CHANGE IS A CONSTANT IN MEDICINE; today, as the health care field changes so rapidly, we are challenged to look for ways to continually improve patient care, to adapt to changes in the field while using research to advance this care, and to prepare tomorrow’s academic surgeons for a future that certainly will look quite different from today.

The Department of Surgery is well prepared for these challenges because of the depth and breadth of its faculty members’ expertise. As an example, Plastic and Reconstructive Surgery Chief Susan Mackinnon, MD, recently became the 19th surgeon worldwide — and the third in our department’s history — to receive the prestigious Jacobson Innovation Award from the American College of Surgeons. Dr. Mackinnon received this international award for her groundbreaking work on nerve regeneration, nerve transfers and nerve transplantation.

Our faculty members also continue to lead national and international surgical societies. In 2014, L. Michael Brunt, MD, will become president of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), and Minimally Invasive Surgery Chief Brent Matthews, MD, will assume the presidency of the Americas Hernia Society. In these roles, they plan to work closely together on quality improvement and educational initiatives. (For a list of faculty in leadership roles, see page 39.)

Bringing their expertise to patients, three Washington University surgeon workgroups have launched initiatives to prevent surgical site infections, venous thromboembolisms and cardiac events during and after surgery at Barnes-Jewish Hospital. These groups are implementing new measures and will gauge success using national data.

While we continue to break ground in basic and translational research, the department has also seen a surge in clinical trials. And department researchers are increasingly focused on treatment outcomes of patients, such as those with early-stage lung cancer.

But the biggest changes may be in education. Under initiatives by educational leaders Mary Klingensmith, MD, and Michael Awad, MD, general surgery residents this year will receive training customized to their specialty and be evaluated on the basis of qualitative standards.

The Department of Surgery often has been at the forefront of change — perhaps no more so than today.

Timothy Eberlein, MD
William K. Bixby Professor of Surgery
Chairman, Department of Surgery
Director, Alvin J. Siteman Cancer Center
Every surgeon — and every patient — knows there is nothing simple about achieving a successful surgical outcome. That success is the culmination of a complex series of decisions and actions by both the patient and each caregiver he or she encounters — from the moment the patient seeks treatment through postoperative follow-up and everything in between.

Understanding and improving every step along that path is a major initiative of the Department of Surgery at Washington University School of Medicine. Within every surgical subspecialty,
the department is engaged in quality improvement efforts that integrate its four missions of patient care, education, research and community engagement. Through research, department investigators seek better ways to engage patients and their communities, to evaluate and improve how we train surgeons, to reduce surgical complications, and more.

The potential questions are endless: What prevents some individuals from seeking cancer screening? Where are we making mistakes in the caregiving process, and how can we prevent them? Which treatment is most effective? How do we define “most effective”?

These efforts augment the department’s ongoing strength in advancing prevention, diagnosis and treatment. Our goal: to not only provide the best care options, but to ensure that we choose and deliver them appropriately, effectively and efficiently. Our successful outcome: a healthier tomorrow for our patients.
RESEARCHERS in the Division of Public Health Sciences are gaining a more precise understanding of perceived barriers to breast cancer screening. Using surveys and a patient registry to study women who receive mammograms on a mammography van, the researchers are clarifying barriers to care and mapping common responses by location — work that will help refine patient-education efforts.

The Mammography Van of the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine reaches uninsured and underinsured women in the city of St. Louis by stopping at federally qualified health centers, Schnucks grocery stores and other locations. It also travels to the Missouri Bootheel — the southeasternmost part of the state. Van workers enroll women who receive financial assistance into a patient registry and survey them about their access to mammography and other topics.

The participating women from St. Louis are predominantly African-American and unmarried and travel to the screening on public transportation, while women in the Bootheel are mostly white, married and may drive 20 to 30 miles to reach the van.

The project team examining the women’s responses, which combines nurses and doctors serving the van and researchers from the Division of Public Health Sciences, found that traditional barriers such as transportation and availability of childcare were not the greatest obstacles to breast cancer screening.

“One of the questions we ask is ‘What would stop you from coming back?’” says Melody Goodman, PhD, the team’s biostatistician and a researcher in the Division of Public Health Sciences. “Most of them report cost, so even though they’re getting a free mammogram this time, they’re not sure it’s going to continue. The other barriers were fear-related — fear of receiving bad news and that the mammogram would hurt. We find that on subsequent visits, the fear factor goes down a bit.”

Goodman and other public health science researchers have mapped the most common reported barriers by zip code. The results will help health professionals serving the van to develop tailored educational programs.
In ongoing work, the researchers will look at whether women continue to undergo annual mammograms, where they get future exams and whether they follow recommended guidelines.

Goodman believes that the van, which provides the same treatment and follow-up as Siteman patients receive, has proven to be a successful model for reducing disparities in breast cancer screening. “Mobile mammography addresses access to care, regardless of population and even urban and rural designation,” she says.
ALTHOUGH PATIENT volume and condition severity have increased over the past year for the Acute and Critical Care Service at Barnes-Jewish Hospital, new efficiencies have contributed to better outcomes — and more efforts to improve quality are under way.

“The key factors we always look at are mortality and length of stay,” says Grant Bochicchio, MD, MPH, chief of the Section of Acute and Critical Care Surgery. “We have seen a significant decrease in these indices, despite our challenges.”

Bochicchio, also the Harry Edison Professor of Surgery, partly attributes the improved outcomes in the Charles F. Knight Emergency and Trauma Center at Barnes-Jewish Hospital to the increased use of nurse practitioners as physician extenders — from one-and-a-half full time equivalent (FTE) staff members to seven. The nurse practitioners provide better coverage to address patient needs and steer non-emergency patients to the outpatient clinic. Patients are also given the nurses’ phone numbers and are encouraged to call if they run into problems after leaving the hospital.

After six months with the new system, length of stay decreased by 21 percent, mortality decreased from 1.08 percent to 0.64 percent and readmissions dropped.

The attention to readmissions is important not only to provide better utilization of health care services, but because the U.S. Centers for Medicare & Medicaid Services (CMS) has reduced payments to hospitals with excessive readmissions under the Affordable Care Act.

Bochicchio also has worked with acute and critical care surgeons to better document patients’ medical conditions. The improved documentation practices are necessary to comply with the new ICD-10 patient diagnostic and procedure coding system, which the CMS will implement on Oct. 1, 2014, and will allow the surgeons to benchmark key indices against other leading trauma centers and past data at Barnes-Jewish Hospital.

In the coming year, Bochicchio also will divide the primary clinical service into three separate services: Trauma, Geriatric Trauma and Acute Care/Emergency Surgery. As a result, the new service lines will become more specialty oriented and efficient in their overall care. The change is expected to further improve outcomes and throughput for these complicated patients.
Using nurse practitioners as physician extenders on the Acute and Critical Care Service at Barnes-Jewish Hospital has dramatically reduced length of stay, mortality and readmission rates. Above, nurse practitioner Linda Hornbeck, RN, treats Katherine Hill and, at left, confers with Grant Bochicchio, MD, MPH, chief of the Section of Acute and Critical Care Surgery.

“We have seen a significant decrease in mortality and length of stay, despite our challenges.”

Grant Bochicchio, MD, MPH
STANDARDIZED PROTOCOLS
Reducing surgical site infections

INITIATIVES BY Washington University colon and rectal surgeons to reduce the rate of surgical site infections in their patients at Barnes-Jewish Hospital and Barnes-Jewish West County Hospital have expanded and standardized infection-control procedures. The initiatives also encourage ownership among all who work with patients, and will draw on internal and national data to measure success.

The rate of surgical site infections is one of three quality indicators from data compiled by the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP®) that the Department of Surgery is addressing through quality improvement initiatives.* Colon and rectal surgeons are one of the earliest surgical groups to take on surgical site infections at Washington University. Their recommendations, if successful, may be adopted by other surgical specialties at Barnes-Jewish and by other hospitals within the BJC HealthCare organization.

“Our efforts have been very well received,” says colon and rectal surgeon Bashar Safar, MD, who initially led the effort. “By involving the different disciplines, each has ownership of the problem.”

Starting in January 2013, the colon and rectal surgeons began using a set of standardized protocols for their colon and rectal resections for cancer, polyps, diverticulitis and inflammatory bowel disease. These included:

- Bowel prep procedures including oral antibiotics
- Pre-operative skin cleansing for patients to perform at home
- Clean wound closure protocols in which the operative field is re-draped and new instruments and antibiotic irrigation solutions are used
- Standardized timing for administering pre-operative antibiotics
- Limiting traffic in the OR

NSQIP data from the first six months of the protocols will be

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MATTHEW SILVIERA, MD, joined the Section of Colon and Rectal Surgery as an assistant professor after completing a fellowship at Washington University and Barnes-Jewish Hospital. Silviera received a medical degree and a master of science in clinical research and translational medicine from Temple University, completed residency at Temple University Hospital and completed a postdoctoral research fellowship at the Fels Institute for Cancer Research and Molecular Biology. He is interested in outcomes research, with a focus on enhanced recovery after surgery protocols.

Colorectal surgery clinical nurse coordinator BONNIE JOHNSTON, RN, and her husband, STEVE, have provided financial support for research conducted by STEVEN HUNT, MD, and his team, who are studying the genetics of Crohn’s disease and ulcerative colitis. Johnston was diagnosed with ulcerative colitis at age 24 and was successfully treated at Washington University.

The last patients at the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine are completing a clinical trial comparing laparoscopic-assisted resection vs. open resection for treatment of rectal cancer while a new international trial will compare robotic vs. laparoscopic resection for rectal cancer (the ROLARR study). MATTHEW MUTCH, MD, is the Siteman principal investigator.

SEKHAR DHARMARAJAN, MD, is principal investigator of a one-year developmental pilot research project for the Transdisciplinary Research on Energetics and Cancer (TREC) Center at Washington University, focused on studying the relationship of cancer and obesity. Dharmarajan, along with collaborator NICHOLAS DAVIDSON, MD, DSc, chief of the Department of Medicine’s Division of Gastroenterology, will study the interaction of dietary fat and fatty acid trafficking on intestinal polyp formation.
available in fall 2013. The team can then begin to fine tune the protocols to be more efficient, according to colon and rectal surgeon Paul Wise, MD, who is now leading the initiatives.

“Once we have established that the protocol as a whole is successful, our goal will be to determine which of our measures have been the most effective,” says Wise. “Ultimately, we hope to clarify what are the most cost-effective and well-tolerated by our patients while leading to the best possible outcomes.”

* Others are deep venous thrombosis/pulmonary embolism (see page 18) and cardiac complications (see page 23).

Ira Kodner, MD, retires

A distinguished career entered a new chapter when colon and rectal surgeon Ira Kodner, MD, retired in May 2013 and was named professor emeritus.

Kodner graduated from Washington University School of Medicine and completed an internship at Jewish Hospital, served in the U.S. Army and resumed his residency training at Jewish Hospital. During the residency years, his career took a definitive turn; Sam Schneider, MD, invited him to an ostomy association meeting, and he discovered the great void in care for patients after colorectal operations.

Kodner went on to a colon and rectal surgery fellowship at the Cleveland Clinic. After moving from private practice to full-time faculty, he helped establish the colorectal surgery specialty both at Washington University and nationally. In addition to taking national leadership positions, which enabled him to promote colon and rectal surgery as an academic specialty, Kodner completed an ethics fellowship at the University of Chicago and became a national leader in medical and surgical ethics education.

Kodner held the Solon and Bettie Gershman Chair in Colorectal Surgery. In retirement, he will stay active in the field of ethics education.

“Ultimately, we hope to clarify which measures are the most cost-effective and well-tolerated.”

Paul Wise, MD
WASHINGTON UNIVERSITY breast surgeons and biomedical engineers are using a new imaging technology to develop a less invasive method for sentinel lymph node biopsy — a critical part of breast cancer staging. Their efforts could help thousands of women avoid permanent adverse side effects that can occur with the current surgical biopsy.

Sentinel lymph nodes are the first nodes likely to be reached by cancer cells from breast tumors. In the current biopsy procedure, physicians inject a dye near the tumor, and in an open surgery, visualize the labeled nodes by eye and remove them; pathologists study the nodes microscopically to look for cancer cells and determine the stage of disease. Although side effects are uncommon, some, such as lymphedema and numbness, are significant and can be permanent.

“In the United States, there are approximately 230,000 new breast cancer cases a year, and a majority of those women will have sentinel node procedures,” says Julie Margenthaler, MD, Washington University breast surgeon at Barnes-Jewish Hospital. “If even one percent develops lymphedema, resulting in arm swelling, that’s thousands of women with a permanent condition from a relatively low-risk procedure.”

That’s why Margenthaler and colleagues have spent the last two years studying whether photoacoustic tomography, an imaging technique that combines strong optical contrast and high ultrasonic resolution, can pinpoint the sentinel lymph nodes noninvasively so that the biopsy can be done by needle. In the new procedure, she injects a blue dye near breast tumors; a probe detects the dye in the nodes and generates a computer image showing the location of the sentinel nodes.

The instruments were developed in collaboration with Philips Research by Lihong Wang, PhD, the Gene K. Beare Distinguished Professor of Biomedical Engineering, an international leader in applying photoacoustic tomography to medical diagnostics.

As Margenthaler tested accuracy of the system in 25 patients, Wang made equipment modifications. The end result was an effective system for identifying sentinel lymph nodes.

Wang and Margenthaler have received a five-year National Institutes of Health (NIH) grant to compare pathology results of surgically removed sentinel lymph nodes with those of photoacoustic tomography needle biopsies. If
the methods are equally as accurate, the next step will be disseminating the new technique.

“It would be a matter of making it so everyone understands how to use it,” says Margenthaler. “That shouldn’t be much of an obstacle because breast cancer specialists are already very comfortable with ultrasound technology.”

Julie Margenthaler, MD, and colleagues are employing photoacoustic tomography to pinpoint the target of breast biopsies so that biopsies can be done by needle (right) rather than open surgery.

Championing quality improvement nationally

Bruce Hall, MD, PhD, MBA, was named BJC HealthCare Vice President for Patient Outcomes in January 2013 as he continued to champion performance improvement at Barnes-Jewish Hospital, across BJC HealthCare hospitals, and on the national front.

In his new role, Hall will develop coordinated approaches to patient-centered care and quality across all BJC service lines and sites. He also serves as associate director of the National Surgical Quality Improvement Program of the American College of Surgeons (ACS NSQIP®) and medical director of the NSQIP-Pediatric program, and has been leading the implementation of NSQIP at Barnes-Jewish Hospital and other BJC hospitals. In addition, he is an ACS liaison to the National Quality Forum and the Centers for Disease Control National Healthcare Safety Network.

In the Department of Surgery, Hall has helped lead the Clinical Effectiveness Group and worked with faculty members on key performance improvement initiatives based on NSQIP data.

“Our healthcare system is evolving from one based on volume to one based on value, and I am incredibly excited by the challenges and opportunities ahead,” says Hall.
**Highlights**

- **WILLIAM HAWKINS, MD**, has received an NIH research project grant (R01) to study novel therapeutics for the treatment of pancreatic cancer. The lab seeks to optimize drug delivery using Sigma-2 ligands. He is the institutional principal investigator on three clinical trials that focus on patients with pancreatic cancer. One is a randomized, controlled trial of a vaccine as an adjuvant to surgery and chemotherapy. This past year, Hawkins had roles on several national committees including the National Comprehensive Cancer Network, American College of Surgeons, National Cancer Institute and American Cancer Society. He was recently elected to the American Surgical Association.

- **STEVEN STRASBERG, MD**, has opened a clinical trial of radiofrequency ablation for treating small liver cancers. Results of a new operation for pancreatic head cancers involving major blood vessels (WATSA) are being tracked in a prospective, IRB-approved registry.

- **DAVID LINEHAN, MD**, has received a National Institutes of Health (NIH) Research Project Grant (R01) to study modulating immune cells to increase the chemotherapy response in pancreas cancer, including a clinical trial of an immune modulator. The Foundation for Barnes-Jewish Hospital supported this work.

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**SURGICAL COMPLICATIONS**

**Refining documentation to improve outcomes**

**KEEPING COMPLICATIONS LOW**

For complex surgeries is an essential goal for surgeons and hospitals wanting to improve the quality of patient care. Washington University hepatobiliary-pancreatic and GI (HPB-GI) surgeons have focused not only on making surgeries safer at Barnes-Jewish Hospital, but also on improving how complications are measured, an important step in addressing post-surgical problems.

In 1992, while at the University of Toronto, Steven Strasberg, MD, and colleagues proposed a classification of negative outcomes of surgery and a severity grading system for complications. Their reasoning was that the severity — as well as the type — of complications should be clearly and consistently reported. Several years ago, Strasberg and fellow Washington University HPB-GI surgeons David Linehan, MD, and William Hawkins, MD, proposed a modified scale, called the Accordion Severity Grading System, which can be adapted to studies of different sizes and complexity.

Strasberg has used the Accordion System to measure complications of the Whipple procedure — the definitive operation for cancer of the head of the pancreas — in patients at Barnes-Jewish Hospital. The surgery, which 70 years ago had a 31 percent mortality rate, has become safer because of advances in surgery, anesthesia and intensive care. The Accordion results at Barnes-Jewish were no deaths and only three patients out of 100 with higher-level complications graded as 4 or 5 on a scale of 1-6.

“We have tracked complications for the Whipple procedure since August 2011, and our data thus far are outstanding,” says Strasberg. “But we did find complications that are not so severe, and we need to turn our attention to them.”

To study complications, Strasberg has also worked closely with Bruce Hall, MD, PhD, MBA, a Washington University endocrine surgeon who serves as the Barnes-Jewish champion of the American College of Surgeons National Surgical Quality Improvement Program and director of modeling and evaluation for the national effort. In two studies, they worked with 43 surgical experts to quantify the severity of postoperative complications, developed a morbidity index for procedures, and devised a method for comparing the relative weight of complications for a given procedure.

“For the Whipple procedure, intra-abdominal abscesses represent 30 percent of the burden,” says Strasberg. “That’s important because once we know the burden of a complication, we know that’s where we have to concentrate our efforts.”
Quick diagnosis, full recovery


In April 2012, Meyer attributed a bout of itchy skin to poison ivy, but thought his condition might be much more serious when a coworker told him the whites of his eyes were yellow. He ended up in the Barnes-Jewish Hospital emergency room on a Thursday night, where his condition was diagnosed as jaundice. By Saturday, the cause of the jaundice was confirmed: He had stage II pancreatic cancer.

Meyer underwent chemotherapy to shrink the tumor, and in September 2012, hepatobiliary-pancreatic surgeon Steven Strasberg, MD, performed an operation to remove the cancer. Strasberg had initially planned to perform an extended Whipple operation, but when the tumor was found to have extended into the body of the pancreas, he performed a total pancreatectomy. Meyer reported no complications after the 10-hour surgery.

Meyer underwent chemotherapy and radiation for about 10 weeks, after which oncologist Rama Suresh, MD, told him he was cancer free.

Meyer is back to his job in computer operations, and is enjoying fishing, his primary hobby. “I feel great,” he says.

“Once we know the burden of a complication, we know that’s where we have to concentrate our efforts.”

Steven Strasberg, MD

Washington University surgeons have developed a standardized grading system for documenting surgical complications — both their severity and type — and have used it for the past two years to identify, prioritize and address complications of the Whipple procedure, performed at left by Steven Strasberg, MD, left, and David Linehan, MD.
Matthews and Brunt often treat complex cases in which various techniques and types of meshes have been used. To mitigate some of the risk factors for post-surgical problems, they require patients to stop smoking, refer patients with diabetes to endocrinologists to improve glucose control, and encourage weight loss. If the hernia is not an urgent problem, they may also refer some morbidly obese patients for weight-loss surgery.

Matthews has also participated in clinical trials of standardized techniques to manage complex incisional hernias and is a leader in the Americas Hernia Society Quality Collaborative (AHS-QC) to measure outcomes of these repairs. About 20 institutions will initially participate in the collaborative, which allows surgeons to enter data in the operating room and the clinic and

Finally fixed

The case of Daniel Crum — a 51-year-old engineer and solutions architect from O’Fallon, Ill. — exemplifies the kind of complex incisional hernias that Brent Matthews, MD, chief of minimally invasive surgery, often treats.

Daniel Crum, on vacation in North Carolina
compare their outcomes with those of other surgeons. The ultimate goal is to expand the collaborative to all AHS members and practicing surgeons and to improve incisional hernia care for patients across health systems.

Next year, Matthews and Brunt may collaborate with each other on improving treatment of incisional hernias not only as colleagues, but as presidents of major surgical societies. In 2014, Matthews will become AHS president and Brunt will assume the presidency of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES).

Brunt says education of surgeons is a major focus of SAGES, which has begun developing online modules on surgical fundamentals. He believes future modules will include incisional hernias.

“Dr. Matthews and I are in a unique position to help move forward these quality initiatives at the national level,” says Brunt.

Since 1986, when surgeons made a 10-inch incision in Crum’s abdomen to check his lymph nodes during testicular cancer treatment, he has had five surgeries to repair hernias. In November 2012, his doctor referred him to Matthews.

During open surgery a month later, Matthews repaired a 10-inch hernia by navigating the adhesions of Crum’s abdomen and strategically placing mesh after realigning his abdominal muscles. His goals were to restore muscle function and minimize the risk of recurrence.

“What surprised me was how much different my abdomen felt after the surgery,” says Crum. “I felt my stomach in a way I haven’t felt in over 20 years.”

Although Crum will remain at risk for adhesions — he has been treated for one since his surgery — his overall health is greatly improved and he is bicycling and speed walking.

“I believe that with the work Dr. Matthews did, proper exercise and proper diet, I have the three key items to make my recovery successful,” Crum says.
WASHINGTON UNIVERSITY transplant surgeons are working with researchers in the Genome Institute at Washington University to sequence the whole genomes of tumors and adjacent non-tumor tissue from patients with hepatocellular carcinoma (HCC). The group is one of few in the world studying HCC genomics and hopes the work will translate into better diagnostic tools, prognosis and targeted therapies.

“The sequencing will tell us the important genes that are causing this cancer to happen,” says Yiing Lin, MD, PhD, Washington University transplant surgeon at Barnes-Jewish Hospital.

HCC, or primary liver cancer, typically occurs in a well-defined patient population: people who have cirrhosis from viral hepatitis, alcohol abuse or fatty liver disease. The five-year survival rate for localized liver cancer (cancer confined to the liver) is approximately 28 percent and drops to about 10 percent when cancer has spread to nearby organs or the lymph nodes.

Hepatologists recommend that people with cirrhosis undergo MRIs or ultrasounds every six months to look for development of cancer, but MRIs are not cost-effective and ultrasounds are less effective than MRIs as a diagnostic tool. A blood-based test would allow for earlier diagnosis and decrease the reliance on imaging techniques.

Elaine Mardis, PhD, co-director of The Genome Institute, and medical oncology researcher Obi Griffith, PhD, are sequencing the tumors of about 30 patients. Lin and William Chapman, MD, chief of the Section of Transplant Surgery and the Eugene M. Bricker Professor of Surgery, have provided samples from a tumor bank and are correlating patients’ clinical developments with mutations the group is seeing.

Lin says the research may eventually enable doctors to determine how aggressive a particular patient’s tumor is going to be, which may steer them to a particular treatment, and to identify genes that may respond to certain chemotherapeutic agents.

“The next goal is to get the translational project to better diagnose HCC off the ground,” says Lin.
Successful creation of vascular access, used to remove and return blood to the body during hemodialysis, is a major challenge in managing patients with end-stage renal disease (ESRD). The Centers for Medicare & Medicaid Services advocates that surgeons provide access by creating arteriovenous (AV) fistulae, which connect a vein directly to an artery. Once established, an AV fistula is considered superior to other vascular access methods (grafts and catheters), but they have a high failure rate.

Surendra Shenoy, MD, PhD, a transplant surgeon at Barnes-Jewish Hospital, is nationally known as a leader in vascular access. Shenoy reports that less than 10 percent of the fistulae he creates fail to mature, compared to recently published failure rates as high as 58 percent.

Shenoy is president-elect of the Vascular Access Society of the Americas (VASA) and president of the board of directors of the ESRD Network 12, which oversees care for patients in Medicare-certified dialysis facilities.

“There are about 700,000 people with ESRD,” says Shenoy, “and Medicare spends approximately 7.5-8 percent of its budget on this group, which represents only about 1.5 percent of beneficiaries.”
A DEPARTMENT-WIDE initiative is taking aim at reducing the incidence of venous thromboembolisms (VTEs) — potentially life-threatening blood clots in veins that can occur as a complication after surgery. Surgeons from 10 subspecialties are reviewing national data to look for ways to improve health care delivery and outcomes. Thus far, they conclude that many preventive measures are being correctly implemented but that some documentation practices could improve.

Jeffrey Jim, MD, MPHS, a Washington University vascular surgeon at Barnes-Jewish Hospital, is leading the quality improvement effort, one of three sponsored by the Department of Surgery*. It draws on data from the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP®).

The study determined that physicians and staff members already are applying appropriate prophylactic measures, including getting high-risk patients up and walking sooner after surgery, administering heparin to prevent clotting, and using stockings and sequential compression devices, or “leg squeezers.” Patients most at risk include older patients, those with a history of clots, those who are immobile and bedbound from surgery or critical illness, and cancer patients.

“We actually do an excellent job prescribing adequate prophylactic treatments,” says Jim. “We have almost 100 percent compliance with ordering low-dose heparin to prevent a clotting complication, but some patients still developed the complication.”

The team found documentation issues that should be addressed to both improve care and avoid skewing statistics, Jim says. Frequently, pre-existing deep venous thrombosis (DVT), a type of VTE, was not adequately documented before surgery and, if problems arose after surgery, they were inaccurately recorded as a new surgery-related VTE incident. In addition, documentation of a patient’s clinical events in the hospital needed improvement to clearly discern clinically relevant thrombosis. Research or “screening” ultrasound studies identified many events that would not otherwise have been counted.

The quality improvement team has already made recommendations for improving documentation and has taken measures to raise awareness of this important clinical issue among all caregivers. Additional recommendations will follow as they continue to monitor outcomes using ACS NSQIP® data.
Surgeons from 10 subspecialties are reviewing national data to look for ways to improve health care delivery and outcomes.

Above, a multidisciplinary team that includes acute and critical care surgeon Douglas Schuerer, MD, endocrine and oncologic surgeon Bruce Hall, MD, PhD, MBA, vascular surgeon Jeffrey Jim, MD, and colorectal surgeon Sekhar Dharmarajan, MD, is studying venous thromboembolism prevention. At right, staff nurse Maggie Schneider, BSN, RN, accompanies surgery patient Nyron Singroy as he performs one of the most important preventive measures: walking soon after surgery.

*Other initiatives are on surgical site infections (see page 8) and postoperative heart attacks (see page 23).
Robert’s type of LV AD provides a continuous-flow pump roughly one-quarter the size of his heart and lasts five years or longer. Soon, Washington University will be one of 10 sites testing a new generation of LV ADs with magnetically levitated pumps that are even smaller and may eliminate problems such as bleeding seen with current devices.

Under Silvestry, director of the Heart Failure and Cardiac Transplant Program at Barnes-Jewish Hospital, the number of LV ADs implanted has mushroomed — from 64 in 2011 to 101 in 2012.

Silvestry calls his patients “incredibly courageous.”

“They’re not at home waiting for a heart or worrying about their VAD,” he says. “They’re going to dinner, traveling, going on cruises. They are caring for people who once cared for them. And they make the most of the extra time they are given.”

CONSTANCE BROWN is a caregiver for her husband, Robert, a heart failure patient who was implanted with a left ventricular assist device (LVAD) as a bridge to transplant two years ago. But recently, Constance had surgery, and the couples’ roles were reversed a bit. Robert drove to the store himself, shopped and did the cooking.

Constance has seen Robert, 64, go through many stages of heart failure. He was diagnosed in 1993 but was able to continue working as a machinist by taking medication, exercising and watching his diet. In 2006, his condition worsened, and in 2010, he had a mini-stroke and had to stop working. He was so fatigued he had trouble walking from the family room to the bathroom.

In October 2011, Robert received an LVAD, implanted at Barnes-Jewish Hospital by Washington University heart surgeon Scott Silvestry, MD. Since then, Constance has seen a difference of “night and day.”

“He’s doing great,” she says. “I don’t have to worry about him dressing himself or getting up at night. Our friends are amazed.”

Silvestry says patients who receive an LVAD, either for permanent or temporary circulatory support, benefit from evolving technology. The devices continually get quieter, smaller and more durable. Robert’s type of LVAD provides a continuous-flow pump roughly one-quarter the size of his heart and lasts five years or longer.
Washington University will be one of 10 sites testing a new generation of LVADs.

Continual improvements in LVAD technology, opposite, mean healthier, more active lives for patients such as Robert Brown, shown at top exercising and with his wife, Constance. Left, the surgical team includes Akinobu Itoh, MD, PhD, Scott Silvestry, MD, and Sunil Prasad, MD.

Colleagues and other faculty members in the Department of Surgery marked the passing of Thomas Ferguson, MD, professor emeritus of cardiothoracic surgery and a pioneer in heart surgery, who died May 26, 2013, of complications following a heart valve procedure. He was 90.

Ferguson played an important role in bringing the first heart-lung machine to St. Louis, and in 1958, he and his colleagues performed Washington University’s first open-heart surgery with the aid of the new heart-lung pump.

He earned a medical degree from Duke University and continued his surgical training there before coming to Barnes Hospital and Washington University in 1951. He completed his training in cardiothoracic surgery under Evarts Graham, MD, the well-known cardiothoracic surgeon who led the Department of Surgery for more than three decades.

Ferguson spent four years in private practice in Florida in the early 1960s, but returned to Washington University, where he stayed for the remainder of his long and distinguished career.

Ferguson is one of a small number of surgeons who served as president of both the Society of Thoracic Surgeons and the American Association for Thoracic Surgery, which also awarded him the Lifetime Achievement Award in 2009.

Remembering Thomas B. Ferguson, MD

Thomas Ferguson, MD

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He earned a medical degree from Duke University and continued his surgical training there before coming to Barnes Hospital and Washington University in 1951. He completed his training in cardiothoracic surgery under Evarts Graham, MD, the well-known cardiothoracic surgeon who led the Department of Surgery for more than three decades.

Ferguson spent four years in private practice in Florida in the early 1960s, but returned to Washington University, where he stayed for the remainder of his long and distinguished career.

Ferguson is one of a small number of surgeons who served as president of both the Society of Thoracic Surgeons and the American Association for Thoracic Surgery, which also awarded him the Lifetime Achievement Award in 2009.
Thoracic surgeons are building on their own past work to develop more precise ways to choose treatments in high-risk early-stage lung cancer patients — those who are too sick to have an entire lobe of the lung removed but can undergo less drastic therapy. The surgeons are developing risk-prediction models to help physicians determine which treatment option is best for each individual patient.

For patients with early-stage lung cancer who are healthy enough, surgical lobectomy — removal of the entire lobe of the lung — remains the gold standard. At the other end of the spectrum are patients who are poor surgery candidates and are best suited for stereotactic body radiation therapy (SBRT), which delivers precisely targeted radiation to a tumor. The challenge is to establish criteria for those patients who are high risk for surgery, yet would be reasonably considered for either SBRT or a partial lobectomy.

Building on several retrospective treatment outcome studies by thoracic surgeons and radiation oncologists at the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine, surgeon Varun Puri, MD, has begun creating statistical models that will predict five-year or three-year overall survival and cancer-free survival in patients undergoing SBRT or partial lobectomy.

“Hypothetically, for each patient, we will be able to come up with the probabilities of long-term survival and cancer recurrence for both SBRT and surgery,” says Puri. “These models are laying the foundation for their utilization in larger national datasets that would enable us to simulate any specific patient into one or the other treatment to predict long-term survival.”

Earlier retrospective studies by Puri and colleagues showed that cancer-specific survival in high-risk patients was similar between SBRT and surgery. The studies provided valuable insights but suffered from selection bias because patients were selected for a particular treatment, not randomly assigned.

Puri’s models will use data from Barnes-Jewish patients, with data from Memorial-Sloan Kettering Cancer Center validating the surgical model and data from the Cleveland Clinic Foundation validating the SBRT model. His work is supported by a K12 Paul Calabresi Career Development Award for Clinical Oncology from the Washington University Clinical Research Training Center and a grant from The Foundation for Barnes-Jewish Hospital.
Preventing surgery-related cardiac events

An initiative headed by Bryan Meyers, MD, MPH, the Patrick and Joy Williamson Professor of Surgery and chief of the Section of Thoracic Surgery at Washington University, will look at national data regarding heart attacks and other cardiac events such as cardiac arrest that occur during and after surgery at Barnes-Jewish Hospital. Still preliminary, the project’s ultimate goal is to identify and address potential targets for improvement in the caregiving process.

“We are still in the qualifying stage as far as understanding the problem and finding out how we need to measure it,” says Quality Assurance Data Coordinator Bryce James, who serves as project manager for the effort. “We’ve done chart reviews on all the patients who were included in the latest ACS NSQIP sample, and the attending physicians are doing a more thorough review.”

Based on their findings, the group will likely implement a large set of clinical care interventions, determine which ones work and eliminate those that don’t; they will reassess the changes using ACS NSQIP data.

*Other initiatives are on surgical site infections (see page 8) and venous thromboembolisms (see page 18).

Varun Puri, MD, and colleagues are developing risk-prediction models to help physicians choose the best treatments for high-risk lung cancer patients. At left and below, Puri visits with Ronald Maybell.

“For each patient, we will be able to come up with the probabilities of long-term survival and cancer recurrence for both SBRT and surgery.”

Varun Puri, MD
MAJOR PEDIATRIC teaching hospitals see the most challenging cases of congenital heart disease, which existing therapies often do not fully address. In one such case, Washington University pediatric cardiothoracic surgeons at St. Louis Children’s Hospital were able to save the life of a 14-year-old boy and leave open the possibility of future treatment.

Xuanlin Su has a complex of heart defects called Shone’s syndrome; when he was born, he also had holes between the chambers of his heart. Before his family moved to Urbana, Ill., Xuanlin had two surgeries to correct some of his congenital heart defects. But he continued to have pulmonary hypertension as a result of his underlying heart problems.

In late 2012, Xuanlin’s condition deteriorated. He developed severe progressive right heart failure due to his pulmonary hypertension and was experiencing shortness of breath with even limited activity. At St. Louis Children’s Hospital, doctors started Xuanlin on medications and evaluated him for a possible heart-lung transplant.

“He was doing very well for a while and then he started to get very sick,” says his mother, Sarah Ballard. His life was in danger.

Although heart-lung transplant was an option for Xuanlin, it has a high mortality rate at the time of the operation and about a 50 percent five-year survival rate. So his medical team, led by Pirooz Eghtesady, MD, PhD, chief of pediatric cardiothoracic surgery at the St. Louis Children’s and Washington University Heart Center, chose an alternative: a surgical procedure called the Potts Shunt.

In a challenging operation, Eghtesady and pediatric cardiothoracic surgeon Peter Manning, MD, placed a plastic tube between the left pulmonary artery and descending aorta, offloading the burden on the right side of the heart. The surgery—the first Potts Shunt procedure for pulmonary hypertension due to a heart condition—helped Xuanlin make the transition from the cardiac intensive care unit to home, where he awaits evaluation for a possible heart transplant alone if his pulmonary vascular disease improves.

The Potts Shunt may help others with pulmonary hypertension, according to Eghtesady.

“Xuanlin’s case is unique in that we have applied a surgical procedure to a condition that has very limited options with not so great outcomes,” says Eghtesady. “The jury is still out about whether this can be applied more broadly, but this single case is an encouraging start.”
Xuanlin Su, 14, seated at top with his brother, Peipei, is doing well after undergoing a Potts Shunt procedure performed by Pirooz Eghtesady, MD, red cap, left and above, and Peter Manning, MD, blue cap.
But recent reports suggest that the radiation exposure in CT scans can significantly increase children’s lifetime cancer risk. Ultrasound is a safer alternative, but is best performed and interpreted in children by personnel with pediatric training.

“Appendicitis is a very tough diagnosis, because its symptoms overlap with viral infections and other problems,” says Jacqueline Saito, MD, MSCI, a Washington University pediatric surgeon at St. Louis Children’s Hospital and first author of the study. “We don’t want to operate when the appendix is fine, but if we wait too long, an inflamed appendix can rupture or perforate.”

In the study, Saito and her colleagues analyzed case records of 423 children who had appendectomies at St. Louis Children’s Hospital. About half of the children were first seen at a general hospital. Those children were more than four times as likely to have received a CT and less likely to have an ultrasound than kids evaluated at St. Louis Children’s. Both scanning techniques were more accurate when performed at the children’s hospital.

Saito says the study points to the need for more specific diagnostic guidelines.
guidelines for both general and pediatric hospitals.

“Ultimately, we’d like to learn how we can reduce our use of CT imaging without compromising patient care,” she says. “We want to find ways to identify the patients who really need these scans and those who can be effectively evaluated using other methods.”

Albert Woo, MD, chief of pediatric plastic surgery, was featured in a television news story about one of his patients born with two rare, life-threatening craniofacial conditions. The patient had acalvaria, a rare congenital disorder in which the child was born without portions of her skull and an encephalocele, a condition in which part of the brain bulges through a hole in the face. Initially, doctors feared that she would not survive or would have severely delayed development. After several surgeries, she now has a new scalp, a corrected encephalocele and normal intelligence. She also appears to be growing new bone in areas where her skull was missing. Her prognosis is excellent.
Fox and Yee plan to add more case perspectives on how to perform basic surgeries but also are re-evaluating the site’s methods for educating surgeons about anatomy. Website analytics show that the descriptions and anatomic-dissection photos are viewed less frequently than the surgical videos themselves. A possible solution may be to develop an “anatomic module” that allows surgeons to more easily reference the anatomy at a given point in a surgery.

“We are trying to find a way to link more closely with the surgery to encourage surgeons to step away from the easy-to-watch video and brush up on relevant anatomy that is the gap in their knowledge base,” says Fox.

Fox and Yee also plan to create video modules for physical therapists treating patients who undergo nerve transfers.

In addition to demonstrating nerve repair surgeries, the website helps surgeons brush up on relevant anatomy.
“Some of our patients are elderly and can’t see or read that well,” says Andriole, a urologist at the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine. “The tablet can make the printing bigger and automatically does the simple addition required on the survey. If you skip a question, it reminds you to go back. And the minute the patient is done, we press a button and it’s uploaded into a database.”

McIntosh reports about half chose the tablet and that this group was a slightly younger cohort. Users of both formats did not give much feedback on readability, but tablet users were more likely to answer sensitive questions.

McIntosh is correcting a few glitches in the survey and is working with the electronic medical records company used by the university’s physician practice group to make the data upload automatic.

In the meantime, the tablet survey has been extended to other urologic patients, including those with stone disease and voiding abnormalities.
“Electronic data capture saves money, improves accuracy and speeds up the time it takes to analyze data,” says Andriole. “Down the road, we hope patients may be able to complete surveys at home through a portal. Then they could fill out the form anytime they wanted.”

Staff nurse Linda Black, RN, assists patient Richard Hoover in completing a quality-of-life survey on a tablet computer. In comparing the use of paper vs. tablets for patient surveys, researchers find that tablets provide easier access to data and elicit more complete patient responses.

“Electronic data capture saves money, improves accuracy and speeds up the time it takes to analyze data.”

— Gerald Andriole Jr., MD
FOR MORE THAN 100 YEARS, general surgery residents have been trained under a standardized model in which everyone is exposed to the same surgical procedures and clinical rotations. Initiatives in the Washington University General Surgery Residency will change this model in fundamental ways, giving each resident greater exposure to the surgical specialty he or she plans to enter. The new system also breaks from the traditional quantitative approach to evaluation in favor of a qualitative approach — assessing both trainee progress and the effectiveness of the training model itself.

In July 2013, the residency began implementing a flexibility track, which allows residents in their third, fourth or fifth year of residency to spend 12 months training in a single specialty or specialized rotations that prepare them for their future area of practice. Residents in their earlier post-graduate years will also see changes in each rotation, with an emphasis on skills related to their chosen specialty. Rotations take place at Barnes-Jewish Hospital and St. Louis Children’s Hospital.

The initiative was launched a year after the residency began rolling out another new educational formula called the academy model. Under this model, individual goals and objectives are set for each rotation; the resident receives feedback midway through and a more formal assessment at the end.

“The flexibility option helps move us away from the ‘one-size-fits-all’ model,” says General Surgery Residency Program Director Michael Awad, MD, PhD. “The academy model allows us to customize every rotation to the individual. Our initial discussion involves not only ‘what we would like you to know and do by the end of this rotation’ but also ‘what would you like to get out of the rotation?’”

The flexibility track — formally known as the Flexibility in Surgical Training (FIST) guidelines — will also be carried out at nine other institutions. Each member of the FIST Program will collect data on the residents’ performance to evaluate the model’s effectiveness.

“We hope to have enough data to make conclusions,” says Mary Klingensmith, MD, the Department of Surgery’s vice chair for education and the Mary Culver Distinguished Professor of Surgery. Some possibilities: “that they can finish training sooner, that there are perhaps some things that are nonessential to certain tracks of training. For instance, do trainees going into heart surgery ever need to do pancreas surgery? Right now, that is a requirement. But that doesn’t make a lot of sense in the big picture.”
Mary Klingensmith, MD, vice chair for education, and Michael Awad, MD, PhD, general surgery residency director — shown above at far left and far right — are spearheading efforts to make surgical training more streamlined and customized to individual interests and to make evaluations more qualitative. Above, they instruct residents Lindsey Saint, MD, left, and Kathryn Rowland, MD, in suturing techniques, and at right in laparoscopy.

“The flexibility option helps move us away from the ‘one-size-fits-all’ model.”

Michael Awad, MD, PhD

Teaching ethics

New initiatives introduced by Surgery Clerkship Coordinator Douglas Brown, PhD, enrich the pivotal third year of medical school at Washington University. Third-years leave behind classroom learning to go through a series of clerkships at Barnes-Jewish Hospital and St. Louis Children’s Hospital, including a 12-week surgery clerkship. They begin to see more clearly the complexities physicians face daily.

Brown and others are introducing opportunities for the surgery clerkship students to learn about and cope with the complex ethical and professionalism issues raised on rounds, in the OR and in lectures.

During the clerkship, Brown sends the students six “promptings” — thought-provoking narratives designed to help them frame these challenges. Topics include maintaining professional values such as compassion in today’s competitive, cost-driven health care environment, how individual values and personalities affect clinical decision making, and finding ways to assess and meet patients’ expectations for end-of-life care. Near the end of the clerkship, surgery faculty and residents facilitate a roundtable discussion.

Douglas Brown, PhD
THE DEPARTMENT OF SURGERY has a strong tradition of research, but recent changes in the field are creating a new landscape for the department’s surgeon-scientists and research faculty. Although basic science investigations continue to be a major strength for the department, more so than for most academic surgery departments, faculty members are breaking new ground in clinical outcomes research and are at the forefront of clinical and translational research.

Workgroup and Outcomes Research

In 2009, the department formed a Surgical Quality and Effectiveness Group that encourages collaboration between surgeon-scientists and public health science researchers. Over time, input from this workgroup has supported outcomes research on topics such as management of early-stage lung cancer, analysis of pediatric surgical data, and the impact of prophylactic mastectomy on contralateral breast cancer and mortality in women.

Also contributing to outcomes research, a growing number of surgeons either have public health training or are pursuing a master of population health sciences degree through the Division of Public Health Sciences. Many of them, including Seth Strope, MD, MPH, who earned his degree before joining the faculty, are active in the workgroup.

The workgroup is transitioning from monthly meetings to research retreats; Strope and others continue to tout its importance. “We need to have a mechanism where we can sit down and ask, ‘Is this working or not?’” says Strope. “That’s not going to come just from ‘here’s what we want to do.’ What is the metric? That’s where the quality and effectiveness group can have some effect.”

Clinical Research

Although funding for basic science research is becoming scarcer, funding to the department for clinical trials...
We need to have a mechanism where we can sit down and ask, ‘Is this working or not?’

Seth Strope, MD, MPH

Basic and Translational Research

The department continues to be a leader among U.S. academic surgery departments in National Institutes of Health (NIH) funding for basic science and translational projects, which delve into such areas as lung immunology, increasing the response to chemotherapy in pancreas cancer treatment, and studying molecular pathways that protect and repair the kidney when obstruction occurs in utero or after birth. In translational research, a growing number of faculty members are working closely with The Genome Institute at Washington University to apply results of genomics investigations to develop therapies, diagnostic testing and guidelines for patient education.

Facing page: Ralph Damiano Jr., MD, and colleagues are world leaders in the surgical treatment of heart arrhythmias.

has tripled over the past 16 years. Clinical investigations include some of the most innovative treatments in surgery, such as:

- Use of immune globulin to reduce hepatitis C recurrence after liver transplant
- Stent devices for treatment of aortic dissections, a serious condition in which there is a separation of the aorta walls
- A device implanted during atrial fibrillation surgery to monitor heart arrhythmia postoperatively

William Gillanders, MD, professor of endocrine and oncologic surgery, has been named vice chair for research in the Department of Surgery. Gillanders succeeds Robert Thompson, MD, professor of vascular surgery, who served in this role for many years. Gillanders will lead research efforts throughout the department by encouraging collaboration, leveraging institutional resources, helping to mentor new faculty and fellows, monitoring the efficient use of resources and working closely with division and section chiefs on their research agendas.

Gillanders named department’s vice chair for research

William Gillanders’ research includes work on vaccines aimed at enlisting the power of the immune system to fight tumors.
FOR THE 11TH STRAIGHT YEAR, the Department of Surgery’s combined number of operations, patient visits and ancillary procedures has risen — even as the health care environment continues to present new challenges.

This growth has been made possible in part by offering multi-disciplinary care within Washington University Medical Center and continuing to expand services beyond it. In the past year, the department’s surgeons began working as part of a multidisciplinary team at Siteman Cancer Center — South County. This complements the efforts of colorectal, hepatobiliary-pancreatic-GI (HPB-GI), thoracic and breast cancer surgeons who offer treatment at Siteman’s other satellite locations. All these services have made it possible for patients to receive advanced cancer care from top specialists close to home.

Challenging economic environment

In August 2012, the Missouri Supreme Court struck down a $350,000 limit on jury awards for “pain and suffering” in medical malpractice cases, saying the law violates a patient’s right to a jury trial. The cap on malpractice awards was established by a 2005 state law passed to control rising medical malpractice insurance rates. The ruling has significantly increased the cost of malpractice insurance for the department’s surgeons.

A shift in payer mix — with more patients enrolled in high-deductible managed care plans — and higher percentages of patients on Medicare and Medicaid mean that surgeons are receiving lower reimbursement rates even as patient volume continues to grow. At the same time, the government sequester has decreased the rate of Medicare reimbursement by two percent.

Implementing the Affordable Care Act

The Centers for Medicare & Medicaid Services (CMS) is implementing...
a value-based modifier program designed to reimburse physicians based on quality and cost of care. CMS will look at data from the Physician Quality Reporting System to measure cost and quality of care to Medicare patients. In 2015, CMS will implement this program to physicians in groups of 25 or more, with participation by all physicians and groups implemented by 2017. Physicians who choose to participate in the program and are found to provide high-quality care at a low cost will receive additional reimbursement for treatment of Medicare patients. But eligible physicians who don’t join the program or fail to achieve the desired goals may face penalties. A university committee is looking at the impact of this program on Washington University physicians.

Other components of the Affordable Care Act that may have an impact include expansion of Medicaid services in Illinois, reduced reimbursement to hospitals with excess readmissions, and the expected increase in the number of patients with medical insurance.
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The Walter F. Ballinger
Administrative Chief Residents

Juan Jose Blondet, MD, and Derek Wakeman, MD, are the first administrative chief residents in the General Surgery Residency Program to be named the Walter F. Ballinger Administrative Chief Residents.

This honor is made possible by an endowment established by the late Walter Ballinger, MD, a former chair of the Department of Surgery, and his wife Mary Randolph Ballinger. In addition to gifts from Dr. and Mrs. Ballinger, more than 100 of their friends and former colleagues contributed to the fund. The effort to secure these gifts was led by Gordon Philpott, MD, and Gregorio Sicard, MD.

Timothy Eberlein, MD, Bixby Professor and chairman of the Department of Surgery, says the use of the endowment is fitting because of Ballinger’s interest in resident training. The Ballinger stipend recognizes the administrative chief residents for their long hours and dedication to the program. Their duties include setting up rotation schedules, leading the weekly Morbidity and Mortality Conference, tracking regulatory compliance and making sure residents fulfill their administrative duties.

Upon graduation, this year’s administrative chief residents will go on to fellowship training — Blondet in minimally invasive surgery and Wakeman in pediatric surgery at Washington University and St. Louis Children’s Hospital.

To Make a Gift

The Department of Surgery welcomes your support. Ways to make a gift include annual unrestricted giving such as membership in the Eliot Society, gifts for education of residents and fellows, support for research and endowment, and planned gifts and bequests. For additional information, please contact the Office of Medical Alumni and Development at (314) 935-9690.
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National Awards

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2013 Paul I. Terasaki Clinical Science Award, American Society for Histocompatibility & Immunogenetics

Marc Moon, MD
Joseph C. Bancroft Professor of Cardiothoracic Surgery
2013 “Hero with a Heart” Award, National Marfan Foundation

Mackinnon receives 2013 Jacobson Innovation Award

Susan Mackinnon, MD, the Sydney M. Jr. and Robert H. Shoenberg Professor and chief of the Division of Plastic and Reconstructive Surgery, received the 2013 Jacobson Innovation Award from the American College of Surgeons in June.

Mackinnon was recognized for her pioneering work on nerve transfers, nerve regeneration and nerve transplantation. She established her international reputation as a surgeon in 1988 by completing the first donor nerve transplant, a procedure that can restore function to severely injured limbs that previously were considered irreparable.

The prestigious Jacobson Innovation Award honors living surgeons who have been innovators of a new development or technique in any field of surgery. The award was established by Julius H. Jacobson II, MD, a general vascular surgeon known for his pioneering work in the development of microsurgery.

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Associate Director, American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP®); Medical Director, NSQIP® Pediatric Program

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Professor of Surgery, Section of Transplant Surgery
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Surendra Shenoy, MD, PhD
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President-Elect, Vascular Access Society of the Americas (VASA)

National Education Initiative

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