevention

Pediatric injury is the number one cause of death of children in the United States. Texas Children’s Center for Childhood Injury Prevention educates thousands of parents and children each year on a variety of child safety topics, such as child passenger safety, safe sleep, home safety, and bike and pedestrian safety. Our injury prevention programs are supported by $500,000 per year in grant funds provided by the Texas Department of Transportation, Kohl’s® and the Houston-Galveston Area Council.

Texas Children’s Hospital and our 20+ community partners inspect more than 3,000 car seats every year and distribute more than 1,200 car seats to underserved families. Additionally, we distribute portable cribs to qualifying families so they can provide safe sleep environments for their infants.

**TOP FIVE MECHANISMS OF INJURY**

*in 2015*

- Falls: 585
- Child abuse: 122
- Motor vehicle crash: 89
- Monkey bars: 71
- Football: 56

The Center for Childhood Injury Prevention also serves as the lead for the Safe Kids Greater Houston Coalition. We educate hundreds of children in local school districts about the importance of pedestrian safety through an annual Safe Kids program, Walk This Way. Additionally, through affiliations with Elves & More and the Texas Medical Association’s Hard Hats for Little Heads program, we distribute approximately 3,000 helmets each year and educate many more on the importance of bicycle safety.
Drowning prevention is also an important focus of our injury prevention program. Through our partnerships with the Red Cross, YMCA, the U.S. Army Corps of Engineers and Telemundo, we educate local families on the importance of water safety at home, at swimming pools or when near open water.

Injury prevention health education specialists now provide bedside injury prevention education to trauma patients and their families focusing on the mechanism of injury and other pertinent information related to the child’s age/development stage. Families are provided education and connected to community resources for additional services, such as car seat installation, if needed.
BINDI NAIK-MATHURIA, M.D., stepped into the role of medical director of Trauma Services in August 2014. Dr. Naik-Mathuria is a native Houstonian and a graduate of the General Surgery Program at Baylor College of Medicine. She completed her pediatric surgery fellowship at the Children’s Hospital of Los Angeles. After Texas Children’s Hospital became a Level I trauma center in 2011, Dr. Naik-Mathuria returned to serve as the associate medical director of Trauma under the experienced leadership of David Wesson, M.D. During this time, she completed a second fellowship in surgical critical care at Baylor. She has a strong interest in improving processes and quality of care for trauma patients at Texas Children’s Hospital, and she is currently running a multi-institutional study to determine the best management of pediatric pancreatic trauma.

CHRISTI REEVES, B.S.N., R.N., C.E.N., is director of Trauma Services and the Center for Childhood Injury Prevention. She started at Texas Children’s Hospital in 2015. She completed her bachelor’s degree in nursing from the University of Texas Arlington and is currently working on her master’s degree in nursing administration. Reeves has 15 years of emergency and trauma clinical experience and is working with the trauma team to prepare for the American College of Surgeon’s upcoming Level I trauma re-verification visit in the summer of 2016. Reeves is a member of the Pediatric Trauma Society, Emergency Nurses Association, and the Trauma Systems Committee for the Governor’s EMS and Trauma Advisory Council. She is education co-chair for the Texas Trauma Coordinator’s Forum and a course director for the Trauma Nursing Core Course and Emergency Nurses Pediatric Course.

To view more Trauma Services Division biographies, visit texaschildrens.org/trauma.
Texas Children’s Department of Pediatric Anesthesiology has 65 fellowship-trained pediatric anesthesiologists, making it one of the largest departments of its kind in the United States.

The anesthesiology team also includes 25 pediatric certified registered nurse anesthetists (CRNA) and 16 pediatric nurse practitioners. Last year, the pediatric team completed more than 41,000 cases, from simple outpatient procedures to complicated surgeries of 12 hours or more.

Anesthesia for children, babies and fetuses requires specifically designed equipment, and we utilize the latest technology, including advanced monitors and near-infrared spectroscopy to measure brain oxygen levels.

Our goal is for each child to have a safe experience, whether in the operating room or when having procedures and tests elsewhere in the hospital, such as bedside sedation in or near patient rooms. Additionally, four pediatric anesthesiologists work as part of the Cardiovascular and Pediatric Intensive Care Units to provide specialized anesthesia services for pediatric patients with complex conditions.
The Department of Pediatric Anesthesiology operates one of the leading fellowship programs in the United States, providing advanced training in general pediatric anesthesia and pediatric cardiovascular anesthesia, pediatric anesthesia education and research, and pediatric anesthesia quality and outcomes.

In 2015, the department expanded to include divisions of Anesthesia Research, Pain Management, Community Facilities, Non-Operating Room Anesthesia and Anesthesia Critical Care, in addition to the General Anesthesia and Cardiovascular Anesthesia divisions that have existed for more than 10 years. The expansion comes as the practice has continued to grow in faculty members and case volume.

**PEDIATRIC PAIN MANAGEMENT CLINIC**

In 2015, the Department of Pediatric Anesthesiology opened the hospital’s first multidisciplinary Pediatric Pain Management Clinic. Combining the expertise of bilingual, pediatric pain-trained anesthesiologists, pediatric pain psychologists and physical therapists, the Pain Clinic provides comprehensive pain management to patients and their families. Patients and families undergo thorough, individualized assessments and benefit from the integration of multidisciplinary recommendations for care. Texas Children’s Hospital offers the only pediatric pain practice in the greater Houston area. In addition to pharmacological care, the clinic offers a variety of in-house treatment options including acupuncture, procedural interventions and biofeedback therapy.

**SURGICAL RECOVERY UNIT**

To increase capacity for surgical cases throughout the year, the Department of Pediatric Anesthesiology created a Surgical Recovery Unit (SRU) in 2013. The team worked collaboratively with Critical Care Medicine and the Department of Surgery to open this four-bed unit within the Post Anesthesia Care Unit (PACU). The PACU is staffed by fully trained and board-certified critical care medicine physicians from Pediatrics and Anesthesiology, and by intensive care nurses and ancillary staff.

This unit is a precursor to a 12-bed Surgical ICU that will open in 2018 as part of Texas Children’s main campus expansion. A unique feature of the SRU is a direct-admit model from the operating rooms, bypassing traditional PACU care in order to facilitate better communication and patient care by eliminating a handoff to a transitional period of care.
Anesthesia case volumes include anesthesia administered by Texas Children’s Hospital physicians at Texas Children’s Hospital locations.
DEPARTMENT OF PEDIATRIC ANESTHESIOLOGY CASES
by location

68% OPERATING ROOM PROCEDURES
32% NON-OPERATING ROOM PROCEDURES

ANESTHESIA PROCEDURES IN TEXAS CHILDREN’S HOSPITAL OPERATING ROOMS

- West Tower: 10,997
- Clinical Care Center: 10,045
- Congenital Heart Surgery: 981
- West Campus: 5,868

SEDATION AND ANESTHESIA PROCEDURES IN OTHER TEXAS CHILDREN’S HOSPITAL AREAS

- Fetal anesthesia: 274 (Texas Children’s Hospital and Texas Children’s Pavilion for Women)
- Radiology: 8,323
- Cancer Center: 1,561 (Pediatric Acute Care Unit)
- Cardiac catheterization labs: 1,120
- Gastrointestinal procedures suite: 1,762
- Mobile sedation: 574
DEAN B. ANDROPoulos, M.D., M.H.C.M., is anesthesiologist-in-chief at Texas Children’s Hospital, vice chair of Clinical Affairs and professor of Anesthesiology and Pediatrics at Baylor College of Medicine. He received his medical degree at the University of California at San Diego. His residencies in pediatric medicine and anesthesiology were both at the University of California at San Francisco. In addition, Dr. Andropoulos earned a master of science in health care management from the Harvard School of Public Health. His research focus is neurological monitoring, protection and outcomes in neonates undergoing complex open heart surgery, for which he has ongoing National Institutes of Health (NIH) funding. He is the editor of two major textbooks: Anesthesia for Congenital Heart Disease, 2nd edition (3rd edition in preparation); and Gregory’s Pediatric Anesthesia, 5th edition. He is also co-principal investigator at Texas Children’s Heart Center for the NIH-funded Pediatric Heart Network Core Clinical Center.

To view more Department of Anesthesiology biographies, visit texaschildrens.org/anesthesia.
Texas Children’s Pavilion for Women

As a leader in the fields of obstetrics, gynecology, fetal and neonatal medicine, Texas Children’s Pavilion for Women strives to offer the most advanced technologies and treatments available.

**PAVILION FOR WOMEN SERVICES:**
- Fetal intervention and perinatal surgery
- Gynecologic oncology
- Gynecology
- Maternal fetal medicine
- Maternal intensive care
- Menopause care
- Minimally invasive surgery
- Obstetric and gynecologic imaging
- Obstetrics
- Physical therapy
- Reproductive endocrinology and infertility
- Reproductive genetics and prenatal diagnosis
- Pelvic health and wellness
- Women’s reproductive mental health

With a targeted high-risk obstetrics program, the Pavilion for Women responds to the escalating need for innovation in obstetrical research, education and treatment. For more information, please visit [women.texaschildrens.org](http://women.texaschildrens.org).
TEXAS CHILDREN’S FETAL CENTER™

Texas Children’s Fetal Center is one of only a few centers in the United States to offer the full spectrum of fetal therapies. We provide comprehensive care to meet the needs of pregnant women, including advanced diagnostic procedures and consultation to help families understand complex diagnoses and plan for the most appropriate care.

Mothers have access to fetal therapies including fetal surgery and fetal intervention. For infants in need of specialized care, Texas Children’s provides access to our Level IV Neonatal Intensive Care Unit (NICU) and expert pediatric subspecialists.

Families have access to more than 40 pediatric medical and surgical subspecialists and a Level IV NICU.

The core staff of Texas Children’s Fetal Center includes maternal-fetal medicine specialists and specialized coordinators, fetal and pediatric surgeons, and cardiology imaging, all openly communicating about the care of the fetal patient. Depending on the case, the Fetal Center team can request support from other divisions at Texas Children’s Hospital, including anesthesiologists, fetal radiologists, fetal cardiologists, neonatologists, urologists, neurologists, pediatric surgeons, cardiovascular surgeons, neurosurgeons and genetic specialists with expertise in fetal conditions.

PROCEDURES INCLUDE:

- Amniotic band resection
- Ex-utero intrapartum treatment (EXIT)
- EXIT-to-airway for congenital high airway obstruction syndrome
- EXIT-to-airway for fetal neck masses
- EXIT-to-resection for fetal lung masses
- Experimental fetal endoscopic tracheal occlusion for congenital diaphragmatic hernia
- Fetal shunt placement
- Fetal cardiac intervention
- Fetoscopic laryngoscopy and bronchoscopy for fetal airway concerns
- Fetoscopic laser photocoagulation for twin-twin transfusion syndrome
- Intrauterine transfusion
- Open fetal surgery for lung masses/congenital cystic adenomatoid malformation
- Open fetal surgery for sacrococcygeal teratoma and vascular tumors
- Open fetal surgery for spina bifida
- Radio frequency ablation or umbilical coagulation for complicated monochorionic pregnancies
- Open and experimental fetoscopic surgery for myelomeningocele (spina bifida)

ADULT SURGERY

Texas Children’s Department of Surgery collaborates with specialists at Texas Children’s Pavilion for Women to provide surgical services for women. When patients need surgery that is not related to obstetrics or gynecology, William Fisher, M.D., medical director of Adult Surgery, leads procedures such as appendectomies and also supports complex surgical cases.

Dr. Fisher attended the University of Cincinnati College of Medicine and completed his internship at Mount Carmel Medical Center. He completed his residency at The Ohio State University College of Medicine and his fellowship at The Ohio State University College of Nursing.
ADVANCED CARE FOR NICU AND CVICU PATIENTS
With an extensive high-risk delivery population, Texas Children’s Pavilion for Women experiences higher NICU and CVICU admission rates. From 2014 to 2015, deliveries have increased 8 percent and admissions to the NICU or CVICU have increased by almost 6 percent. The percentage of deliveries requiring admission to either the NICU or CVICU remains around 20 percent for both 2014 and 2015.

NUMBER OF BIRTHS AND ADMISSIONS FOR TEXAS CHILDREN’S PAVILION FOR WOMEN
by year

<table>
<thead>
<tr>
<th>Year</th>
<th>Births</th>
<th>NICU/CVICU Admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>4,134</td>
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<td>2014</td>
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<tr>
<td>2015</td>
<td>6,009</td>
<td>1,230</td>
</tr>
</tbody>
</table>
MICHAEL A. BELFORT, M.B.B.C.H., M.D., PH.D., is OB/GYN-in-chief of Texas Children’s Pavilion for Women and the Ernst W. Bertner Chairman and Professor in the Department of Obstetrics and Gynecology at Baylor College of Medicine. A nationally and internationally renowned specialist in maternal fetal medicine and fetal intervention, Dr. Belfort is board certified in obstetrics and gynecology and maternal fetal medicine by the American Board of Obstetrics and Gynecology.

A native of South Africa, Dr. Belfort received his medical degree (M.B.B.C.H.) from the University of the Witwatersrand in Johannesburg, South Africa. He received his M.D. from the University of Cape Town, South Africa, and a Ph.D. from the Karolinska Institute in Stockholm, Sweden. Dr. Belfort is the author/editor of several textbooks notably, Hypertension in Pregnancy, Obstetric Clinical Algorithms: Management and Evidence, Preeclampsia: Etiology & Clinical Practice and Critical Care Obstetrics and has over 219 peer reviewed papers.

To view more providers’ biographies, visit women.texaschildrens.org.
Texas Children’s Hospital West Campus

Texas Children’s Hospital West Campus is Houston’s first community hospital designed, built and staffed to exclusively care for children. This state-of-the-art 514,000-square-foot facility incorporates best practices in pediatric treatment and serves the West Houston community as the premier resource for children’s health. Since its opening in 2011, the West Campus has seen over 113,000 surgical clinic visits and 18,000 surgical cases. Increasing demand has prompted the opening of an additional full-time operating room, and expansion of services to perform cochlear implants and dental surgeries for patients who require pediatric anesthesiologists or have complex medical conditions.
With the tremendous growth, the West Campus has opened 18 additional inpatient beds and four PICU beds and has expanded the physician’s assistant surgical hospitalist program. In 2015, the team welcomed Shraddha Mukerji, M.D., and Yi-Chun Liu, M.D., to the Otolaryngology Division and Duong D. Tu, M.D., to the Urology Division.

SPORTS MEDICINE
The West Campus is home to a 28,500-square-foot sports medicine facility that houses a 3,000-square-foot gym, two radiology suites, three casting rooms and 16 exam rooms for seamless, patient-centered service. With our comprehensive array of services, we treat acute and chronic sports injuries, concussions and other conditions that affect sports performance. In addition, we help young athletes with wellness, injury prevention and return-to-play treatment plans. We partner with sports medicine specialists, orthopaedic surgeons, radiologists, sports-focused physical therapists, dietitians and other pediatric subspecialists to deliver comprehensive care.

SPECIAL ISOLATION UNIT
In 2015, as part of the hospital’s long-term vision to care for children with the most serious and complex medical conditions, Texas Children’s Hospital West Campus opened an eight-bed special isolation unit specifically for children with highly contagious infectious diseases, such as pandemic influenza, enterovirus D68, Ebola and many others.

This new special isolation unit incorporates all of the latest scientific and technological approaches to biocontainment, including negative air pressure, laminar air flow, high-efficiency particulate air (HEPA) filtration, separate ventilation, anterooms, biosafety cabinets, a point-of-care laboratory, special security access, autoclaves and incinerators. There are two levels of protection from airborne particles, as well as a comprehensive waste management plan, among other safety features. The unit is fully equipped to care for any infant or child with a serious communicable disease, with all of the measures available to assure safety of the health care team, other patients and their families. A point-of-care biosafety Level 3 laboratory enables the care team to monitor the progress of patients and perform rapid detection methods to identify unusual pathogens.

The specialized unit is led by Gordon Schutze, M.D., who serves as medical director, as well as Judith Campbell, M.D., and Amy Arrington, M.D., associate medical directors. It is staffed by an elite team of experienced critical care and infectious disease nurses and physicians, all of whom have successfully completed an intensive advanced certification course and practicum in infection control, hospital epidemiology and management of infectious diseases in the critical care setting.

TEXAS CHILDREN’S HOSPITAL WEST CAMPUS ADDS A HELIPAD
In October 2015, Texas Children’s Hospital West Campus opened the first helipad in the Texas Children’s Hospital system, offering even greater accessibility. Texas Children’s Hospital plans to add two additional helipads, one at Texas Children’s Hospital The Woodlands (scheduled to open in 2017) and a second as part of the expansion at main campus (scheduled to open in 2018).
ALLEN MILEWICZ, M.D., M.B.A., is chief surgical officer at West Campus, chief of Community Surgery at Texas Children’s Hospital and assistant professor of Surgery and Pediatrics at Baylor College of Medicine. He is responsible for organizing the role of surgery within the community, focusing on the five Texas Children’s Health Centers and Texas Children’s Hospital West Campus. He received his medical degree from New York University Medical Center and completed both his internship and residency at the University of Texas Southwestern Medical Center in Dallas. Subsequently, Dr. Milewicz completed his fellowship at the University of Oklahoma and Oklahoma City College of Pediatric Surgery. His primary focus is on the clinical practice of pediatric surgery in an educational setting. Additionally, Dr. Milewicz has extensive research experience in cardiac surgery, liver transplantation and hepatobiliary disorders. Dr. Milewicz has advanced training and extensive experience in skeletal malformations of the chest. He is board certified by the American Board of Surgery in pediatric surgery.

For more information, please visit westcampus.texaschildrens.org.

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## OPERATING ROOM CASES AND CLINIC VISITS COMPLETED

**at Texas Children’s Hospital West Campus**

<table>
<thead>
<tr>
<th>SURGICAL DIVISION</th>
<th>CLINIC VISITS</th>
<th>OPERATING ROOM CASES</th>
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<tbody>
<tr>
<td>Dental</td>
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<td>202</td>
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<tr>
<td>Ophthalmology</td>
<td>4,693</td>
<td>244</td>
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<tr>
<td>Orthopaedics</td>
<td>12,343</td>
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<td>Otolaryngology</td>
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<td>Pediatric and Adolescent Gynecology</td>
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<tr>
<td>Plastic Surgery</td>
<td>2,172</td>
<td>369</td>
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<tr>
<td>Urology</td>
<td>2,952</td>
<td>377</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>34,287</strong></td>
<td><strong>5,686</strong></td>
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</table>

Operating room case volumes include procedures performed by Texas Children’s Hospital, Baylor College of Medicine and private practice physicians at Texas Children’s Hospital West Campus. Clinic visits include outpatient visits by Texas Children’s Hospital and Baylor College of Medicine faculty only.
Texas Children’s Hospital is constructing a new pediatric community hospital in The Woodlands, slated to open inpatient services in 2017. Outpatient services will begin in October 2016. Once complete, the 548,000-square-foot, state-of-the-art facility will be the area’s first freestanding pediatric hospital.

Texas Children’s Hospital The Woodlands will provide more than 25 areas of specialty care including: Anesthesiology, Cardiology, Critical Care, Dental, Emergency Medicine, General Surgery, Neurology, Ophthalmology, Orthopaedics, Otolaryngology, Pediatric and Adolescent Gynecology, Plastic Surgery, Radiology, Sports Medicine and Urology.
Hospital facilities will include 25 emergency center rooms, 72 outpatient exam rooms, 12 radiology rooms, four operating rooms and 32 acute care beds at opening, with plans to include additional inpatient beds. Ample free parking will be available with 1,000 spaces planned. Along with serving families throughout The Woodlands area, Texas Children’s anticipates serving families in counties throughout greater north Houston including Montgomery, Walker, Grimes, Liberty, Harris, Polk, San Jacinto, Hardin and beyond.

TEXAS CHILDREN’S HOSPITAL THE WOODLANDS ANNOUNCES NEW CHIEF SURGICAL OFFICER

In 2015, Jeffrey Shilt, M.D., accepted the position of chief surgical officer (CSO) at Texas Children’s Hospital The Woodlands with a start date of February 2016. In addition to his role as CSO, Dr. Shilt will assist in the Orthopaedics Division. He brings a unique blend of academic, surgical and community practice experience. Most recently, he was a pediatric orthopaedic surgeon at St. Luke’s Children’s Hospital in Boise, Idaho, where he also directed the hospital’s Spasticity Clinic for children and adults.

NEWBORN CENTER EXPANDED TO THE WOODLANDS

In 2015, Houston saw rapid population growth, and Texas Children’s Newborn Center experienced a steady increase in volume. To help meet this need, Texas Children’s Hospital The Woodlands will open a Newborn Center, marking the first expansion of Texas Children’s Newborn Center outside of the main campus. It will include a 14-bed Newborn Intensive Care Unit and a 14-bed Pediatric Intensive Care Unit when it opens in 2017.

TOPPING OUT

In August 2015, Texas Children’s Hospital and Tellepsen Builders celebrated the topping out of Texas Children’s Hospital The Woodlands with members of the community as the hospital moved one step closer to opening its doors. To commemorate this construction milestone, a tree was placed on top of the construction site and filled with meaningful promise cards from Texas Children’s employees. The tree will be planted in front of the new hospital to grow as it does.

For more information, visit texaschildrens.org/woodlands.
DEPARTMENT OF SURGERY LEADERSHIP
Charles D. Fraser, Jr., M.D., Surgeon-in-Chief
Larry H. Hollier, Jr., M.D., F.A.C.S., Associate Surgeon-in-Chief for Clinical Affairs and Surgical Director of Patient Experience and Operating Rooms
David E. Wesson, M.D., F.A.C.S., F.A.A.P., Associate Surgeon-in-Chief for Academic Affairs
Thomas G. Luerssen, M.D., F.A.C.S., F.A.A.P., Chief Quality Officer
Allen L. Milewicz, M.D., M.B.A., Chief Surgical Officer, Texas Children’s Hospital West Campus
Jeffrey Shilt, M.D., Chief Surgical Officer, Texas Children’s Hospital The Woodlands*
Ellis M. Arjmand, M.D., Ph.D., M.M.M., Surgical Director of Practice Standards and Faculty Development
Mark Mullarkey, Executive Vice President
H. Mallory Caldwell, Senior Vice President
Matthew T. Girootto, Vice President
Binta Baudy, Director of Surgical Clinics and Physician Services Organization
Kathy Carberry, R.N., M.P.H., Director of Outcomes & Impact Service
Laura Laux Higgins, Director of Strategic Projects
Ryan K. Krasnosky, M.P.A.S., P.A.-C., Director of Surgical Advanced Practice Providers
Christi Reeves, B.S.N., R.N., C.E.N., Director of Trauma and Childhood Injury Prevention
Janet Winebar, R.N., Director of Perioperative Services

CONGENITAL HEART SURGERY
Charles D. Fraser, Jr., M.D., Chief
Jeffrey S. Heinle, M.D., Associate Chief
Steven (Blake) Gentile, M.B.A., Practice Administrator
Iki Adachi, M.D.
Nancy Benson, M.S.N., C.P.N.P.-P.C.
Ziyad Binsalamah, M.D.
Amy G. Hemingway, R.N., M.S.N., C.N.S., C.P.N.P.-P.C.
Lauren Kane, M.D.
Kim Krauklis, R.N., N.P.-C.
Jill LeBlanc, R.N., C.P.N.P.-A.C.
E. Dean McKenzie, M.D.
Carlos M. Mery, M.D.
Tammy Pyron, R.N., C.P.N.P.-P.C.
Jenny Suh, P.A.-C.
Mary Tran, P.A.-C.

*Starting in February 2016.

DENTAL
Bruce Carter, D.D.S., Chief
Mary D. Kana, M.B.A., Practice Administrator
Amy H. Tran, D.D.S.
Esther Yang, D.D.S.

NEUROSURGERY
Thomas G. Luerssen, M.D., F.A.C.S., F.A.A.P., Chief
Lorraine M. Cogan, M.S.W., Practice Administrator
Brandy Berger, M.S.N., R.N., C.P.N.P.-P.C.
Natalie Cormier, M.S.N., R.N., F.N.P.-B.C.
Daniel J. Curvy, M.D.
Robert C. Dauser, M.D.
Andrew H. Jea, M.D., F.A.A.N.S., F.A.C.S., F.A.A.P.
Heidi Kerns, M.S.N., R.N., F.N.P.-B.C.
Sandi K. Lam, M.D., M.B.A.
Ameen Moreno, M.S.N., R.N., C.P.N.P.-P.C.
Brenda Perry, C.P.N.P.-P.C.
Lucia Ruggieri, P.A.-C.
William E. Whitehead, M.D., M.P.H.

OPHTHALMOLOGY
David K. Coats, M.D., Chief
Valdemar Z. Garza, Practice Administrator
Zaina Al-Mohtaseb, M.D.
Amit R. Bhatt, M.D., F.A.A.P.
Peter T. Chang, M.D.
Jane C. Edmond, M.D.
Dan S. Gombos, M.D.
Honey H. Herce, M.D.
Mohamed A. Hussein, M.D.
Mary Kelinske, O.D.
Doug Marx, M.D.
Evelyn A. Paysse, M.D.
Veeral S. Shah, M.D., Ph.D.
J. Timothy Stout, M.D., Ph.D., M.B.A.
Kimberly G. Yen, M.D.

ORTHOPAEDICS
John P. Dormans, M.D., Chief
Laurie Ann Roy, M.B.A., C.M.P.E., Practice Administrator
Kolby S. Buckner, P.A.-C.
Tanisha George Daugherty, P.A.-C.
Howard R. Epps, M.D.
Susannah Ferguson, P.A.-C.
Vincy D. George, P.A.-C.
Frank T. Gerow, M.D.
Darrell Hanson, M.D.
Dorothy Y. Harris, M.D.
Jaclyn F. Hill, M.D.
Thomas R. Hunt, III, M.D., D.Sc.
Bensley Mathew, P.A.-C.
Megan M. May, M.D.
Scott D. McKay, M.D.
Layne Opersteny, P.A.-C.
William A. Phillips, M.D.
Scott D. Rosenfeld, M.D.
Janai A. Sells, P.A.-C.
Vinitha R. Shenava, M.D.
Jeffrey Shilt, M.D.
Amanda L. Smith, P.A.-C.
Lisa D. Stringer, P.A.-C.
Andrew Swenson, P.A.-C.
Joseph Tremmel, P.A.-C.
Cori E. White, C.P.N.P.
Lindseay E. White, P.A.-C.
Opal J. Willmon, P.A.-C.

OTOLARYNGOLOGY
Ellis M. Arjmand, M.D., Ph.D., M.M.M., Chief
Michael Dyer, M.H.A., Practice Administrator
James P. Carter, M.A., C.C.C.-S.L.P., Manager, Speech Language and Learning
Elton Ashe-Lambert, M.D.
Amy Bartholomew, P.A.-C.
Linda Brock, P.N.P.
Jennifer Brown, P.A.-C.
Karina Ta Canadas, M.D.
Binoj M. Chandy, M.D.
Daniel C. Chelius, M.D.
Ellen M. Friedman, M.D.
Carla M. Giannoni, M.D.
C. Anthony Hughes, M.D., M.B.A., M.P.H.
John R. Jones, M.D.
Deidre R. Larrier, M.D.
Yi-Chun Carol Liu, M.D.
Jessie Marcet-Gonzalez, P.N.P.
Deeapak Mehta, M.D.
Shraddha S. Mukerji, M.D.
Mary Frances Musso, D.O.
Henna Narsi-Prasla, P.N.P.
Julina Ongkasuwan, M.D.
Tiffany Raynor, M.D.

Erin Roper, P.A.-C.
Tara L. Rosenberg, M.D.
Kathy Shelly, P.A.-C.
Matthew Sitton, M.D.
Marcelle Sulek, M.D.
Ronald Vilela, M.D.
Robert A. Williamson, M.D.

PEDIATRIC AND ADOLESCENT GYNECOLOGY
Jennifer E. Dietrich, M.D., M.Sc., Chief
Michele Birsinger, M.B.A., Practice Administrator
Oluyemisi Adeyemi-Fowode, M.D.
Jennifer L. Bercaw-Pratt, M.D.
Janie Geyer, W.H.N.P.
Jennifer Parker Kurkowski, W.H.N.P.
Ronald Young, M.D.

PEDIATRIC GENERAL SURGERY
Jed G. Nuchtern, M.D., Chief
Darrell L. Cass, M.D., Co-Director Texas Children’s Fetal Center
Oluyinka Olutoye, M.D., Ph.D., Co-Director Texas Children’s Fetal Center
Timothy C. Lee, M.D., ECMO Surgical Director
Bindi Naik-Mathuria, M.D., Trauma Program Director
Jag M. Grooms, M.P.A., Practice Administrator
Swathi Balaji, Ph.D.
Mary L. Brandt, M.D.
Jessica M. Craig, P.A.-C.
Celia D. Flores, P.A.-C.
Elizabeth S. French, P.A.-C.
Charles W. Hartin, Jr., M.D.
Jingling Jin, Ph.D.
Sundee G. Keswani, M.D.
Monica E. Lopez, M.D.
Mark V. Mazziotti, M.D.
Allen L. Milewicz, M.D., M.B.A.
Paul K. Minifee, M.D.
Jamie J. Ouseph, P.A.-C.
Priya D. Patel, P.A.-C.
Ashwin P. Pimpalwar, M.D.
J. Ruben Rodriguez, M.D., M.M.Sc.
Soheil R. Shah, M.D., M.S.H.A.
Sarah L. Smith, P.A.-C.
Sanjeev A. Vasudevan, M.D.
Veronica A. Victorian, P.A.-C.
David E. Wesson, M.D.
PLASTIC SURGERY
Larry H. Hollier, Jr., M.D., F.A.C.S., Chief
Mary D. Kana, M.B.A., Practice Administrator
Edward P. Buchanan, M.D.
Lesley Davies, P.A.-C.
David Khechoyan, M.D.
Athena Krasnosky, C.P.N.P., A.P.R.N.
Edward Lee, M.D.
Laura Monson, M.D.
Reggie Nunez, P.A.-C.
William (Chris) Pederson, M.D.*
John Wirthlin, D.D.S., M.S.D.
Diana Wride, P.A.-C.

TRANSPLANT SERVICES
John A. Goss, M.D., Medical Director
Ryan W. Himes, M.D., Medical Director for Transplant Quality
Diesa R. Samp, Director of Transplant Services

Heart Transplant Program
Jeffrey S. Heinle, M.D., Surgical Director
William J. Dreyer, M.D., Medical Director
Iki Adachi, M.D.
Antonio G. Cabrera, M.D.
Christina Clawson, C.P.N.P.-A.C.
Susan W. Denfield, M.D.
Charles D. Fraser, Jr., M.D.
Aamir Jeewa, M.D.
Lauren Kane, M.D.
E. Dean McKenzie, M.D.
Carlos Mery, M.D.
Jack F. Price, M.D.

Kidney Transplant Program
Christine A. O’Mahony, M.D., Surgical Director
Eileen D. Brewer, M.D., Medical Director
Alisa Acosta, M.D.
Joseph Angelo, M.D.
Ayse Arikan, M.D.
Ronald Cotton, M.D.
Ewa Elenberg, M.D.
Arundhati S. Kale, M.D.
Rossana Malatesta, M.D.
Mini Michael, M.D.
Alvaro Orjuela, M.D.
Abbas Rana, M.D.
Adnan Safdar, M.D.
Shweta Shah, M.D.
Poyyapakkam Srivaths, M.D.
Sarah J. Swartz, M.D.
Scott E. Wenderfer, M.D.

Liver Transplant Program
John A. Goss, M.D., Surgical Director
Tamir Miloh, M.D., Medical Director
Beth A. Carter, M.D.
Ronald Cotton, M.D.
Douglas S. Fishman, M.D.
Donna Garner, C.P.N.P.
Sanjiv (Sonny) Harpavat, M.D.
Paula M. Hertel, M.D.
Ryan W. Himes, M.D.
Daniel H. Leung, M.D.
Kenneth Ng, D.O.
Christine A. O’Mahony, M.D.
Abbas Rana, M.D.

Lung Transplant Program
Jeffrey S. Heinle, M.D., Surgical Director
George B. Mallory, M.D., Medical Director
Iki Adachi, M.D.
Shailendra Das, D.O.
Maria C. Gazzaneo, M.D.
Lauren Kane, M.D.
E. Dean McKenzie, M.D.
Ernestina Melicoff-Portillo, M.D.
Carlos Mery, M.D.

UROLOGY
David R. Roth, M.D., Chief
Sarah Ringold, M.B.A., Practice Administrator
Jennifer Barrera, P.A.
Edmond T. Gonzales, M.D.
Jacqueline Guarino P.A.
Nicolette Janzen, M.D.
Chester Koh, M.D.
Joanna Marroquin, N.P.
Jessica Schuh, P.A.-C.
Abhishek Seth, M.D.
Duong Tu, M.D.

INPATIENT SERVICES
Critical Care
Gail Parazynski, R.N., M.S.N., N.E.A.-B.C., Assistant Vice President, Nursing

*Starting in January 2016.
Acute Care Surgical Unit
Christina Mauk, R.N., M.S.N., Assistant Director, Nursing

Cardiovascular Intensive Care Unit
Paul A. Checchia, M.D., F.C.C.M., F.A.C.C., Medical Director
Amanda Wollam, R.N., Assistant Director, Nursing

Pediatric Intensive Care Unit
Matthew Musick, M.D., Medical Director
Shannon Holland, R.N., M.S.N., N.E.-B.C., Assistant Director, Nursing

Progressive Care Unit
Kevin Roy, M.D., Medical Director
Tarra Kerr, R.N., M.S.N., Assistant Clinical Director

Operating Room and Perioperative Services
Main Campus
Janet Winebar, R.N., M.S.M., Director, Perioperative Services
Lynn A. Huffman, R.N., M.B.A., Assistant Director, Operating Rooms
Ronald Loosle, R.N., M.B.A., Assistant Director, PACU/Anesthesia

West Campus
Ramon Enad, R.N., M.B.A., Assistant Director, Perioperative Services

Pavilion for Women
Nakeisha Archer, R.N., M.B.A., Director, Perioperative Services

Trauma Services
Bindi J. Naik-Mathuria, M.D., Medical Director
Christi Reeves, B.S.N., R.N., C.E.N., Director, Trauma and Center for Childhood Injury Prevention
Danny Rubalcava, M.D., M.S.P.H., Associate Trauma Medical Director, Emergency Medicine
Ruben Rodriguez, M.D., Associate Trauma Medical Director, Surgery
Kristen Beckworth, M.P.H., C.H.E.S., C.P.S.T.I.
Cher Leach, R.N., B.S.N., C.P.E.N.

Department of Anesthesiology
Dean B. Andropoulos, M.D., M.H.C.M., Anesthesiologist-in-Chief
R. Blaine Easley, M.D., Associate Anesthesiologist-in-Chief
Stephen A. Stayer, M.D., Associate Anesthesiologist-in-Chief
Kelly M. Crumley, Practice Administrator
Titilopepi A.O. Aina, M.D.
Melanie J. Alo, M.D.
Rahul G. Baijal, M.D.
Tamra Baker, C.R.N.A., D.N.P.
Beth M. Barraza, R.N., M.S., P.N.P.
Sandra L. Benavides, R.N., M.S., P.N.P.
Monique Bernsten, R.N., M.S., P.N.P.
Sudha A. Bidani, M.D.
Glorianne Bond, R.N., M.S., P.N.P.
Kenneth M. Brady, M.D.
Katrin A. Campbell, M.D.
Carlos J. Campos, M.D.
Samantha Capehart, R.N.
Lisa A. Caplan, M.D.
Nicholas P. Carling, M.D.
Julia H. Chen, M.D.
Hilary Cloyd, R.N.
Camille M. Colomb, M.D.
Michelle R. Dalton, M.D.
Meredith Davenport, C.R.N.A., M.S.N.
Christopher Deegear, R.N.
Erin R. Depew, C.R.N.A., M.S.
Melissa Dominick, C.R.N.A., D.N.P.
Molly Durfee, C.R.N.A., M.S.N.
Jessica H. Emerald, R.N., M.S., P.N.P.
Jennifer Esplana, C.R.N.A., M.S.
Christopher R. Estrada, M.D.
Mary A. Felberg, M.D.
Priscilla J. Garcia, M.D.
Nancy L. Glass, M.D.
Chris D. Glover, M.D.
Cheryl A. Gore, M.D.
Erin A. Gottlieb, M.D.
Kalyani Govindan, M.D.
Stuart R. Hall, M.D.
Ryan Hattori, C.R.N.A., M.S.N.
Lisa D. Heyden, M.D.
Helena Karlberg Hippard, M.D.
Julie Hoang, C.R.N.A., M.S.
Paul W. Hopkins, M.D.
Matthew D. James, M.D.
Nathan Jones, C.R.N.A., M.S.N.
Valerie Jones, C.R.N.A., M.S.N.
Aimee Kakascik, D.O.
Megha Kanjia, M.D.
Grace Kao, Psy.D.
Kathleen Kibler, B.S.
Megan Koudelka, C.R.N.A., M.S.N.
Constance W. LaGrone, R.N., M.S., P.N.P.
Jessica L. Lambert, C.R.N.A., M.S.
Sarah Laqua, C.R.N.A., M.S.N.
Kate O. Lee, C.R.N.A., M.S.N.
Yang Liu, M.D.
Rhonda Martone, D.N.P., C.R.N.A.
David G. Mann, M.D.
Peter Manyang, M.P.H.
Joanna Martin, C.R.N.A., M.S.
Melanie McKissack, M.D.
Virginia F. McWilliams, R.N., M.S., P.N.P.
Marcie R. Meador, R.N., M.S.
Angela M. Medellin, R.N., M.S., P.N.P.
Wanda C. Miller-Hance, M.D.
Princy Mohan, R.N., M.S., P.N.P.
Evelyn Monico, M.D.
Emad B. Mossad, M.D.
Pablo Motta, M.D.
Maria M. Musick, C.R.N.A., M.S.
Julie Nicholson, R.N.
Kim P. Nguyen, M.D.
Laura Oates, C.R.N.A., M.S.N.
Olutoyin A. Olutoye, M.D.
Elyse C. Parchmont, C.R.N.A., M.S.N.
Nihar V. Patel, M.D.
Mary E. Piña, C.R.N.A., M.S.
Robert W. Power, M.D.
Krista Preisberga, M.D.
Zoel Quinonez, M.D.
Ashraf Resheidat, M.D.
Carlos L. Rodriguez, M.D.
Amber P. Rogers, M.D.
Laura W. Ryan, M.D.

Catherine Seipel, M.D.
Nicole M. Sevier, R.N., M.S., P.N.P.
Amola P. Shah, C.R.N.A., M.S.
Thomas L. Shaw, M.D.
Kristen D. Sheehy, C.R.N.A., M.S.
Shaheel A. Siddiqui, M.D.
Jamie Sinton, M.D.
Kristen Sowers, R.N., M.S., P.N.P.
Cynthia Streckfus, B.S.
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Imelda M. Tjia, M.D.
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Premal Trivedi, M.D.
David F. Vener, M.D.
Luigi Viola, M.D.
Mehernoor F. Watcha, M.D.
Tracy R. Watkins, R.N., M.S., P.N.P.
Kenneth Wayman, M.D.
Lauren Weaver, C.R.N.A., M.S.N.
Jeffrey Widelitz, M.D.
Erin Williams, M.D.
Saeed Yacouby, C.R.N.A., D.N.P.
Jennifer G. Yborra, R.N., M.S., P.N.P.
David A. Young, M.D.
Michael Zelisko, M.D.
Referrals

Texas Children’s Hospital cares for patients from all 50 states and 59 countries. To help meet the needs of our patients, the Department of Surgery offers same-day surgical consultation appointments for each of the following surgical divisions: Congenital Heart Surgery, Neurosurgery, Ophthalmology, Orthopaedics, Otolaryngology, Pediatric and Adolescent Gynecology, Pediatric General Surgery, Plastic Surgery and Urology.

To make an appointment for a same-day consultation call 832-TCH-APPT (832-824-2778).

For additional appointment information or to speak with a division administrator, please call:

<table>
<thead>
<tr>
<th>Division</th>
<th>Phone Number</th>
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<tbody>
<tr>
<td>Congenital Heart Surgery</td>
<td>832-826-2030</td>
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<tr>
<td>Dental*</td>
<td>832-822-3200</td>
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<tr>
<td>Neurosurgery</td>
<td>832-822-3950</td>
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<td>Ophthalmology</td>
<td>832-822-3230</td>
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<td>Orthopaedics</td>
<td>832-822-3100</td>
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<td>Otolaryngology</td>
<td>832-822-3250</td>
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<td>Pediatric and Adolescent Gynecology</td>
<td>832-822-3640</td>
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<td>Pediatric General Surgery</td>
<td>832-822-3135</td>
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<td>Plastic Surgery</td>
<td>832-822-3189</td>
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<td>Urology</td>
<td>832-822-3160</td>
</tr>
</tbody>
</table>

Visit texaschildrens.org/refer for more information about referring a patient. To learn more about the Department of Surgery, visit texaschildrens.org/surgery.

*Same-day appointments not available at this time.