Baylor College of Medicine
Michael E. DeBakey
Department of Surgery
The Pursuit of Excellence is Our Objective
The Pursuit of Excellence is Our Objective

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The Michael E. DeBakey Department of Surgery at Baylor College of Medicine owns one of the great legacies in surgery. The outstanding surgeons and faculty of the Department—more than one hundred in all—remain dedicated to advancing that legacy in the arenas of patient care, biomedical research, and medical education.

We partner with pioneering scientists and thought-leaders at our College, the TMC, and at other leading institutions to advance the practice of medicine. We work in a culture in which accomplishments that would be considered ground-breaking anywhere else seem to be everyday occurrences. We are committed to make a difference.

The year 2013 marks a new opportunity for growth in the Department and at the College. Our faculty members are working hard designing and implementing programs of excellence to make the new BCM Medical Center on the McNair Campus a top healthcare facility in the country. We applaud the efforts of our faculty leading our clinical practice, communications, research, mentorship, and alumni affairs programs, and sharing their vision and guidance as we embark on new endeavors.

Todd K. Rosengart, MD

We practice at iconic institutions across the campus of the Texas Medical Center (TMC), the largest health science center in the world, including Texas Children’s Hospital, the Texas Heart Institute, St. Luke’s Medical Center, Ben Taub Hospital, Michael E. DeBakey VA Medical Center, and at affiliated institutions throughout the Houston community and beyond.

One of the great legacies in surgery

The Michael E. DeBakey Department of Surgery was so named in 1999 to honor the great legacy of its iconic and longest-serving chairman, who led the Department from 1948 to 1993. Dr. DeBakey and the surgeons he trained and recruited advanced the science of medicine, created innovative surgical instruments and techniques, and touched the lives of millions of people. A prolific physician and teacher, DeBakey performed more than 60,000 cardiovascular procedures, and trained more than 1,000 surgeons who now practice throughout the world.

Considered by many to be the father of cardiovascular surgery, Dr. DeBakey contributed trailblazing discoveries in surgical science and developed techniques that still serve as the basis of modern day surgery. His contributions include, but are not limited to, being the first to perform: carotid endarterectomy (1953), excision and homograft replacement of an aneurysm of the abdominal aorta (1954), aortocoronary artery bypass (1964); and to use a left ventricular bypass pump (1966). The Michael E. DeBakey Department of Surgery salutes the groundbreaking work of this great pioneer of surgery, biomedical research, and medical education who shaped the future of our Department over the past six decades.
At the same time we welcome new leaders to the Department: Steven A. Curley, MD, chief of the Division of Surgical Oncology and proposed Olga Keith Weiss Chair; William E. Fisher, MD, Chief of the Division of General Surgery and proposed George L. Jordan Chair; and Daniel Albo, MD, PhD, Vice Chair for Network Development.

While clinical excellence and innovation are prerequisites to our success, we are also focusing on building and revitalizing our research and educational programs as pillars of our academic strength.

Our new Division of Surgical Research, led by Changyi Johnny Chen, MD, PhD, joins our researchers in the Department to “compare notes”—sharing ideas, benefiting from each other’s knowledge and experience, and supporting grant and publication efforts. This Division is designed to meet the challenges of an increasingly competitive and rapidly advancing research environment. At the same time, the Division aims to create a critical mass of well-recognized researchers with whom other investigators at BCM and elsewhere can collaborate.

Our PhD researchers and physician-scientists are joined by a growing core research support team that includes clinical trials coordinators, a biostatistician, a database manager, a medical editor, a medical illustrator, and pre- and post- grants managers led by our new vice chair for research, Scott A. LeMaire, MD.

We also welcome Shubha Dathatri, PhD, our new Surgical Educator, to an expanded education leadership team, and welcome back Holly Church Shilstone as Project Manager in Education, Faculty Development, and Alumni Affairs to support these important Department missions.

The Department this year held several “first ever” events that symbolize its transformation, including its first Critical Appraisal of Surgical Literature (CASL) conference and a Department-wide clinical case conference, with “Surgical Jeopardy” and technical skills “Olympics” on the docket. Also this spring, faculty and residents assembled for our first Resident Research Day; a morning-long “time out” from our clinical duties dedicated to highlight resident research activities.

In these exciting times, we look forward to leveraging the resources we are fortunate to possess in order to skillfully and meaningfully execute our clinical and academic missions. I am privileged to work with the faculty, residents, and staff of the Michael E. DeBakey Department of Surgery in these endeavors.

Todd K. Rosengart, MD
Professor and DeBakey-Bard Chair
Michael E. DeBakey Department of Surgery

Fast Facts 2012

Organization
10 Divisions
- Abdominal Transplantation
- Cardiothoracic Surgery
- Congenital Heart Surgery
- General Surgery
- Pediatric Surgery
- Plastic Surgery
- Surgical Oncology
- Surgical Research
- Transplant & Assist Devices
- Vascular Surgery & Endovascular Therapy

116 full-time faculty members
- 26 Professors
- 22 Associate Professors
- 48 Assistant Professors
- 20 Instructors

142 volunteer and adjunct faculty members
129 full-time employees

Patient Care
100,000 patients treated annually
13 affiliated hospitals and cooperating institutions
- 13,000 trauma cases
- 1,200 adult open heart procedures
- 250 liver and renal transplants
- 250 heart and lung transplants and assist device implants

Research
15 PhD students and post-doctoral associates
230 scientific publications
Over 80 IRB and IACUC approved trials
Over $1,250,000 in NIH funding

Education
90 surgical residents and fellows
2,600 applicants for 8 categorical general surgery residency positions
1,000 applicants for 16 preliminary general surgery positions

Residency Programs
- General Surgery
- Pediatric Surgery
- Congenital Cardiac Surgery
- Plastic Surgery (Integrated Program)
- Surgical Critical Care
- Thoracic Surgery
- Vascular Surgery

Fellowship Programs
- Aortic Surgery
- Minimally Invasive Surgery
- Pediatric Plastic Surgery
- Renal & Liver Transplantation

Endowed Chairs
Center for Molecular Surgery Chair
  Changyi Johnny Chen, MD, PhD
Cullen Foundation Endowed Chair
  Joseph S. Coselli, MD
DeBakey-Bard Chair in Surgery
  Todd K. Rosengart, MD
Donovan Chair in Congenital Heart Surgery†
  Charles D. Fraser Jr., MD
George L. Jordan, M.D. Chair of General Surgery*
  William E. Fisher, MD
JLH Foundation Chair in Transplant Surgery†
  John A. Goss, MD
Meyer-DeBakey Chair in Investigative Surgery
  George P. Noon, MD
Olga Keith Weiss Chair of Surgery*
  Steven A. Curley, MD
Susan V. Clayton Chair in Surgery†
  Charles D. Fraser Jr., MD
William J. Pokorny, MD Professorship in Pediatric Surgery
  Jed G. Nuchtern, MD

* Submitted for approval at time of publication
† Texas Children’s Hospital
Dr. Rosengart, Chairman and DeBakey-Bard Chair of Surgery, is a National Institutes of Health (NIH)-supported scientist with uninterrupted extramural funding since 1998. An extensively published investigator, he is also editor of *Seminars in Thoracic and Cardiovascular Surgery* and was recently appointed member of the NIH Bioengineering, Technology, and Surgical Sciences (BTSS) study section.

Dr. Rosengart was one of the pioneers in the field of gene therapy, with work beginning in the early 1990s. He now leads a team of scientists engaged in the study of cardiac cellular reprogramming.

As a physician-entrepreneur, he is co-founder of Vitals.com, a leading health provider search and physician-patient interface website with over 13 million monthly visits. He holds twelve patents, including those for a method of inducing angiogenesis.
Committees

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David H. Berger, MD, MHCM
Mary L. Brandt, MD
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James W. Suliburk, MD
George Van Buren II, MD
David E. Wesson, MD
Extraordinary outcomes

The Division of Abdominal Transplantation offers comprehensive and multidisciplinary healthcare, outstanding training programs, and innovative research.

Under the direction of John A. Goss, MD, the 19 faculty members and the staff of the Division's Liver, Kidney and Pancreas Center support adult and pediatric transplant programs that provide transplantation services across the Texas Medical Center at St. Luke's Medical Center, Texas Children's Hospital, and the Michael E. DeBakey VA Medical Center (MEDVAMC).

The liver transplantation program is one of the busiest in the nation. Since 1998, surgeons have performed over 1,300 transplants with outstanding results. In 2012, 105 liver transplants were performed with one of the highest survival rates in the country. The adult one-year patient survival rate was 96%, versus the national average of 87%.

Pediatric cases counted for forty of the 105 liver transplants performed, making this program at Texas Children's the largest in the United States. The pediatric one-year survival rate was 95%, compared to the national average of 88%.

The majority of adult kidney transplants take place at St. Luke’s, where the one-year patient survival rate is 98%. Equally encouraging, the program’s pediatric one-year survival rate is 100% for patients cared for at Texas Children’s.

Given this track record of success, the Division is now co-directing the Kidney Transplant Center at the Michael E. DeBakey VA Medical Center, one of only five VA centers to perform kidney transplantation for veterans.

The Division’s commitment to research, in part funded through National Institutes of Health grants and conducted at the Advanced Liver Therapies Research Center at St. Luke’s, gives patients access to the latest clinical trials, including those testing therapies for chronic viral hepatitis B and C infections and treatments for thrombocytopenia in liver disease.

The Division offers three highly competitive fellowship programs in transplant hepatology, liver transplant, and renal transplant. These three programs are approved by the Texas Medical Board and the American Society of Transplant Surgeons and prepare residents for careers in abdominal organ transplantation.
Dr. John A. Goss performs a life-saving orthotopic liver transplant. Photo by Scott Holmes
Unparalleled clinical care and service

The Division of Cardiothoracic Surgery builds on the rich legacy of surgical innovators—Michael E. DeBakey, Denton A. Cooley, E. Stanley Crawford, and George P. Noon among others—who originated many of the 20th century’s ground breaking aortic and cardiac repairs. Today, Joseph S. Coselli, MD, leads a team that is world renowned in the evaluation and surgical treatment of the aorta.

Dr. Coselli is considered to be the world’s most experienced aortic surgeon, having performed more than 7,000 repairs of the aorta and nearly 3,000 repairs of thoracoabdominal aortic aneurysms. He and his team at Baylor College of Medicine and the Texas Heart Institute have pioneered new approaches to treat aortic disease, including novel percutaneous endovascular repair procedures utilized at St. Luke’s Medical Center to treat high-risk patients and ensure even the sickest patients have options for care. Reflective of his stature among his peers, Dr. Coselli was recently named Vice President of the prestigious American Association for Thoracic Surgery—a position previously held by Dr. Michael E. DeBakey.

Another Division leader is Faisal G. Bakaeen, MD, Chief of Cardiothoracic Surgery at the Michael E. DeBakey VA Medical Center (MEDVAMC). Surgeons perform over 300 open-heart surgeries and more than 100 lung and esophageal procedures at MEDVAMC annually, making it the busiest VA cardiac center in the United States. The MEDVAMC offers many unique surgical possibilities for cardiac surgery patients, including one of the few percutaneous valve options in the VA system.

At Ben Taub Hospital, world renowned thoracic and trauma surgeon Kenneth L. Mattox, MD, Chief of Staff, joins Matthew J. Wall Jr., MD, Deputy Chief of Surgery and Chief of Cardiothoracic Surgery at Ben Taub Hospital, in leading one of the busiest cardiac surgery programs at a municipal hospital in the nation, where the underserved receive care for the most complex cardiac, thoracic, and trauma cases. The surgical volume has doubled over the past four years at Ben Taub, and acute coronary syndrome treatment outcomes have topped national standards.
Under the supervision of Scott A. LeMaire, MD, Director of Research for the Division and Vice Chair for Research in the Department, the cardiac surgery research team pursues several research projects and maintains one of the world’s most extensive and well-cataloged aortic tissue banks. This core resource facilitates investigations into the causes and progression of aortic disease pursued by BCM researchers, as well as researchers from other academic institutions.

The Division offers a three-year thoracic surgery residency program that accepts four residents annually. The Program Director is Denton A. Cooley, MD, and Dr. Coselli serves as Associate Program Director. Thoracic residents rotate through all clinical practice sites of the Division and in M.D. Anderson Cancer Center. They receive surgical training in congenital heart disease at Texas Children’s Hospital—the site of one of the largest pediatric cardiac surgery programs in the nation.
Division of Congenital Heart Surgery

Innovative treatment

From its inception at Texas Children’s Hospital in 1954 as one of the first of its kind, the Division of Congenital Heart Surgery has become a world leader in pediatric congenital heart surgery. Under the direction of Charles D. Fraser Jr., MD, who is also Surgeon-in-Chief of Texas Children’s, the Division pursues its mission to provide the very best possible surgical care for children and adults with congenital and acquired cardiovascular disease in an environment that fosters cutting-edge research and educates tomorrow’s leaders in children’s cardiac surgery.

The Division is a key part of Texas Children’s Heart Center, which is ranked number three nationally by U.S. News & World Report. One of the largest pediatric congenital heart programs in the country, the Heart Center includes five attending cardiac surgeons who perform over 800 operations annually. Surgeons team with dedicated pediatric cardiologists, cardiovascular anesthesiologists, perfusionists, physician assistants, nurse practitioners, registered nurses, pharmacists, and cardiovascular-specific OR and ICU nurses to provide treatment for all known congenital heart defects in patients of all ages, while responding to the individual needs of each of their patients.

Notable among the Division’s many research achievements, Dr. Fraser and the Texas Children’s team pioneered use of the Berlin Heart EXCOR® Pediatric VAD. The Texas Children’s team was the lead site of a landmark 17-center study that demonstrated the Berlin Heart pump to be more effective than extracorporeal membrane oxygenation (ECMO) in infants and small children requiring surgical intervention for end-stage heart disease. This work led the Food and Drug Administration to make the Berlin heart the only Pediatric VAD approved for use in the United States.

The Division’s Pediatric Cardio Bioengineering Laboratory, a collaboration of Baylor College of Medicine, Texas Children’s Hospital, and Rice University, is developing additional innovative translational therapies for pediatric patients with cardiac disease. Research at the laboratory focuses on investigating the influences of biophysical cues and electrical stimulation on the development and maturation of heart cells and tissues.
The Division also offers one of 11 national fellowships in congenital cardiac surgery recognized by the Accreditation Council for Graduate Medical Education (ACGME). Participants in the fellowship program receive intense training in pediatric congenital heart disease, including heart and lung transplantation, through a comprehensive heart failure/ventricular assist device (VAD) program. The programs at Texas Children’s also offer training in fetal surgery, adult congenital heart disease, heart failure, and heart and lung transplantation, which are among the largest and most successful programs in the nation, producing graduates that have taken leadership positions at institutions all over the world.
Division of

General Surgery

Multidisciplinary healthcare, education, and research

The Division of General Surgery supports the mission and vision of the Department through its clinical services provided across the Texas Medical Center, outstanding resident and student educational programs, and cutting-edge research efforts. Under the leadership of William E. Fisher, MD, the Division meets the surgical needs of the tens of thousands of patients visiting our affiliated hospitals each year from the Houston region and around the world.

At Ben Taub Hospital—a premier municipal facility that is one of the busiest level I trauma centers in Texas—Kenneth L. Mattox, MD, Chief of Staff; Frank Welsh, MD, Director of the Surgical and Trauma Intensive Care Unit; and Bradford G. Scott, MD, Chief of Trauma, lead a team of seven faculty surgeons that sees nearly 13,000 cases in the Ben Taub emergency trauma center annually. The use of nationally adopted surgical protocols, many first developed at Ben Taub, is the cornerstone of care for more than 3,000 of these emergency cases admitted annually. This iconic center serves approximately one million of the underserved in Houston, nearly a quarter of the entire population of Harris County.

At the Michael E. DeBakey VA Medical Center (MEDVAMC)—the primary healthcare provider for almost 130,000 veterans in Southeast Texas—Samir S. Awad, MD, Operative Care Line Executive and Chief of Surgery, leads a team of seven faculty surgeons whose skills have helped raise MEDVAMC to the rank of the most advanced of the VA’s 141 medical facilities in terms of clinical care, research, and trainee education.

At St. Luke’s Medical Center and at four other affiliated institutions, Division surgeons perform procedures ranging from complex bariatric surgery to robotic abdominal operations. Each discipline combines clinical research with resident and student education while rendering clinical care.

As a result of the Division’s clinical expertise and innovative research programs, patients receive specialized diagnostic assessment; access to the newest treatment modalities, including clinical trials of new pharmacologic therapies and emerging surgical techniques; and coordinated follow-up of their care at all of our clinical sites.
The Division of Pediatric Surgery, headed by Jed G. Nuchtern, MD, comprises 15 full-time faculty members who are staff physicians at Texas Children’s Hospital. In 2012, U.S. News & World Report ranked Texas Children’s fourth in the nation among children’s hospitals.

These results are achieved with great care and vigilance. David E. Wesson, MD, former Division Chief, is the Surgeon Champion for the Pediatric National Surgical Quality Improvement Program (NSQIP®), the first multispecialty outcomes-based program to measure the quality of children’s surgical care. Texas Children’s pioneered the implementation of NSQIP®, which in turn has been a critical tool to achieve Texas Children’s exemplary surgical outcomes.

Division surgeons offer a number of innovative pediatric surgery services. In the Adolescent Bariatric Surgery Program, for example, Director Mary L. Brandt, MD and the surgery team have performed over 100 laparoscopic gastric bypass surgeries since 2004, including Roux-en-Y and sleeve gastrectomies.

Fetal surgery is another unique service offered by the Division. Surgeons Darrell Cass, MD, and Oluyinka O. Olutoye, MBChB, PhD co-direct Texas Children’s Fetal Center along with maternal fetal medicine specialists. The center utilizes the latest diagnostic algorithms and advanced imaging tools and leads the nation in both performing and developing techniques to diagnose and treat the unborn child with cardiac conditions, twin-twin transfusion syndrome, spina bifida, and congenital diaphragmatic hernia.

Research is a priority of the Division and faculty members are engaged in many ground breaking projects, some of which have contributed to make Texas Children's the #1 hospital in Texas for pediatric cancer, according to U.S. News and World Report. In one landmark study presented at the 2012 annual meeting of the American Surgical Association, Dr. Nuchtern reported a national study tracking excellent prolonged survival of 83 babies with isolated neuroblastoma treated with non-surgical intervention.
The Division, in conjunction with Texas Children’s, offers three clinical and basic science research fellowships in a multidisciplinary environment: a clinical research fellowship in pediatric surgery, a research fellowship in angiogenesis in neuroblastoma, and a research fellowship in wound healing and fetal therapy. These fellowships provide opportunities to develop and conduct high-quality clinical and basic research protocols under the guidance of experienced faculty members, and ample experience to present their research results at high-profile professional meetings and publications in peer-reviewed journals.
Division of

Surgical Oncology

Breaking new ground

The Division of Surgical Oncology specializes in the treatment of soft tissue, gastrointestinal, and endocrine cancers integrating advanced minimally invasive surgical techniques into surgical practice. Under the leadership of Steven A. Curley, MD, recently recruited from M.D. Anderson Cancer Center where he was Chief of Gastrointestinal Surgery, faculty surgeons armed with broad surgical oncology expertise will continue to leverage ground breaking translational research to effectively address the clinical needs of their patients.

Pioneering applications of transanal endoscopic microsurgery (TEM) represent one example of Division surgeons bringing innovative surgical techniques to the bedside. TEM allows highly skilled surgeons to use specially designed microsurgical instruments to excise lesions high inside the rectum that otherwise would be accessible only by major abdominal surgery. Faculty surgeons at the Michael E. DeBakey VA Medical Center using TEM to both treat and prevent colorectal cancer are among the few specialists in the nation to offer this alternative to radical abdominal surgery.

Ongoing research programs are an integral component to the advancement of clinical practice. A number of such programs in the Division have been recognized through publications and extramural research funding. One such study led by William E. Fisher, MD, that was recently published in the prestigious journal *Nature* (see “Publications and Honors”), was the first to identify a group of newly recognized mutated genes from human pancreatic cancer primary tumors, including genes not previously known to be associated with the disease.

Members of the Division of Surgical Oncology, working at the multidisciplinary cancer centers described on the following pages and at affiliate hospitals, utilize the latest technology and therapeutic know-how to provide state-of-the-art surgical care.
View from above the surgical suite
Photo by Scott Holmes
The Baylor College of Medicine Dan L. Duncan Cancer Center

The Dan L. Duncan Cancer Center brings together the cancer-related activities of BCM faculty members working at multiple institutions in the Texas Medical Center to fast-track their collective efforts to prevent, treat, and cure cancer in all its forms. The Center matches the best minds in cancer treatment with renowned researchers throughout Baylor College of Medicine to improve clinical outcomes through comprehensive, personalized care, and access to the latest clinical trials.

Personalized medicine—replacing traditional treatments with targeted therapies based on each individual’s unique biology and the exact characteristics of their cancer—is a major focus of the Center, which seeks to achieve earlier detection, better prevention, and more effective treatments with fewer side effects.

The National Cancer Institute has named the Duncan Cancer Center one of its two designated cancer centers in Houston, a significant milestone that opens the door for additional funding to combat cancer.

Smith Breast Center

The Smith Breast Center, a major component of the BCM Dan L. Duncan Cancer Center, enlists faculty from the Division of Surgical Oncology who bring research, education, patient care, and outreach activities from BCM to its affiliated hospitals to assist in the battle against breast cancer.

The Baylor College of Medicine Elkins Pancreas Center

Few effective therapies are available to treat pancreatic cancer, which is the fourth leading cause of cancer death. One of the goals of the surgeons at the Elkins Pancreas Center is to treat pancreatic cancer more effectively by learning more about the genes involved in causing this disease. Knowing more about cancer genetics opens the door to develop new and earlier diagnostic tests and new treatment strategies.

William E. Fisher, MD, Chief of the Division of General Surgery and head of the Elkins Pancreas Center, directs a multidisciplinary team that specializes in the treatment of benign and malignant pancreatic diseases. The treatments range from well-established minimally invasive and robotic surgeries to experimental gene therapies attempting to cure the disease.

Elkins Center surgeons care for a rapidly growing clinical practice achieving outstanding results. For example, they have markedly decreased hospital lengths of stay and achieved a remarkable mortality rate of less than 1% for the Whipple procedure, a complex pancreatic resection.

Multidisciplinary centers of excellence in surgical oncology offer exceptional care to our patients.
Elkins Pancreas Center
Director Dr. William Fisher performs a pancreas resection with Dr. George Van Buren II. Photo by Scott Holmes

Dan L. Duncan Cancer Center Gastrointestinal Oncology Program Director Dr. Daniel Albo discusses a patient’s care plan. Photo by Agapito Sánchez Jr.
Surgeons in the Division of Plastic Surgery strive to combine the science of medicine with the art of patient care in their practices, which include the Center for Aesthetic Surgery at the Baylor College of Medicine Lee & Joe Jamail Specialty Care Center, Ben Taub Hospital, Methodist Hospital, M.D. Anderson Cancer Center, the Michael E. DeBakey Veterans Affairs Medical Center, and the pediatric clinics and hospital services at Texas Children’s Hospital. Larry H. Hollier Jr., MD, named division chief after the untimely passing of his renowned predecessor and mentor Samuel Stal, MD, leads a team of ten surgeons who perform a wide variety of reconstructive and other plastic surgery procedures on patients of all ages.

At Texas Children’s, a multidisciplinary team of otolaryngologists, dermatologists, radiologists, neurosurgeons, speech therapists, and genetic counselors works together to provide specialized care in the treatment and surgical correction of craniofacial abnormalities, cleft lip and palate, and in the management of both complex and common congenital abnormalities and vascular birthmarks.

In addition to reconstructive surgery services for the pediatric population, the Division provides full spectrum adult in-patient and out-patient care. At the Center for Aesthetic Surgery, an ultra-modern facility fully equipped to support state-of-the-art surgical techniques and surgical care, faculty surgeons address the cosmetic and reconstructive surgery needs of hundreds of patients each year.

Division faculty members also pursue a wide variety of clinical and basic science research projects. The majority of this work focuses on improving the care of patients with facial injuries or congenital deficiencies. The Division, for example, is currently leading a large-scale study of outcomes in pediatric craniofacial surgery. Faculty members have also been studying new and better treatments for mandibular fractures, including studies evaluating the biologic response to resorbable plate and screw fixation, and a clinical study to determine the optimal method to stabilize mandibular fractures.
The Plastic Surgery Integrated Residency Program is one of the top plastic surgery residency programs in the country and one of the oldest in the United States. It is a multi-institutional, integrated, six-year residency, fully accredited by the Residency Review Committee for Plastic Surgery and the Accreditation Council for Graduate Medical Education.

The Baylor College of Medicine Plastic Surgery of the Hand Fellowship is fully accredited by the Plastic Surgery Residency Review Committee. It is a one-year fellowship that stems from the Baylor College of Medicine Plastic Surgery Residency Program, and is jointly sponsored by Baylor College of Medicine and St. Luke’s Medical Center.

Dr. Shayan Izaddoost performs plastic surgery at The Center for Aesthetic Surgery. Photo by Agapito Sánchez Jr.
Division of
Transplant &
Assist Devices

The past, present, and future
of artificial hearts

The Division of Transplant & Assist Devices has been leading the world
in transplant surgery since it established the Transplant and Ventricular
Assist Device (VAD) Program in the Texas Heart Institute (THI) in 1982.
The program—led by George P. Noon, MD, Division Chief; O. H. Frazier,
MD, Chief of Transplant Services at St. Luke's Medical Center; and by Hari
R. Mallidi, MD, Surgical Director of the Lung and Heart-Lung Transplant
Program—is the most experienced in the world. Division surgeons have
performed more than 1,300 transplant procedures and have implanted over
900 VADs. The THI VAD program remains the busiest mechanical support
service in the United States.

Since the early 1960’s when Baylor surgeons received the first federal grant
to develop an artificial heart, BCM has remained a world leader in treating
heart failure. Their expertise contributed to the development of the
MicroMed DeBakey VAD®, the Thoratec HeartMate XVE, the HeartWare
MVAD, and the AbioCor total artificial heart—just a few of more than a
dozen different VADs developed by BCM surgeons.

Researchers working under the leadership of William E. Cohn, MD,
Director of Minimally Invasive Surgical Technology at THI, and Dr. Frazier
are developing a total artificial heart that will deliver blood by means of
continuous flow rather than pulsation. This research has grant support
from the National Heart, Lung, and Blood Institute; the John S. Dunn
Research Foundation; the Alexander Family Trust; and the McIngvale
Family Trust. This new artificial heart is smaller, less expensive, and
predicted to be more reliable than previous generations of artificial hearts.
Dr. O.H. Frazier implanting an Abiocor Total Artificial Heart
Photo by Ken Hoge, Texas Heart Institute
The Division of Vascular Surgery & Endovascular Therapy continues to build upon its six-decade-long heritage of caring for patients with vascular disease while maintaining the tradition of clinical and research excellence envisioned by its founder, Dr. Michael E. DeBakey. With a team of more than 15 faculty members, postdoctoral fellows, and graduate students devoted to healthcare and scientific research, the Division, headed by Peter H. Lin, MD, is committed to discovering new treatments through collaborative and integrated research in the diverse disciplines of surgery, biology, and molecular science.

The Division has a robust clinical program that includes seven full-time faculty surgeons working across the medical center and at affiliated institutions. These surgeons have effectively shifted from performing traditional open surgical procedures to minimally invasive endovascular interventions, whenever appropriate. Reflective of this work, Division faculty members recently published a paper on the development of a new endovascular technique to treat flush iliac artery occlusions, a daunting challenge to vascular surgeons. This pioneering work, featured at the prestigious Veith Symposium in New York, has been adopted by practitioners all over the world.

Clinical research efforts in the Division focus on new device development and outcomes analysis following surgical or endovascular treatment of aortic aneurysms, dialysis interventions, lower extremity occlusive disease, and carotid disease. These studies have helped define standards of care in vascular disease management. The Division also has an active basic science research program located in the Molecular Surgeon Research & Education Center (MSREC). Funded in part by the National Institutes of Health, the MSREC conducts basic science programs in vascular biology and therapeutics.

The Vascular Surgery Fellowship at BCM has become one of the premier vascular surgery training programs in the country since Drs. Michael DeBakey and Stanley Crawford established it in 1970. This fellowship is a two-year ACGME-approved program. Graduates are eligible for the Certificate of Special Qualifications in Vascular Surgery granted by the American Board of Surgery.
Congressional Gold Medal presented in 2008 to the Division’s founder Dr. Michael E. DeBakey in 2008.

The pursuit of excellence has been my objective in life.
Division of Surgical Research

Translation through collaboration

The Division of Surgical Research is a newly established group in the Michael E. DeBakey Department of Surgery dedicated to meeting the challenges of an increasingly competitive and rapidly advancing research climate. The mission of the Division and its 12 primary (PhD) and 14 joint faculty members is to promote the development and growth of highly successful research and training programs by providing a supportive environment for investigators and trainees.

Under the leadership of Changyi Johnny Chen, MD, PhD, the Division brings together department researchers to share ideas, to benefit from each other’s knowledge and experience, and to lend support in grant and publication efforts. At the same time, the Division aims to create a critical mass of well-recognized researchers with whom other investigators at Baylor College of Medicine and elsewhere can readily collaborate.

Based on the fourth and fifth floors of the Margaret M. Alkek Building for Biomedical Research at BCM, the primary objective of the Division is to understand the underlying mechanisms of surgical disease through basic science and translational research. Division members aspire to identify novel treatments and ultimately link laboratory discoveries directly with clinical care.

To further the Department’s international reputation for excellence in surgical research, the Division cultivates mentoring and training opportunities for junior faculty, surgical residents, fellows, and students in a structured environment. Division members are assisted with their research efforts by a core group of clinical trials coordinators, a biostatistician, a database manager, a medical editor, a medical illustrator, and pre- and post-grants managers led by Department Vice Chair for Research Scott A. LeMaire, MD.
Electronic pipettes
Photo by Scott Holmes
A rich history

Following a rich history of pioneering advancements in surgery dating back to the days of its founder Michael E. DeBakey, MD, the Baylor College of Medicine Experimental Surgery and Surgical Training Laboratory under the direction of Deborah Taylor provides state-of-the-art facilities and equipment for surgical research and education. The Department is training the next generation of surgeons and bringing ground-breaking discoveries to the forefront of healthcare in the “DeBakey Labs,” which will soon include the newly constructed, adjoining Surgical Simulation Laboratory, or Sim Lab, a core resource for BCM.

The experimental laboratories have through the years yielded life-saving medical devices, including the artificial heart, ventricular assist devices, autologous blood salvage, and innovative surgical approaches, such as stem cell and gene therapies. Today, the laboratories also serve as a comprehensive resource for surgical learning and training residents and fellows in the latest minimally invasive surgical techniques, continuing medical education (CME) for practicing surgeons, and core laboratory support for CME organizations and the biomedical industry. Accredited by the Association for Assessment and Accreditation of Laboratory Animal Care, the laboratories further serve as an ideal site for preclinical studies in compliance with federal and institutional guidelines.

Our new Sim Lab will feature a wide variety of state-of-the-art computerized surgical simulators, a series of basic skills stations, two fully-equipped operating rooms with fluoroscopic imaging capabilities, and the latest telecommunication technologies that allow faculty and staff to observe operating room activity from the conference room next door and record the activity for future use.
Dr. Bradford G. Scott and the BCM Experimental Surgery and Surgical Training Laboratories provided the city’s new tactical medical team with an exercise in simulating emergency response during live-fire situations.

Photo by Agapito Sánchez Jr.
The Michael E. DeBakey Department of Surgery offers dynamic educational programs for undergraduates, medical students, residents, and fellows. The programs are built upon a strong culture of surgical training that counts among its assets a new simulation laboratory and the participation of a dedicated team of educators and support staff that includes Vice Chair for Education Mary L. Brandt, MD, Surgical Educator Shubha Dathatri, PhD, and Administrator Holly Church Shilstone.

Undergraduate Medical Education Programs

A core mission of the Department is to inspire and train the next generation of surgeons by providing medical students with a broad exposure and experience that meets core surgical competencies in both surgical knowledge and skills. Under the direction of Clerkship Director Juliet Holder-Haynes, MD, the faculty is actively involved in all educational aspects of our medical student programs, including an eight-week core surgery clerkship rotation for third-year medical students and surgery electives for fourth-year medical students from BCM and other schools.

To encourage potential new young surgeons, the Department supports the Baylor Student Surgical Society, an organization that provides information and support for BCM medical students interested in a career in surgery. The Department also sponsors an eight-week Michael E. DeBakey Summer Surgery Student Program for pre-medical students. This long-standing program encourages highly accomplished undergraduate students chosen from a national pool of candidates to pursue a medical career by allowing them to work side by side with medical students, residents, faculty, and healthcare staff in the hospital environment.

Residency Programs

All of our seven residencies are accredited by the Accreditation Council for Graduate Medical Education (ACGME) as well as by their respective Residency Review Committees, and have maintained full accreditation status after every Residency Review Committee site visit. These programs accept highly competitive candidates from a pool of over 2,600 applicants, who matriculate to become leaders in surgery, both in academics and private practice.

Fellowship Programs

The Department of Surgery also offers training through four additional fellowship programs which are approved by the Texas State Board of Medical Examiners. These programs provide further training to surgeons in their chosen fields of specialization.
A resident trains at Ben Taub Hospital under the direction of Dr. Kathleen Liscum
Photo by Scott Holmes
Publications & Honors

In 2012, the Michael E. DeBakey Department of Surgery faculty members and trainees published over 230 scientific articles, received 77 honors and awards, and conducted 154 research projects with major funding from NIH or other extramural sources. Highlights of these accomplishments are provided below.

Publication Highlights

Prospective trial of a pediatric ventricular assist device

Fraser CD Jr., Jaquiss RD, Rosenthal DN, et al; Berlin Heart study investigators.


The Division of Congenital Heart Surgery at Texas Children’s Hospital, under the direction of Charles Fraser Jr., MD, was the lead center in this seventeen-hospital national Investigational Device Exemption (IDE) study on the German-manufactured Berlin Heart® EXCOR Pediatric Ventricular Assist Device (VAD). The Berlin Heart® was evaluated in children as a bridge to heart transplantation that provided circulatory support to pediatric patients with severe heart failure. As a result of this study, the Federal and Drug Administration granted a Humanitarian Device Exemption (HDE) approval for the Berlin Heart®, which is now the only pediatric VAD approved in the United States.

Pancreatic cancer genomes reveal aberrations in axon guidance pathway genes


This study was the first to analyze the genomes of primary pancreatic tumors from patients and to compare them to the genomes of normal tissues using new techniques to identify mutations that are important to the development of cancer. The researchers discovered mutations in genes that had not previously been linked to pancreatic cancer.

These genes were involved in chromatin modification (changes that affect the way DNA is packaged inside the cell) and in axon guidance (the process by which the axon—a long threadlike projection that carries nerve impulses away from the neuron—is guided to grow to its proper target). This new information could be used to develop new and earlier diagnostic tests for pancreatic cancer, currently the fourth leading cause of cancer death in the country.
CYLD negatively regulates TGF-beta signaling via deubiquitinating Akt


Lung injury, whether induced by infection or caustic chemicals, initiates a series of complex wound-healing responses that may lead to fibrotic lung diseases and loss of function. This study identified the first key regulatory protein—deubiquitinase CYLD—required for tightly controlling the resolution of lung injury and demonstrated the novel role of CYLD in regulating fibrosis. This discovery may lead to the identification of new therapeutic targets for treating lung injury, a major cause of morbidity and mortality worldwide.

Long-term comparison of endovascular and open repair of abdominal aortic aneurysm


Each year, 40,000 patients in the United States undergo elective procedures to repair abdominal aortic aneurysms. These procedures result in about 1,250 perioperative deaths — more deaths than for any other general or vascular surgical procedure, with the exception of colectomy. The long-term results of the Open versus Endovascular Repair (OVER) Veterans Affairs Cooperative Study suggest that endovascular repair continues to improve and is now an acceptable alternative to open repair even when judged in terms of long-term survival.
Honors & Awards

Mary L. Brandt, MD, Professor of Surgery, was elected member of the Pediatric Surgery Board of the American Board of Surgery. She will serve from July 1, 2012 through June, 2018.

Scott A. LeMaire, MD Professor of Surgery, was awarded the Thoracic Surgery Foundation for Research and Education Alley-Sheridan Scholarship.

David H. Berger, MD, MHCM, Professor of Surgery, was elected President of the Association of Veterans Affairs Surgeons for the 2012-2013 term.

Kenneth L. Mattox, MD, Professor of Surgery, received the BCM Master Clinician Lifetime Award. He was also honored with the 2013 Benjamin Rush Award for Citizenship and Community Service.

Laura A. Monson, MD, Assistant Professor of Surgery, received the Hitoshi Nikaidoh, MD Memorial Endowment Award from Texas Children’s Hospital Auxiliary Board Surgical Outcomes Research Grant.

William Cohn, MD, Associate Professor of Surgery, and his team won the silver medal in the Edison Awards, surgical aides category, for inventing the LARIAT® Suture Delivery Device.

Todd K. Rosengart, MD, Professor of Surgery, was named Editor-in-Chief of Seminars in Thoracic and Cardiovascular Surgery, an official journal of the American Association for Thoracic Surgery.

Joseph S. Coselli, MD, Professor of Surgery, was elected President-elect of the American Association for Thoracic Surgery (AATS). He will assume the role of President of AATS in 2015.

John A. Goss, MD, Professor of Surgery, received the John L. Hern Foundation Chair in Transplant Surgery at Texas Children’s Hospital.

A full list of 2012 Honors and Awards can be found at: www.bcm.edu/surgery/awards
Research of Note

Belaguli, Narasimhaswamy S., *Serum Response Factor Regulates Prostate Cancer Cell Invasion and Metastasis*
Department of Defense

Brandt, Mary L., *Adolescent Bariatrics: Controlled Longitudinal Study of Psychosocial Development (Teenview)*
The National Institute of Diabetes and Digestive and Kidney Diseases

Chen, Changyi Johnny, *Center for Nanotechnology Applications in Tissue Engineering of Vascular Grafts*
U.S. Army Medical Research and Material Command

Feng, Xin-Hua, *Roles of Smad1 Dephosphorylation in Osteoblast Differentiation*
National Institutes of Health/ National Institute of Arthritis and Musculoskeletal and Skin Diseases

Fraser Jr., Charles D., *Berlin Heart Excor Pediatric Ventricular Assist Device Trial*
Berlin Heart, Inc.

Frazier, O. H., *A Novel Approach to Cardiac Replacement with Continuous-flow Pumps. Major Goal: To Develop a New Total Artificial Heart Using Two Continuous-flow Blood Pumps*
National Heart, Lung, and Blood Institute, Bioengineering Research Partnerships

Kerman, Ronald, *LVAD Therapy: Exploring the Effect of Intramyocardial Injection of Mesenchymal Precursor Cells On Myocardial Function*
Mesoblast, Inc.

LeMaire, Scott A., *National Registry of Genetically Triggered Thoracic Aortic Aneurysms and Cardiovascular Conditions (GenTAC)*
National Heart, Lung, and Blood Institute

Li, Kaiyi Kelly, *Characterization and Targeting BRIT1 Deficiency in Breast Cancer*
National Institutes of Health

Olutoye, Oluyinka O., *Predictors of Necrotizing Enterocolitis*
National Institutes of Health Grant

A full list of Current Research can be found at:
www.bcm.edu/surgery/studies

The LARIAT® Suture Delivery Device invented by Dr. William E. Cohn allows surgeons to tie off the left atrial appendage via a catheter without the need for open-heart surgery
Photo by Ken Hoge, Texas Heart Institute
Publications

Abdominal Transplantation


Book Chapter


Cardiothoracic Surgery


**Book Chapters**


**Videos / Online Resources**


Congenital Heart Surgery


**General Surgery**


**Pediatric Surgery**


Monroe BJ, Fallon SC, Brandt ML. Intraoperative sonographic...


Online Resources

Surgical Oncology


Surgical Research


Book Chapters

Transplant & Assist Devices


Vascular Surgery & Endovascular Therapy


Future Directions - McNair Campus

Located on a 35-acre footprint adjacent to the Texas Medical Center, the McNair Campus is the site of the Lee and Joe Jamail Specialty Care Center and the BCM Medical Center.

The BCM Medical Center, to be opened in early 2014, is a 1.2 million gross square foot facility that will provide a full complement of surgical and medical services, beginning with general, plastic and vascular surgery; orthopedic surgery; urology; gastroenterology; and pain management specialties. Phase I of these services will include six operating room and endoscopy suites with adjoining pre- and post-op areas designed to enhance patient flow and service to patients and their families. Phase I will also include an emergency care facility, comprehensive care clinics, and an array of imaging and diagnostic services. The next generation service areas will soon follow, to be built upon designs optimized through Phase I operations to complete the full range of surgical disciplines planned for the Center.

David Berger, MD, MHCM, Vice Chair of the Department of Surgery, has been instrumental in designing the facility and its clinical care processes. As chief medical officer he will be responsible for developing a high-quality, safety-focused, cost-effective, and integrated clinical program at the McNair Campus. He will also help establish the oversight committees, quality controls, and practice improvement resources necessary for the facility to function as a high-reliability organization. Previously the Operative Care Line Executive at the Michael E. DeBakey VA Medical Center, Dr. Berger is well known nationally for successfully implementing hospital processes and quality improvements.

Through partnerships with experts in hospital operations brought to the McNair campus from throughout the country, the goal is to develop the BCM Medical Center into a state-of-the-art facility that will truly reflect the cutting edge of patient care.