Emory Surgery’s research status in 2010

ANNUAL FIGURES

In addition to being ranked the 5th leading academic Department of Surgery in the U.S. in 2009 NIH funding, a position we maintained for the second year in a row, Emory Surgery sustained remarkable research growth in Fiscal Year 2010 despite national trends of relatively flat federal funding and marked reductions in foundation and philanthropic giving. The rise of our single year grant receipts to over $25.7M was underscored by our substantial clinical research portfolio. As of August 2010, there were 71 active clinical studies at Emory with PIs from the Department of Surgery and 115 clinical trials registered with Clinicaltrials.gov involving surgery and/or transplantation that were actively enrolling patients. Our faculty’s peer reviewed publications have remained constant, with approximately 150 peer-reviewed papers published annually in such high impact journals as the New England Journal of Medicine, Nature, Nature Medicine, The Journal of Clinical Investigation, The Journal of Experimental Medicine, and Circulation, and faculty from all divisions presented at major national and international meetings this year.

DIVISION RESEARCH HIGHLIGHTS

Cardiothoracic Surgery’s Clinical Research Unit, directed by Dr. John Puskas, remains one of the select centers nationwide to be funded in the NHLBI Cardiothoracic Network for Surgical Investigations and has captured additional industry support for studies involving clinical biomarker discovery and device utilization in patients undergoing open-heart surgery. The multi-center Phase II clinical trial of transcatheter aortic valve implantation initiated in 2007, for which Dr. Robert Guyton and Dr. Vinod Thourani were local Co-Surgical PIs, recently published its promising findings in the New England Journal of Medicine (see story below). The Cardiothoracic Research Laboratory, realigned...
under the new leadership of Dr. David Lefer, acquired three new NIH grants — an increase that led to a doubling of indirect cost recovery — and more than doubled its extramural annual support for basic research.

General and GI Surgery initiated outcomes databases on paraesophageal hernia, enterocutaneous fistula, ventral hernia repair, and thyroidectomy to support clinical outcomes research in these areas; implemented a new Acute and Critical Care Surgery Service for Emory University Hospital that offers the potential to capture surgical outcomes in a standardized manner for subsequent research; and is enrolling patients in a collaborative clinical trial with the Division of Transplantation investigating the role of bariatric surgery for obesity in patients awaiting renal transplantation. Dr. Collin Weber also received additional funding for his studies of encapsulated pancreatic islet transplantation.

Under the directorship of Dr. Gary Bouloux, who has six IRB approved studies that include investigations of temporomandibular joint dysfunction, treatment of mandibular fractures, and management of odontogenic infections, research in Oral and Maxillofacial Surgery has expanded. Slated to begin in January 2011, Emory will be the lead site and hold the FDA IDE in a national multicenter study comparing corticosteroid, hyaluronic acid, and placebo during arthrocentesis for temporomandibular joint dysfunction. Division faculty have also worked closely with the Georgia Institute of Technology to develop an analogue model of the temporomandibular joint for teaching arthroscopy and novel neurogenic conduits to facilitate trigeminal nerve repair.

Current projects in Pediatric Surgery include Dr. Mark Wulkan’s prospective trial of adjustable gastric banding in obese adolescents and his ongoing development of a computer model of a novel fundoplication for infants. Dr. Barbara Pettitt is conducting a national needs assessment of approximately 500 volunteer surgical faculty from over 250 surgical training programs across the country as well as a pilot study of a new National Board of Medical Examiners' instrument for assessing professional behaviors in medical school.

Plastic Surgery obtained philanthropic funding to study the effects of prosthetic devices in breast reconstruction. Under the direction of Dr. Linda Cendales, the Division continues to collaborate with the Emory Transplant Center on developing vascularized composite allotransplantation, a research program that received funding through a line item appropriation in the Department of Defense Budgets for Fiscal Years 2009 and 2010.

In Surgical Oncology, Dr. Lily Yang continued to expand her basic science studies, particularly in targeted nanoparticles as MRI and/or optical imaging probes for cancer detection as well as drug carriers for targeted delivery of therapeutic agents. Dr. Yang will be collaborating with Dr. Hui Mao and Dr. Charles Staley on the recently approved five-year NIH/NCI grant “Theranostic Nano-Particles for Targeted Treatment of Pancreatic Cancer.” Dr. Shishir Maithel and Dr. Keith Delman initiated new clinical trials in the areas of pancreatic carcinoma and melanoma respectively. In collaboration with Dr. Juan Sarmiento of General Surgery, Dr. Maithel and Dr. David Kooby amassed the largest national series of laparoscopic pancreatectomies for both benign and malignant disease and were founding members of the Central Pancreatic Consortium, an academic multi-institutional research group addressing important
trials in hepatobiliary cancers. Dr. Theresa Gillespie was appointed Scientist/Reviewer for the Department of Defense Breast Cancer Idea and Postdoctoral Clinical and Experimental Therapeutics Panel as well as a peer reviewer for the DoD Breast Cancer Research program, and Dr. Sheryl Gabram was named Principal Investigator on the recent AVON Foundation Grant at Winship.

Transplantation remains well funded with broad basic, translational, and clinical portfolios diversified to include industry, foundation, and federal sources. Always strong partners for major cross-departmental initiatives, transplant faculty were instrumental in securing a C06 grant awarded to Yerkes Primate Research Center for construction of a dedicated Transplant Primate Facility, and collaborated with the Department of Pediatrics to establish a Center for Transplant Immunology and Immune Therapeutics at Children’s Healthcare of Atlanta. The latter project was made possible by internal CHOA funds awarded to foster collaborative research for children’s health.

Active extramural funding for Trauma/Surgical Critical Care rose dramatically. Dr. Timothy Buchman continued his studies in predictive biology to establish real-time data analysis for predicting adverse events in the intensive care unit setting and Dr. Craig Coopersmith has two R01 grants for the study of consequences and adaptation to sepsis and shock. Additionally, Dr. Gary Vercruysse established Grady Hospital as a study site for the NIH-funded ARRA Challenge Grant “Decompressive Craniotomy versus Medical Therapy for Refractory Intracranial Hypertension.” Dr. Vercruysse is also assisting Dr. Christopher Dente, who implemented and is prospectively studying a new, massive transfusion protocol in Grady’s Trauma Center in association with Grady’s blood bank.

Vascular Surgery’s active basic research portfolio and multiple funded clinical trials broadened with the efforts of two relatively new researchers: Dr. Ravi Veeraswamy, who is investigating fundamental mechanisms of vascular inflammation, particularly in immunocompromised patients; and Dr. Matthew Corriere, who is studying vascular surgery outcomes and has participated as an expert on diabetic complications in the CDC’s Global Burden of Disease project.

SRAC RECOMMENDATIONS FOR CONTINUED GROWTH

In September 2010, Dr. Allan Kirk convened a meeting of the Department’s Surgical Research Advisory Council (SRAC) to begin developing a strategy for supplying research infrastructure Department-wide. The meeting’s general consensus was that a blended model could have the most potential, with certain well-funded divisions being autonomous while others would partner in research areas of overlapping interests to further develop their funding and associated resource needs. The Divisions are now considering partnering options as well as the types of resource funding that would catalyze growth.

Heart valve study yields positive results

In cooperation with Emory interventional cardiologists Dr. Peter Block and Dr. Vasilis Babaliaros, Dr. Robert Guyton and Dr. Vinod Thourani have been the Local Surgical Co-PIs since 2007 of a multi-center Phase II clinical trial comparing
transcatheter aortic valve implantation (TAVI) with traditional, open-heart surgery or medication therapy in high-risk patients with aortic stenosis. The promising findings of the study, published in the September 9, 2010, edition of the *New England Journal of Medicine*, show that patients treated with TAVI were more likely to survive a year than patients who were treated without replacing their original valves. According to the authors, catheter-delivered valves "should be the new standard of care" for patients who are unable to undergo traditional median sternotomy aortic valve replacement.

TAVI is a groundbreaking non-surgical method of replacing diseased aortic heart valves in patients suffering from severe aortic stenosis that are too frail or sick to withstand the traditional open-heart surgical approach. The life threatening heart condition affects tens of thousands of Americans each year when the aortic valve tightens or narrows, preventing blood from flowing through normally.

During the procedure, doctors create a small incision in the groin or chest wall and then feed the new valve, mounted on a balloon-expandable stent catheter. Once the catheter is properly positioned in the opening of the aortic valve, the new valve is rapidly expanded. As it expands it pushes the diseased, native valve aside, allowing blood to flow normally through the implanted valve to the rest of the body.

The trial followed 358 non-operable patients with severe aortic stenosis at 20 hospitals nationwide who received either catheter-delivered valves or medical therapy. Emory University Hospital was the only site in Georgia participating in the trial. Collaborating with cardiologists of the Emory Heart & Vascular Center, Dr. Guyton and Dr. Thourani's surgical teams have performed approximately 90 TAVI procedures to date. "If FDA approved, the results of this trial and the use of this product will truly transform the management of these otherwise inoperable patients with severe aortic stenosis," Dr. Thourani comments. "We at Emory are truly blessed to be able to provide this service to such a deserving patient population."

The results of the second portion of the trial comparing TAVI with open traditional aortic valve replacement in high-risk surgical patients are expected to be released in spring 2011.

While it is anticipated that the valve will receive FDA approval in late 2011, it is currently not approved and therefore available at only a few centers in the country. Emory is the only center in in the Southeast and one of the five largest centers in the country to offer it. Please contact 404-686-2513 for more information regarding the procedure.

**Dr. Halkos sustains and fosters the coronary hybrid revascularization program**

Upon arriving at Emory in 2003, Dr. Tom Vassiliades developed Cardiothoracic Surgery’s hybrid coronary revascularization program, establishing Emory as the only cardiac surgery service in Georgia offering the procedure. After Dr. Vassiliades left Emory last year, Dr. Michael Halkos, who joined us in July 2009, took over the service, having trained extensively on the DaVinci Robotic System. Under Dr. Halkos’ leadership, the program has continued to expand, with Emory remaining one
of fewer than 10 institutions in the U.S. using the technique, which has received substantial coverage in the media (click here for a video story on the procedure featuring Dr. Halkos and his patient Larry Wineski on ABC-12). Over 175 of these hybrid procedures have been performed at Emory Hospitals.

As an alternative to traditional coronary bypass surgery involving a sternotomy, hybrid revascularization allows the surgeon to perform a sternal-sparing minimally-invasive bypass through a 3cm incision in the chest using robotic technology. The left anterior descending coronary artery (LAD) is bypassed with the left internal mammary artery and other vessels are then treated with percutaneous coronary intervention and stents by interventional cardiologists.

This represents an alternative collaborative approach to selected patients with multivessel coronary disease who would otherwise receive either multivessel stenting or traditional coronary artery bypass surgery. Because the major benefit of traditional coronary artery bypass surgery is the use of the left internal mammary artery to the LAD, this approach may enable complete revascularization without the invasiveness and morbidity of traditional surgery and provide better durability than multivessel stenting. Robotic-assisted coronary artery bypass can also be utilized for single vessel disease involving the LAD.

“We call it the best of both worlds approach,” says Dr. Halkos. “You get the minimally invasive benefits of the stenting procedure and the long-term durability of a bypass operation.”

While early results suggest that patients recover faster, return to normal activity sooner, and may have fewer complications, studies are continuing to assess the long-term outcomes of the procedure compared to multivessel stenting and traditional coronary artery bypass surgery. Currently at Emory, Dr. Halkos is working with PI Dr. John Puskas on an NIH-sponsored prospective multi-center observational trial of hybrid revascularization versus multivessel stenting for selected patients with multivessel coronary artery disease.

**Funding for statewide trauma system on November ballot**

Legislation passed by the Georgia General Assembly this year gives Georgia voters the chance to vote yes or no in the election on November 2 for the state to charge an annual car registration fee of $10 to support trauma care throughout Georgia. If approved, Amendment No. 2 will provide direct funding to expand trauma services in the state.

Georgia currently lags behind other states in trauma care. The state has 16 trauma centers, including the Level 1 Trauma Center at Grady Memorial Hospital, but needs as many as 30. The lack of trauma centers translates to a higher mortality rate for those needing trauma care.

“Georgia is one of the few states in the country without an organized trauma system,” says Dr. David Feliciano, Surgeon-in-Chief and Chief of Vascular Surgery at Grady. “Unfortunately, this translates into hundreds of unnecessary deaths from injuries each year. In addition, the death rates from injuries in certain rural counties in Georgia far exceed those in the large cities where trauma centers are present.”
Dr. Turgeon receives Regional Champion award

The National Leadership Team of the Health Services and Resources Administration's Donation and Transplant Community Collaborative recently named Dr. Nicole Turgeon as Regional Champion for the Organ Procurement and Transplantation Network (OPTN)/UNOS Region 3. Dr. Turgeon and 10 other regional champions will be recognized at the Medal of Honor Ceremony at the 6th National Donation and Transplantation Learning Congress in Texas on November 3.

LifeLink of Georgia and the Emory Transplant Center submitted Dr. Turgeon's nomination, which included letters of support from Dr. Thomas Pearson, director of Emory's renal and pancreas transplant programs; Kathy Lilly, LifeLink of Georgia; Dr. Marty Sellers, Piedmont Hospital; and Julie Lewis, Atlanta Medical Center.

"Since her recruitment to Emory in 2007," Dr. Pearson wrote, "Dr. Turgeon has been unwavering in her commitment and passion to enhance donation and transplantation within her OPTN region."

In addition to her busy schedule as a renal and pancreas transplant surgeon, Dr. Turgeon chairs LifeLink of Georgia's Professional Committee, serves on LifeLink's External Advisory Board, and works to educate hospitals state-wide about organ donation and to increase communication among Emory's transplant programs, LifeLink of Georgia, and donor families.

Dr. Sellers, who has worked with Dr. Turgeon on LifeLink's multi-disciplinary professional development and clinical practice committee, notes that he has "never worked with any transplant surgeon/physician who has been as outwardly committed, not only in words but also in actions, as she has been throughout her career."

Dr. Force performs Emory's 300th lung transplant

On September 17, 2010, Dr. Seth Force and his surgical team performed Emory's 300th lung transplant, a notable achievement especially considering that the lung transplant program is not as high-volume as Emory's other transplant programs. However, in 2009 the service performed 35 lung transplants, more than it has ever done in a year and a 300% increase over the number it transplanted 10 years ago. The service has done 17 lung transplants in the first six months of this year.

"If anything, this achievement was a team endeavor and Clint Lawrence deserves a lot of the credit," said Dr. Force, Surgical Director of Lung Transplantation. Dr. Lawrence is the McKelvey Chair in Lung Transplantation Medicine and Medical Director of Lung Transplantation. "When I came on board to expand the program in 2003, Emory Healthcare and the Departments of Medicine and Surgery put the resources in place to grow the lung transplant program. They added staff in the pre- and post-transplant areas and recruited two dedicated thoracic surgeons, Allan Pickens and Felix Fernandez, last year. It's been a huge effort."
**Emory Surgery resident receives grant to initiate ethics training**

**Dr. Timothy Love**, a PGY-2 general surgery resident who came to us from the University of Miami, received a 2010 Kamangar Ethics Award for Surgical Resident Training in Medical Ethics from the American College of Surgeons and Washington University School of Medicine.

“Surgical residents currently training in the modern era have benefited tremendously from the explosion of medical knowledge over the past century,” says Dr. Love. “Unfortunately, the task of learning this vast compendium of knowledge has left little time for any substantial teaching in medical ethics.”

When preparing to write the grant, Dr. Love spoke with various faculty, such as Dr. Chris Larsen, Dr. William Wood, Dr. Keith Delman and others, and all agreed that sound ethics are an essential component of surgical practice and that residents and faculty would benefit from formally integrating ethics into our curriculum.

In his grant application, Dr. Love cited a recent article by former Emory general surgery resident Dr. Christian Vercler (now a plastic surgery resident at MGH) in *Mayo Clinic Proceedings* that described the volume and diversity of ethics issues encountered by the Ethics Committee of Grady Memorial Hospital. The highest incidence of consultation by service was in the Trauma ICU, a service on which every Emory surgical resident rotates. For Dr. Love, this situation exemplified the need for specialized attention and training in ethical issues to replace the assumption that surgeons, residents, and fellows will learn about ethics in their day-to-day interactions with patients.

Award winners are provided with copies of the *Ethical Issues in Clinical Surgery* textbook, copies of *The Instructor’s Companion to Ethical Issues in Clinical Surgery* for each faculty instructor; funds to cover all expenses for Dr. Love to attend the Kamangar Ethics Award Winners Workshop and Director’s Meeting at Washington University on December 9, 2010; ongoing consultation through the Center for the Study of Ethics and Human Values at Washington University; and additional supporting funds of $2,000 per year for conducting regular surgery ethics meetings with residents.

Dr. Love will be working with Dr. Delman and Dr. Tom Dodson to incorporate formal teaching and ethical discussion into the resident curriculum. Another goal is to develop a relationship between Emory Surgery and the Emory Center for Ethics so that faculty from the center will become regular participants in our ethics program’s discussions and lectures.

---

**Events calendar**

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE/TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Division Chiefs Meeting</td>
<td>5:30-7:00 pm, Oct 26, 2010</td>
<td>Whitehead Room, EUH</td>
</tr>
<tr>
<td>Dr. Charles Staley will present</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SURGICAL GRAND ROUNDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third Annual Garland Perdue Lectureship</td>
<td>7:00-8:00 am, Nov 4, 2010</td>
<td>Auditorium, Emory University Hospital</td>
</tr>
<tr>
<td>The Economics of Endovascular Treatment: A Tale of Two Therapies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presented by W. Charles Sternbergh, III, MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Event</td>
<td>Time</td>
<td>Location</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>SURGICAL GRAND ROUNDS</strong></td>
<td>7:00-8:00 am, Nov 11, 2010</td>
<td>Auditorium, Emory University Hospital</td>
</tr>
<tr>
<td><strong>Bullets with Butterfly Wings: World Conflicts and the Evolution of</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reconstructive Surgery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presented by Robyn Sackeyfio, MD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Chief Resident, Department of Surgery, Emory University School of Medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EUH Surgical Services Performance Day</strong></td>
<td>7:00-8:00 am, Nov 18, 2010</td>
<td>Auditorium, Emory University Hospital</td>
</tr>
<tr>
<td>A quarterly review and analysis of surgical services performance among anesthesia, surgery, and OR Staff of Emory University Hospital.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ATTENDANCE BY INVITATION ONLY.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Surgery Division Chiefs Meeting</strong></td>
<td>5:30-7:00 pm, Nov 30, 2010</td>
<td>Whitehead Room, EUH</td>
</tr>
<tr>
<td>Dr. Stuart Knechtle will present</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>