Realizing a vision  Former and current School of Medicine deans William A. Peck, M.D., and Larry J. Shapiro, M.D., celebrate the grand opening in September of the Farrell Learning and Teaching Center. The new, dedicated teaching facility marks the culmination of more than a decade of planning and further enhances the School of Medicine's position as a world leader in medical education.
Thank You!

The Farrell Learning and Teaching Center now serves as the School of Medicine's main venue for medical education. Thanks to all who supported this vision and contributed to its development.

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Washington University School of Medicine is deeply and forever grateful to these donors of $25,000 or more. Their unselfish support, in concert with the generosity of David C. and Betty Farrell, helped to build the Farrell Learning and Teaching Center.

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COVER  Lili Wang, MD, librarian and bioinformatics specialist, works with Seth Crosby, research instructor in genetics, at the School of Medicine's Bernard Becker Medical Library. Bioinformatics training provided by library staff is one of many ways in which its librarians optimize the digital domain while retaining the personal touch that connects faculty, students and staff with the data they need. For more on this story, please turn to page 16. PHOT O BY TIM PARKER

FEATURES

Kidney Bones  BY MICHAEL PURDY
Fresh insights into connections between the kidneys and the skeleton may one day help to ease the harmful effects of kidney disease on the bones — and the heart.

Helping Heart  BY GWEN ERICSON
The next generation of ventricular assist devices presents cardiac patients with a smaller and quieter method of supporting their failing hearts while awaiting transplants.

Unshelved  BY MEDICAL PUBLIC AFFAIRS STAFF
The Bernard Becker Medical Library continues to evolve, offering clients a range of traditional library resources and the latest advances in information technology.

At the Helm of BJH  BY STEVE KOHLER
New Barnes-Jewish Hospital president Andy Ziskind focuses on the “how” of providing service — to patients, colleagues, referring physicians and staff.

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Allen to lead immunologists group

Cellular immunologist Paul M. Allen, PhD, the Robert L. Kroc Professor of Pathology and Immunology, recently became president of the 6,500-member American Association of Immunologists (AAI).

Allen specializes in the study of how T lymphocytes recognize antigen and initiate an immune response. He seeks insights into the basic workings of the immune system that may someday allow researchers to better control immune rejection of transplanted organs or to prevent the development of arthritis caused by immune system malfunctions.

AAI is the professional organization that immunologists use as their voice to speak to Congress and the National Institutes of Health. The group works to advocate for NIH funding for immunology research, to maintain the ability to use important research tools such as animal experimentation, to foster the development of the careers of young scientists, and to convey the value and progress of immunological research to the public.

Macones heads obstetrics and gynecology, becomes Yanow Professor

George A. Macones, MD, MSCE, has been named head of the Department of Obstetrics and Gynecology and the Elaine and Mitchell Yanow Professor. He replaces James R. Schreiber, MD, who, after serving as head of obstetrics and gynecology since 1991, has retired from administrative duties and returned full-time to teaching, research and clinical care.

"Dr. Macones is a recognized leader with impressive accomplishments as a teacher, researcher and clinician," says Larry J. Shapiro, MD, dean of the School of Medicine and executive vice chancellor for medical affairs. "He is a physician-scholar ideally suited to take the reins of our obstetrics and gynecology department, which has flourished under the leadership of Dr. Schreiber, and is poised to reach new heights. Dr. Macones' administrative talents will ensure that the department's federal and private research funding continue to grow and that our medical training and clinical care programs are among the top tier in the nation."

Macones also will become chief of obstetrics and gynecology at Barnes-Jewish Hospital and will work with school and hospital leaders to manage the institutions' combined clinical and teaching programs. Additionally, he will direct the high-risk obstetrical and gynecological oncology services Washington University physicians provide at Missouri Baptist Medical Center. Cancer-related research and clinical care within the department are provided in association with the Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine, the only federally designated comprehensive cancer center in the region.

Macones comes to Washington University and Barnes-Jewish Hospital from the University of Pennsylvania School of Medicine, where he was associate professor of obstetrics and gynecology and of epidemiology. He is a specialist in maternal-fetal medicine, with expertise in managing medically complicated pregnancies and those at risk for preterm birth. He is recognized nationally and internationally for his expertise in clinical research in reproduction.
Department of Neurology appoints Corbetta as Norman J. Stupp Professor

Maurizio Corbetta, MD, professor of anatomy and neurobiology and of radiology, has been named the Norman J. Stupp Professor of Neurology.

A leader in research into new techniques for rehabilitating the brain after strokes and other injuries, Corbetta also is head of the Stroke and Brain Injury Rehabilitation section in the Department of Neurology and clinical director of these programs at the Rehabilitation Institute of St. Louis.

Corbetta succeeds Eugene M. Johnson, PhD, as the Stupp Professor. Johnson, who will continue as a professor of neurology and of molecular biology and pharmacology, voluntarily relinquished the chair so it could be used to support an outstanding younger faculty member.

Much of Corbetta's research employs advanced brain imaging technology to assess brain activity changes over time during recovery from injury. He hopes to use this information for prognosis and to develop therapies that promote optimal brain recovery.

At a more basic level of research, he studies the brain mechanisms that allow people to attend to important information — such as objects, people or sounds.

Surgery

Small wristband designed to prevent wrong-site surgery

In the near future, an alarm sounding outside the operating room door may have surgeons reaching for their pens. That's because a new device has been designed to alert the surgical team if a patient's incision site hasn't been marked.

Invented by a School of Medicine physician, the device — a wristband that enforces surgical-site marking — should help to eliminate wrong-site surgeries.

About 4,000 wrong-site surgeries take place in the United States each year — one in 17,000 surgeries — and they are the fifth most frequent life-threatening medical error.

CheckSite bracelets are designed to prevent these occurrences.

Using a marker pen on the patient's skin to indicate the surgical site has become common practice in hospitals across the country. Barnes-Jewish Hospital, the primary adult teaching hospital for the School of Medicine, began requiring the practice three years ago. And on July 1, 2004, the Joint Commission on Accreditation of Healthcare Organizations adopted a set of formal guidelines that establish marking surgical sites as a nationwide policy.

"Even with the policy in place, wrong-site errors still do occur, and that's almost always because the surgical site hasn't been marked," says inventor Richard A. Chole, MD, PhD, the Lindburg Professor of otolaryngology and professor of molecular biology and pharmacology.

"Wrong-site errors stem from a breakdown in communication among the preop staff, the operating room staff, and the patient or the patient's family, and the device will help correct that."

Chole's invention consists of a wristband embedded with a miniature, disposable electronic device — like the anti-theft chips attached to consumer items — plus a marker pen with a specialized sticker that deactivates the chip. When the surgeon or another designated staff member marks the patient's surgical site, in consultation with the patient or the patient's family, he or she removes the sticker from the pen and places it on the patient's wristband to deactivate the chip.

If these steps aren't followed, the wristband will set off a detector placed in the hallway between the preoperative area and the operating suite. The detector can be set up to give a visual or auditory signal and to page hospital personnel.

"It's a simple way to remind surgeons to mark the site," says Chole, a Washington University ear specialist at Barnes-Jewish Hospital. "The band and pen are very simple to use and just add the small extra step of placing the deactivation sticker on the wristband."

A St. Louis-based company called CheckSite Medical has been formed to develop and distribute the technology. According to Chole, the technology will be inexpensive, costing around $2.50 for the wristband and pen and about $8,000 for installation of the detectors.

Plans are under way to place CheckSite monitors outside all Barnes-Jewish Hospital surgical suites.
Siteman reduces cancer care disparities

Each day, 3,400 people in the United States are diagnosed with cancer and another 1,500 die from the disease. And while these numbers are disturbing, they also harbor a fundamental inequity: Racial and ethnic minority groups form a larger percentage of these totals than their proportions in the general population.

The Alvin J. Siteman Cancer Center at Washington University School of Medicine and Barnes-Jewish Hospital has implemented highly successful strategies for reducing such disparities in cancer care. From 2000 to 2004, African-American participation in Siteman breast cancer studies increased from 10 percent to 28 percent. (African Americans comprise about 18 percent of the population in the St. Louis metropolitan area.)

Siteman's Breast Imaging Team recently received a Clinical Trials Participation award from the American Society of Clinical Oncology for its outstanding success in recruiting minority members to clinical trials.

Siteman's successes have resulted in the receipt of a $1.25 million, five-year grant from the National Cancer Institute to support its Program for the Elimination of Cancer Disparities (PECaD).

Siteman's efforts to reduce disparities in care are now coordinated by PECaD. The program is directed by Dione Farria, MD, MPH, assistant professor of radiology and a radiologist at the Breast Health Center in Washington University's Center for Advanced Medicine, and Katherine Jahnige Mathews, MD, MPH, assistant professor of obstetrics and gynecology and a physician at ConnectCare, part of the St. Louis region's health care safety net. PECaD monitors Siteman's research, clinical and policy initiatives and oversees its outreach programs.

Occupational therapy students serve

Two students in the School of Medicine's Program in Occupational Therapy have been elected to offices on the Assembly of Student Delegates Steering Committee of the American Occupational Therapy Association (AOTA).

Kristen Lindeman was elected chairperson, and Tim Wolf was elected vice chairperson. Both are third-year doctoral students.

“We are very proud of Kristen and Tim,” says M. Carolyn Baum, PhD, the Elias Michael Director of the Program in Occupational Therapy and professor of occupational therapy and neurology. “They are assuming leadership of the student organization at a time the profession is laying out its plan for the future, and both have major roles in establishing the vision and the strategic plan.”

As chairperson, Lindeman plans to increase student membership in AOTA and to emphasize national lobbying efforts. Wolf will focus on increasing recruitment to the profession and AOTA.

Milbrandt becomes Clayson Professor

The first Clayson Professor of Neurology at the School of Medicine is Jeffrey D. Milbrandt, MD, PhD, professor of pathology and immunology, internal medicine and of neurology.

The professorship was established by David Clayson, PhD, a 1963 graduate of Washington University, to support scientific studies relevant to amyotrophic lateral sclerosis (ALS), the fatal neurodegenerative disorder known as Lou Gehrig's disease. Clayson, who was a faculty member at Cornell University for nearly four decades, died of the disorder in 2001.

“As he faced the disorder that took his life, it was very compassionate of Dr. Clayson to think of what he could do to help others who may someday be afflicted with the same condition,” says Milbrandt.

In patients with ALS, motor nerve cells, which are the nerve cells that control muscles, gradually die off, paralyzing patients and eventually making it impossible for them to breathe on their own. Recent discoveries made in Milbrandt's lab are related to understanding the pathogenesis of ALS and developing new treatments.
Neurology

Pomegranate juice for mothers may help babies resist brain injury

Expectant mothers at risk of premature birth may want to consider drinking pomegranate juice to help their babies resist brain injuries from low oxygen and reduced blood flow, a new School of Medicine study suggests.

In humans, decreased blood flow and oxygen to the infant brain is linked to premature birth and other irregularities during pregnancy, birth and early development. The phenomenon, which is called hypoxia ischemia, causes brain injury in approximately two of every 1,000 full-term human births and in a very high percentage of babies born before 34 weeks of gestation. Hypoxic ischemic brain injury can lead to seizures, a degenerative condition known as hypoxic ischemic encephalopathy, and mobility impairments including cerebral palsy.

When scientists temporarily lowered brain oxygen levels and brain blood flow in newborn mice whose mothers drank water mixed with pomegranate concentrate, their brain tissue loss was reduced by 60 percent in comparison to mice whose mothers drank sugar water or other fluids.

"Hypoxic ischemic brain injury in newborns is very difficult to treat, and right now there's very little we can do to stop or reverse its consequences," explains senior author David M. Holtzman, MD, the Andrew B. and Gretchen P. Jones Professor and head of the Department of Neurology. "Most of our efforts focus on stopping it when it happens, but if we could treat everyone who's at risk preventively, we may be able to reduce the impacts of these kinds of injuries."

The study, which appeared in the June 2005 issue of Pediatric Research, was conducted in collaboration with POM Wonderful, a U.S. producer of pomegranates and pomegranate juice, and scientists at the University of California, Los Angeles. Lead author David Loren, MD, formerly a neonatal critical care fellow in the Department of Pediatrics, performed the research. He is now at the University of Washington in Seattle.

Holtzman's laboratory has been studying neonatal brain injury for more than a decade by temporarily reducing oxygen levels and blood flow in the brains of 7-day-old rodents. The model produces brain injuries similar to those seen in human infants. Much of the damage from hypoxia ischemia results when oxygen-starved brain cells self-destruct via a process known as apoptosis. Scientists found an enzyme linked to apoptosis, caspase-3, was 84 percent less active in mice whose mothers drank pomegranate juice.

Pomegranates contain very high concentrations of polyphenols, substances also found in grapes, red wine and berries, which scientists have linked to potential neuro-protective and anti-aging effects.
Van Essen to head neuroscience group

David C. Van Essen, PhD, the Edison Professor of Neurobiology and head of the Department of Anatomy and Neurobiology, has been elected president of the Society for Neuroscience, the world's largest organization for scientists who study the brain.

Van Essen, a leading investigator of the structure and function of the cerebral cortex in primates, will officially become president-elect at the society's annual meeting in November. His one-year term as president will begin in 2006.

Van Essen is the fourth neuroscientist and third head of anatomy and neurobiology at Washington University to be elected president of the society. Preceding him were former department heads W. Maxwell Cowan, MD, PhD, and Gerald D. Fischbach, MD, and former head of neurology Dennis Choi, MD, PhD.

The Society for Neuroscience, which has 36,000 members, publishes The Journal of Neuroscience, advocates for neuroscience research funding, and communicates the importance and excitement of neuroscience research to the general public.

Class supports neurofibromatosis center

Efforts to understand and treat neurofibromatosis 1 (NF1), a common childhood genetic disorder that causes brain tumors and other cancers, recently received a helping hand from an unexpected source: a class of sixth-graders at Chesterfield Day School-St. Albans.

"As a class project, the children had to identify a charity they wanted to support and hold a fundraising project for that charity," explains David H. Gutmann, MD, PhD, the Donald O. Schnuck Family Professor of Neurology and director of the Washington University Neurofibromatosis Center.

One of the students in the class, Madison Johnson, suggested raising funds for the university's Neurofibromatosis Center.

"The kids had to do background research on the charities they wanted to raise funds for, so Madison and a classmate, Joshua Kruel, researched and wrote a paper on neurofibromatosis," says Gutmann.

"The class then listened to presentations from us as well as representatives of two other St. Louis charities. We were told that the Neurofibromatosis Center won in a landslide."

With their recipient selected, the children put together their fundraiser: a production of a play called The Dastardly Dr. Devereaux, a musical spoof of Victorian melodramas. In addition to performing in and selling tickets for the play, the students held a bake sale and sold refreshments the night of the play.

At the end of the play, they presented Gutmann with a check for $2,000.

"It was an amazingly uplifting experience," Gutmann says. "The level of interest from the students was mind-boggling; the project really galvanized them."

The students also selected a goal for the funds they contributed: the production of a brochure specifically written for teenagers with NF1.

As a thank-you for their generosity, Gutmann and his staff invited the class for a tour of his research laboratory and clinic in June. Since then, the students have been spreading the word about neurofibromatosis.
The battles don’t end with the war for some soldiers. More than a decade after the first Gulf War in 1991, a detailed comparison of the health of veterans who were deployed to the Persian Gulf region and veterans who served elsewhere has found that the health of the two groups is very similar.

However, the study also found that Gulf War veterans are more likely to have chronic fatigue and fibromyalgia syndromes. The proportion of Gulf War veterans with these two illnesses is very small, according to lead author Seth A. Eisen, MD, physician at the St. Louis Veterans Affairs (VA) Medical Center and professor of medicine and psychiatry. “But that doesn’t mean these conditions aren’t serious concerns for those veterans who still have them 10 years later,” he adds.

Fibromyalgia syndrome afflicts sufferers with persistent, widespread pain, while chronic fatigue syndrome manifests as a disabling loss of energy. Despite decades of awareness of both conditions, their causes remain unclear, and no definitive cure exists for either condition.

The study, funded by the Department of Veterans Affairs, appears in the June 7, 2005 issue of *Annals of Internal Medicine*. For the study, conducted at 16 VA medical centers across the nation over a period of approximately three years, researchers performed a detailed series of medical and psychiatric assessments on about 1,100 veterans deployed to the Gulf War region and 1,100 veterans who were not deployed in that war.

“In addition to a comprehensive standard medical examination, we arranged a series of very specialized tests based on areas of potential problems suggested by earlier studies of veterans,” Eisen explains.

Based on their age, gender and racial characteristics, there were no significant differences between rates of chronic fatigue and fibromyalgia in the non-deployed veterans and in the general population. However, while 0.1 percent of non-deployed veterans met the criteria for chronic fatigue, 1.6 percent of the deployed veterans did.

“When statistically adjusted, that’s a risk of chronic fatigue 40 times higher in the deployed veterans than in the non-deployed veterans,” Eisen says. “That’s very significant.”

Similarly, while about 1.2 percent of the non-deployed veterans had fibromyalgia, a significantly higher 2 percent of deployed veterans had the persistent, diffuse pain that is characteristic of the disorder.

Although researchers have yet to give a formal medical definition to Gulf War syndrome, Eisen says the findings affirm that a very small percentage of Gulf War veterans are at increased risk of disabling long-term medical conditions.

Given that fibromyalgia and chronic fatigue can develop in non-veterans who have never even left their home city, let alone the country, any research advances made in studying Gulf War veterans specifically are very likely to help individuals with these syndromes in the general community and vice versa, Eisen says.

Research into the causes and treatments of both chronic fatigue and fibromyalgia is ongoing. Eisen notes that physicians often advise patients with these conditions to try to keep a physically active schedule.

“Often the most important thing for someone who’s not feeling well is to know that they have a medically recognized condition,” he says.
KIDNEY BONES
MULTITASKING might seem like a modern invention, but in biology it's been an established technique for millennia. The organs of the human body, for example, all have their well-known primary specialties, but many of them also play secondary roles in support of each other.

**Links between kidney function and bone health can put a deadly strain on the heart**

One such moonlighter is the human kidney, which purifies waste from the blood, but also has a more recently identified role as a contributor to the structural integrity of the human skeleton.

Keith A. Hruska, MD, professor of pediatrics, medicine and of cell biology and physiology at the School of Medicine and head of pediatric nephrology at St. Louis Children's Hospital, has developed several new insights into the connections between the kidney and the skeleton and hopes to put them to use soon in new treatments for kidney patients that will ease the harmful effects their condition inflicts on both the skeleton and the heart.

*BY MICHAEL PURDY*
The kidney-bone connection

A healthy body renews bones in a process called skeletal anabolism. Blood vessels carry essential minerals to and from cells dedicated to bone dismantling and construction.

Kidney disease patients get weak, brittle bones because the renewal process shuts down. Further, the excess minerals begin to deposit in blood vessels, leading to vascular calcification, decreasing flexibility and straining the heart.

To recognize the connections between the kidney and the skeleton, doctors first had to understand that the skeleton isn’t the dry and unchanging place it was once thought to be.

“In the past, the skeleton has been viewed as mostly a dead structure, but that’s not the case at all,” Hruska explains. “The adult skeleton is very active tissue that is continually remodeling, dismantling damaged bone and replacing it with new bone.”

Cells inside the bone marrow accomplish this task, regularly destroying and rebuilding bone structure to adjust for wear, injury and changes in the mechanical loads and pressures placed on the bones.

Kidney disease’s direct connection to bone health was initially masked by a complication of chronic kidney disease (CKD) known as secondary hyperparathyroidism. This complication, which afflicts about 100,000 new patients with kidney disease each year, raises bloodstream levels of the parathyroid hormone.

Parathyroid hormone’s functions include control of calcium, phosphorus and vitamin D levels in the bloodstream. When disease or injury reduces the kidneys’ mass, their ability to filter phosphorus out of the blood and to produce vitamin D for circulation in the blood declines. Scientists believed that the parathyroid glands in the neck ramp up their production of hormone in response, elevating the level of the hormone in the blood.

Scientists theorized that one way parathyroid hormone could regulate blood calcium was by controlling the activity of bone-dismantling cells known as osteoclasts. As they work, osteoclasts release calcium, phosphorus and other minerals from the bone structure into the bloodstream.

Researchers reasoned that increasing parathyroid levels increased the activity of the bone-dismantling cells, but if that increased activity wasn’t matched by an equal increase in the activity of bone-building cells, it might weaken bone structure seen in kidney patients, who develop fractures and deformities as a result.

However, as physicians developed ways to suppress parathyroid hormone, they found that kidney patients still had weak bones, a condition called adynamic bone disorder.

This led Hruska and others to suspect that secondary hyperparathyroidism had been masking a more direct affect of CKD on bone health. He theorized that CKD might be causing the kidneys to produce...
factors that decrease the activity of cells on the building side of the skeletal construction and destruction dynamic.

In early 2004, his lab published a study that supported the hypothesis in a mouse model of chronic kidney disease. To create the mouse model, researchers removed a kidney and damaged the remaining kidney.

In some of the mice, they prevented secondary hyperparathyroidism with dietary changes and a nutritional supplement. Those mice maintained normal calcium, phosphorus, vitamin D, and parathyroid hormone levels but developed an adynamic bone disorder.

"The conclusion was that CKD produces hormonal factors that shut down the production of new skeleton," Hruska explains. "That's not tolerated, and secondary hyperparathyroidism turns out to be a form of compensation by the body — an attempt to prevent that shutdown."

Hruska suspected that a recently discovered class of bone growth stimulators known as bone morphogenetic proteins (BMPs) might be able to help patients with CKD. Hruska's lab showed that one of these proteins, BMP-7, could cause stem cells in bone marrow to develop into osteoblasts, the cells that rebuild bone.

"Mice lacking the gene for this protein have defects both in their skeletons and in their kidneys and related renal structures, proving that BMP-7 could cause stem cells in bone marrow to develop into osteoblasts, the cells that rebuild bone."

Spurred by BMP-7's continued high production levels in adults, Hruska and his associates gave the mouse model of CKD injections of the protein. He found it made the cells of the bones function normally.

"If we can use BMP-7 to eliminate this skeletal complication, it will produce a major increase in the well-being of the patients with CKD," Hruska notes.

Stopping bone loss may do more than help kidney patients — it may save lives. In a study published early this year, Hruska found evidence that stopping bone loss in a mouse model eliminates the most deadly complication of CKD: vascular calcification, or stiffening of the blood vessels.

The circulatory system normally deposits minerals like calcium and phosphorus in the bones during bone reconstruction. With that process suppressed by the effects of CKD, pressure mounts for the body to deposit those minerals elsewhere.

"Serum phosphorus is a direct stimulus to the smooth muscle cells that line blood vessels, causing them to take on characteristics very similar to osteoblasts, the cells that form bone," Hruska explains.

The changed smooth muscle cells can deposit minerals outside their membranes, dramatically decreasing the flexibility of blood vessels and increasing the work the heart has to do to create a pulse. Consequences may include enlargement of one of the heart's chambers, increased risk of congestive heart failure, heart attack and other cardiac problems.

To assess the links between loss of mineral deposition in the bones and vascular calcification, Hruska and colleagues studied mice that develop a condition known as metabolic syndrome as a result of both a genetic modification and a high-fat, high-cholesterol diet. To simulate chronic kidney disease, scientists again damaged or removed parts of the kidneys.

Hruska and his colleagues first showed that injection of BMP-7 not only stopped bone weakening but also ended vascular calcification. In another group of experimental mice, injections of a substance that binds to compounds with phosphorus but has no effect on the skeleton stopped vascular calcification, proving that phosphorus was a key link between the skeleton and the vasculature.

"We already have drugs available that can control phosphorus levels in the blood," says Hruska. "I think we're going to get support soon for a single-center trial using one of these drugs on vascular calcification, and that would be the prelude to a much larger multicenter trial."

A trial of BMP-7 injections for CKD patients may also be just a little bit farther away. "If we're able to apply BMP-7 in humans, we could be on our way to producing a major improvement in the well-being of patients with chronic kidney disease," he says. ☐
Now smaller and quieter,
Helping heart

a ventricular assist device offers a more versatile bridge to heart transplant

HIS HEART WAS FAILING.

In May 2005, 31-year-old Jason Dale came to Barnes-Jewish Hospital gasping for breath and barely able to walk 20 feet. But by June 22 — three weeks after getting a new kind of mechanical heart assist device — he looked completely healthy. A small motor in his chest cavity was helping his heart circulate blood throughout his body.

"I feel 100 percent better," Dale says now. "At lunch, I walked from here to Applebee's, about three blocks away, and I felt great."

Before the surgery, Dale's heart was expelling only about 10 to 15 percent of its blood, compared to a normal heart's 60 percent.

"We knew that Jason wasn't going to do well without a transplant," says Dale's cardiologist, Gregory A. Ewald, MD, associate professor of medicine and director of the heart failure and cardiac transplantation section. "With him facing a potentially long wait for a donor heart, we decided to implant the assist device to keep him going and get him stronger."
Stronger and healthier: Jason Dale, with mom Dorothy and sister Pam, after he received an axial flow left ventricular device from Washington University physicians at Barnes-Jewish Hospital.

Dale received an axial flow left ventricular assist device, becoming the first person in Missouri to receive this "second generation" heart assist device. Nader Moazami, MD, assistant professor of surgery and chief of cardiac transplantation, performed the surgery.

Unlike a total artificial heart, which completely replaces a patient's own heart, ventricular assist devices (VADs) are implanted alongside the heart. VADs can support the right, left or both ventricles.

For Dale, a left VAD (LVAD) was a good choice. His right ventricle, although weak, retained enough function for the relatively easy task of moving blood through the lungs. The LVAD would connect to his inadequately functioning left ventricle and pump blood up to his aorta to supply blood to the rest of the body.

Most current LVADs are large and heavy. Dale is not a big man, and the devices wouldn't fit him. Fortunately, the School of Medicine had just been approved to participate in a multicenter phase II clinical trial of the HeartMate II, one of several smaller, streamlined devices. Dale's new heart pump weighs in at 12 ounces, about one quarter the weight of some predecessors. And while older LVADs are about the size of a large alarm clock, this device is as small as a D battery.

But its most significant innovation is in how it moves blood. "The first generation LVADs have a diaphragm or plate that draws the blood in and pushes it out," Moazami explains. "The new devices are axial flow pumps — they have small blades that rotate on bearings and push the blood through in a continuous stream. They are a leap forward from what we've had in the past."

Since axial flow pumps don't beat, patients with the devices may have only a minimal pulse from their own hearts or no pulse at all. "If you listen to my chest you hear a humminh sound," Dale says. "They say the older ones make a clacking noise you can hear a hundred feet away."

Twenty-five years ago, at age six, doctors diagnosed Dale with acute lymphocytic leukemia. While they cured his cancer using chemotherapeutic agents, they also warned his family that the drugs could damage his heart.

With rapid advances taking place in cardiac medicine, Dale wouldn't have been far from the truth if he had thought, "By the time I need to worry about my heart, they'll have a cure."

In the years he was struggling with cancer, the news was full of stories of the first attempts to implant artificial hearts as long-term heart replacements. In the early 1980s, William DeVries, MD, carried out a series of five implants of the Jarvik 7 artificial heart, a pneumatically powered, four-chambered mechanism that mimicked the activity of the natural heart.

For many years, medical complications thwarted efforts to make the artificial heart a permanent option for heart patients. Meanwhile, research began demonstrating the benefits of heart assist devices.

In 1994, the FDA approved LVADs for use as a "bridge to transplant." Two years later, Dale was diagnosed with congestive heart failure. He was 22 years old.

Not long after this diagnosis, Ewald became Dale's cardiologist. For more than eight years, Dale did well. "Jason was on typical medications for treating cardiomyopathy," Ewald says. "His heart muscle wasn't normal, but he felt good during that time."

Then, in late 2004, Dale's heart deteriorated rapidly. When he came to Barnes-Jewish Hospital in May, he was on intravenous dobutamine to improve his cardiac muscle contractions, but even so he wasn't maintaining sufficient cardiac output. He was barely able to eat and had lost 20 to 25 pounds.
“Jason was identified as a candidate for an LVAD at the very same time we received approval to begin the clinical trial,” says Kim Shelton, RN, coordinator of the hospital’s VAD team along with Beth Kehoe-Huck, RN. “We put together and trained a VAD team for the new device within a week.”

A VAD team supports each patient who receives a heart assist device from the time he or she is admitted and follows up after the patient leaves the hospital. It includes anesthesiologists, perfusionists, intensive care and floor nursing staff, social workers, physical therapists and dietitians as well as cardiac surgeons and cardiologists.

Dale’s rapid improvement after the implantation pleased everyone on the team. “It was so good to see him getting stronger, eating well and feeling well,” Kehoe-Huck says. “He started walking very soon, going further and further every time.”

The pioneering surgery was noted when Dale was interviewed for a local newscast. Reveiling in his moment of fame, Dale demonstrated the device’s battery packs and its controller, which is connected to the internal pump through a cable that runs through his abdominal wall. The heart pump is electrically powered, and when Dale is at rest, the controller unit is plugged into an electrical outlet.

“I can unplug myself, put two batteries in these holsters, like six shooters, and I can get up and walk around most places,” Dale explained as he prepared to demonstrate walking with the device. “They last for four hours, so I can go to a friend’s house or go out to eat.”

The clinical trial of the new heart assist pump will evaluate the device’s ability to keep patients healthy while they await a heart transplant and will look at the suitability of the device for permanent implantation in patients who are not good candidates for transplant.

Axial flow devices have been engineered to minimize the possibility of blood clots, and since they have only one moving part, they could prove more durable than the older devices. Two other brands of axial flow VADs are manufactured: the DeBakey VAD and the Jarvik 2000.

“With axial flow and diaphragm pumps now available and other devices in development, physicians have more options to choose from,” says Michael K. Pasque, MD, professor of surgery and member of the cardiac transplant team. “It’s a matter of picking the right one to match patients’ needs.”

Upcoming “third generation” assist devices will have no bearings to wear down; their rotors will be suspended between magnets and will not touch the casing. Eventually, such devices may even eliminate the power cord coming out of the body and decrease the risk of infection.

For Dale, the progression of technology hardly matters anymore. He looks forward to barbecuing in the backyard and fishing on lakes near his home. “I’m going to get my strength up. Hopefully, a miracle will come and I’ll get a matching heart,” he says. “Right now, I’m just glad they could help me. I thank God every day.”

Jason Dale’s LVAD assisted his failing heart for four months until he received a heart transplant on October 9, 2005.
Shhh! It's a quiet revolution.

AS EVERY JOURNEY BEGINS WITH A SINGLE STEP, the staff of the Bernard Becker Medical Library understands how a mental journey — whether a term paper, journal article or clinical diagnosis — may begin with a single question. These days, that question may arrive face-to-face across the reference desk or from someone on the other side of the planet.

Since its founding nearly 100 years ago, the School of Medicine's library has housed a continuously contemporary collection of medical lore. But the library is more than just books and journals; it maintains the cultural heritage of the School. While Becker Library remains a brick-and-mortar place where people can browse or study, it is evolving to become a virtual gateway to — and catalyst for — the panoply of human knowledge.
Bernard Becker Medical Library

An array of services, a world of resources

"One of my favorite places to take a break from studying is on the second floor of the Becker Library. From the library's diverse humanities collection, I often grab a book on the history of medicine, sink into the soft recliners, put my feet up, and immerse myself in hours of reading about how this field I now study developed and expanded through time."

Laleh Jalilian, FIRST-YEAR MEDICAL STUDENT

"It is very important that students learn how to use the medical literature to answer specific clinical questions. Librarians meet regularly with small groups of students throughout the year to teach them how to put the electronic tools of evidence-based medicine into practice. The collaboration with library personnel enriches the students' learning experiences."

Robert J. Rothbaum, MD
COURSEMASTER, THE PRACTICE OF MEDICINE I

"A microarray study may have hundreds of thousands of data points that have to be analyzed by the researcher. Clearly, this can't be done 'by hand'; software is required. I was able, quickly and easily, to work with the Becker Library to set up ongoing training for Spotfire — software designed to manage complex number sets. This is precisely the kind of thing a medical school library ought to be doing — facilitating science to be stronger and more efficient."

Seth Crosby, DIRECTOR, MICROARRAY FACILITY, GENOME SEQUENCING CENTER

Left: Dramatic architecture in the Becker Library atrium.
Bernard Becker Medical Library is one of the oldest and most comprehensive medical libraries in the United States, serving as an information and technology services hub for local, regional and national health professionals.

**Information**
The library’s new electronic catalog (BeckerSearch) indexes the entire Becker Library collection and provides direct access to online resources including journals, books and audiovisuals, as well as special and historical collections. In addition, Becker remains a major lender to other libraries through its interlibrary loan program and is actively involved in scholarly publishing as a partner with the School of Medicine’s Academic Publishing Services group.

**Education**
The Library Education Series at Becker offers many courses on microcomputer and network applications, and the Library Instructional Service provides tailored training programs to support the curriculum and promote the use of online resources. The library also has partnered with other education programs at the School of Medicine to create online materials, enhance the use of technology in education, and promote programs to prospective students.

**Technology**
The Medical Library Computing and Networking Services division provides a wide range of technology services to the School of Medicine community, from the basic (electronic mail, desktop support, networking) to the specialized (database and web site development, and the creation of multimedia resources, such as streaming video and audio services). The division also serves as a resource on technology security issues, particularly those related to HIPAA.

Visit Becker Library online at: becker.wustl.edu

BeckerSearch, a prime example of technologically enhanced efficiency, allows users to search multiple resources simultaneously and link to full-text articles, journals or books, says special projects librarian Cathy Sarli. The new, comprehensive search gateway, which was launched in August 2005, also can be used to build personalized collections of citations, resources and electronic journals. It allows users to set up alerts for specific scheduled queries, save search histories, download citations and send results via e-mail.

**Community Partners**
Becker’s Library Liaisons partner with departments, divisions and programs, strengthening the library’s connection with faculty and researchers and guiding users to the latest resources and services available to bolster teaching, patient care and research. With newly added support from the library’s computing services groups, liaisons also can help patrons find answers to tough technical queries, as well as serious clinical and preclinical questions. Despite increased technology, says Neville Prendergast, associate director of communication and outreach, many people still value the human connection.
The emerging field of bioinformatics — combining biology, biomolecular sciences, biomedical science, computer science and information technology — helps researchers to interpret and analyze vast quantities of biological data. An important subdiscipline within bioinformatics is the analysis and interpretation of various types of data including nucleotide and amino acid sequences, protein domains and protein structures. Bioinformatics specialist Lili Wang assists faculty, postdoctoral students and research assistants in finding and utilizing these analysis tools. Wang, who is both an MD and a librarian, enjoys assisting researchers and clinicians with their work. As head of the Becker Library’s bioinformatics training facility, she regularly teaches four bioinformatics courses and also provides group and individual consultations on an as-needed basis.

**TechTalk**  Technology has enhanced today’s library experience, and it provides an abundance of convenient, powerful and timesaving tools.

“Every current user of Becker Library, with the exception of those who come in simply to use it as quiet space, has to use technology,” says Paul A. Schoening, director and associate dean of the medical library. “The relevant role of the library is to facilitate the use of that technology to manage and access information that helps people do their jobs more efficiently.”

The mounting scope of library technology now provides faculty and students with easy access to bioinformatics software training, application development, digitized university archives and even help using their e-mail accounts. About one-third of the library’s 100 employees works in the information technology group.

**Librarians**  The heavy influx of technology over the past decade hasn’t replaced the need for librarians; in fact, it’s actually made them even more valuable.

“There has been a huge surge in both electronic and print resources,” says Schoening. “Our job is to comb through it all and figure out what’s the most relevant and meaningful to the research and clinical missions of the School of Medicine, and then acquire them for our collection.”

Librarians explore the thousands of available volumes using many of the same technologies available to library users. As expert users of the various searching software available, librarians are always on hand to answer many types of questions, face-to-face, via phone or e-mail.

“We’re answering fewer of the simple questions, but when we do get a question, it’s much more complex,” says Barbara Halbrook, associate director for access services. “It’s often about how to use a particular genetic database or a particular software, or even a complicated statistics question.”

**Facility**  Fewer of the questions posed to Becker librarians these days are coming from across the counter. The rise in technology has brought about a commensurate decline in foot traffic. Still, nearly 265,000 people visit the library each year. And, says Halbrook, library usage has not declined, it has just been modified.

“The biggest change has been in the use of journals and the photocopying of those journals,” she says. “In-house journal usage used to run about 200,000 separate volumes per year. This year, we’re probably not going to reach 9,000 physical volumes used. Those are almost all available electronically now.”

Book usage has remained about the same, with around 35,000 books circulating each year. Another 30,000 are used in-house.

“Everybody learns differently,” says Schoening. “Some people are readers, some people are listeners, some people are doers. We’re committed to giving them media in whatever form they need.”

Regardless of how they get to the Becker Library — by walking in or by clicking a mouse — the library’s users will continue to find the same things there that they have sought for years: information, answers and history.
ANDREW ZISKIND’S PREFERENCE to be called simply “Andy” by everyone with whom he works provides a clue to his personal style and offers information about how he will fulfill his role as the new president of Barnes-Jewish Hospital.

BY STEVE KOHLER
Unreserved and forthright upon introduction, Andy Ziskind, MD, says straight out that he prefers consensus to autocracy and encourages all members of the community to voice their opinions and concerns. In the interest of getting the necessary work done, it may not be possible for him to always keep his East Pavilion office door open for drop-in visitors, but he foresees an administration in which approachability is the rule and established lines of communication are always humming. In fact, he sees no other way in which the hospital can improve. “We’re all in service to the institution, and many people will have ideas about how we can work together better,” he says, “I’m not a hierarchical boss.”

The concept of service is mentioned repeatedly in Andy’s conversation, and it’s clear that it is near the center of his life. “How we provide service to others — not just to patients, but to colleagues, to referring physicians, to members of the staff — is what keeps us in tune and shows the respect that we all deserve. Fundamentally, we all want anyone who has contact of any kind with our system to be treated as we would want a member of our family treated,” he says.

The principles that have guided his career follow the philosophy known as “servant leadership” as put forth by Robert K. Greenleaf, a prominent figure in leadership, education and management circles. Attempting to explain the complex system in as few words as possible and thereby risking misinterpretation, Andy summarizes it as: “accomplishing leadership goals through service to others. The leaders, and every other employee, are all in service to the greater organization.”

Andy also hopes to bring a refreshed camaraderie to the relationship between Barnes-Jewish and Washington University School of Medicine. “For the hospital to be unique, it must support research and help to attract the best faculty. Those are the things that set us apart,” he says. “In the tougher days that lie ahead for health care, we all must be rowing in the same direction. How we partner will affect how we are able to respond to the increasing challenges.”

In his avowed effort to move Barnes-Jewish to the next level of excellence, he has met with and sought input from all of the school’s clinical chiefs as his first contribution to more closely aligning program development at the two institutions. “Better flow of information and better coordination will mean that we both grow in ways that match,” he says. “I’m looking for a participatory process.” One early initiative is in emergency medicine, where Andy believes that the hospital will have to make investments in support of the faculty to take the department to the next level of academic prominence.
Classically trained, he sees an academic side to all clinical delivery. He was educated at Maine's highly regarded Bowdoin College and the University of Pennsylvania School of Medicine. He completed internship and residency training in internal medicine at Massachusetts General Hospital, then did clinical and research fellowships in cardiology. Later, he earned an MBA from the Joseph A. Sellinger School of Business and Management, Loyola College of Maryland.

Before coming to Barnes-Jewish, Andy was at the University of Washington’s medical center, where the health system is called UW Medicine. He served both the medical school and the system as vice dean for clinical affairs and associate vice president for clinical programs. That organization, similar in many ways to the one here in St. Louis, includes an eminent medical school, two teaching hospitals, 1,400 faculty members in a faculty practice plan, eight primary care sites, an affiliated children’s hospital and an NIH-designated cancer center.

His experience was in bridging hospital and departmental needs, a management tightrope despite the organization’s more unified governance structure. Pressure to control health care costs also may have been more intense in Seattle, though Andy sees that trend rapidly becoming apparent in St. Louis. He also led clinical programs, developed support for the practice plan, and oversaw new business development, risk management, and contracting and payer relations for the health care system. “The fundamental issues of how to work best together are the same here as they were at UW,” he says. “The goals of the school and the hospital are fundamentally aligned, and we’re here to support the clinical, research and teaching missions.”

Before his six years in Washington, he honed his skills at the University of Maryland, where he ran the cardiac catheterization lab and developed the University of Maryland Cardiac Network, a partnership between academic faculty and 11 community cardiology groups — another example of his abilities as a creator of effective collaborations.

He always has maintained a cardiology practice and plans to continue to see at least a small number of patients. He says, “It keeps me in touch with the challenges of creating an effective health care delivery system — the way to effectively provide service to others — and also fills out that part of who I am.” Andy says he is a “high-service doctor”; for example, he sends every patient a copy of his or her note and provides his cell phone number so that he is readily available to them. He has had prior research interests in percutaneous pericardial intervention and innovative specialty care delivery systems.

An outdoorsman who enjoyed the many mountain and ocean opportunities available around Seattle, including fishing with his children, Andy is frank to admit that he has not yet been won over entirely by the St. Louis weather. But he looks forward to uncovering the recreational opportunities here with his wife, Jody, and his two daughters, ages 14 and 12. The family’s love of skiing and snowboarding may require the use of vacation time, but Andy’s interest in bicycling — last year he rode the Seattle-to-Portland ride of 206 miles in one 88-degree day — should find plenty of outlet in the Midwest.

That’s a long bicycle ride, requiring both a commitment to success and the willingness to ignore some pain. Like his open style, collaborative nature and preference for first names, it’s a telling detail: “I like the big jobs,” Andy says. □
Dave, Sam and Sarah Irving, MD 03

First-Year Journal
Beginning a Life in Medicine

Five Years Later

Sarah (Cook) Irving shared her experiences as a first-year medical student in the Fall and Winter 2000 issues of Outlook. Today, Sarah is a wife, mom and family practice physician living and working in Maine. Sarah’s story in Outlook ended with her summer work experience in northern Maine’s Aroostook County between her first and second years of medical school.

In Maine she received not only her first taste of what it would be like to be a “rural practice doc,” but also spent time with Dave, the young man and fellow flyfisherman to whom her mother first introduced her.

She fell in love with both. After a year of long-distance dating, Dave joined Sarah in St. Louis during her third year in medical school. They married in September 2001, and welcomed their son, Sam, just before celebrating their first wedding anniversary. A forester, Dave spent his years here working for an electric cooperative that was installing power lines in the Missouri woods.

According to Sarah, everything in their lives has “just fallen into place” since then. After graduating from the School of Medicine in 2003, she and Dave moved to Maine, where Dave now runs his own forestry and wildlife consulting business and Sarah is doing a family practice residency at Eastern Maine Medical Center (EMMC) in Bangor. She recently completed a trauma service rotation, which she says provided valuable experience that will come in handy when she is practicing as a rural doctor and must stabilize patients for transport to a tertiary care facility.

Sarah was drawn to the diversity of patients seen in family practice even as a student, knowing she would one day make the field her specialty.

“I like the variety of people I get to work with,” she says. And, as she did in school, Sarah often participates in projects that go beyond the scope of her day-to-day job, such as the creation of a video for the pediatrics department at EMMC titled “Putting Patients and Families First.”
“There is no doubt that I received the best medical education possible at Washington University,” says Sarah. “I was entirely prepared starting residency — from basic science to clinical care to time management.”

Like all working parents with young children, managing time effectively is critical. Sarah and Dave count themselves fortunate that their work schedules allow them the flexibility to spend the time they need with their son. Sam, who is now 3 years old, was born with a congenital heart defect and a cleft lip and palate.

Sarah says her medical training has been a mixed blessing when it comes to her own child’s health.

“Sam has received excellent medical care because of what I know,” she admits, “because I understand how to ask questions and guide the course of his care. I’m grateful for that, but there are days when ignorance would be bliss, because it can be terrifying. Those days I wish I didn’t know so much.”

A positive, says Sarah, is that Sam was born while she and Dave still lived in St. Louis. She is grateful for the care he received at St. Louis Children’s Hospital and for the guidance provided by Washington University faculty physicians in seeking out specialists who could continue Sam’s care in the Northeast.

The need to stay close to a major medical center hasn’t stopped the Irwins from living the small-town life of which they both dreamed.

They now reside in Brewer (pop. 9,000), just across the Penobscot River from Bangor and Sarah’s job. Once her residency is complete, she will begin a family practice in a rural area, which fortunately in Maine can be as close as a 20-minute drive.

Most important to Sarah is that she and her family remain part of a caring community. One of her key concerns as a medical student was finding the balance between medical technology and human dignity, and she continues to focus on that as a practicing physician dealing with a diversity of diseases and medical emergencies. Her personal experiences with Sam’s health challenges have added another dimension to how she practices medicine.

“It has changed the way I approach things with patients and their families — what I tell them, how I explain things, even the way I ask questions to help them make decisions,” she says.

Sarah says that, unlike many physicians, she is not concerned about becoming too emotionally involved with patients.

“I’m selfish about my patients. Even when they’re not on my service, I usually check in and take care of them because I think that continuity between doctor and patient is important.”

Sarah Irving, MD 03, visits with patient Gretchen Reif and her baby at Eastern Maine Medical Center, located in Bangor. Sarah is completing her family practice residency at the facility, which is the second-largest general hospital in the state and serves patients from central, eastern and northern Maine.
Managing heart disease in women

As a medical student, Susan K. Bennett, MD, HS 91, was conflicted about specializing in cardiology. At the time, she thought only men were affected by heart disease, and she wanted to treat a mix of patients. But during her first critical care rotation at Barnes Hospital, she learned that a surprising number of women also have heart disease.

Today, with more than 10 years of experience as a cardiologist, Bennett is a champion of raising awareness about heart disease in women. In addition to serving as director of clinical research for Cardiology Associates, PC, in Washington DC, she is clinical director of the Women's Heart Program, a fully integrated practice for women with heart disease and those at risk, at George Washington University Hospital.

"One in three women dies of heart disease," Bennett says. "Women experience heart disease differently than men, often do worse after heart disease is diagnosed, and many times go undiagnosed. Some of this is societal; it's a widely held belief that women don't have heart disease."

Bennett became more interested in women and cardiovascular disease a few years ago when one of her former patients started a national coalition for women battling the disease. Bennett now serves as medical adviser for the group, Women Heart, which seeks to decrease the mortality of women with cardiovascular disease and improve their quality of life.

To answer the societal need, the organization also reaches out to the public and to health care professionals to educate them about women and heart disease. A key, she says, will be to include more women in future heart studies.

"I'd like to see heart disease on the radar screen of every woman — that we talk about cardiovascular risk on every health visit and draw up a plan of action," says Bennett. "Prevention is crucial."

Bennett and her husband, Tom Kawecki, an engineer, have two sons, Benjamin and Daniel. Besides spending time with her family, Bennett loves to be on the tennis courts.

Susan K. Bennett, MD, HS 91, with a patient.

Gaining horse sense

A century ago, most families owned and used a horse, and the techniques, knowledge and art of "horsemanship" were developed to a high state of perfection. Although the practical use of this horsemanship has changed, Timothy Holekamp, MD 72, doesn't think people should waste the knowledge and skills passed down from generation to generation.

"Great horsemanship is a dying art," says Holekamp, whose great grandfather learned about horses in the Lower Saxony army in Germany. "In my opinion, the only way to stop this erosion of skills is to develop as many "real" horse sports as possible — activities that actually test horsemanship to the highest degree."

Holekamp and his wife, Cheryl, raise Trakehners — about 25 at any given time — on their 160-acre horse farm about eight miles south of Columbia MO. Trakehners, first bred by the Prussian government 250 years ago to produce the best cavalry mount, are known for their hardiness, beauty and exceptional mental capacity.
Preserving Native American history

Robert H. Ruby, MD 45, enjoyed practicing surgery in Moses Lake, a small town in the Columbia Basin region of Washington state, before retiring in 1991. But on weekends, he and colleague John A. Brown, professor emeritus of history at Wenatchee Valley College in Washington, spent their time researching the Native Americans of the Pacific Northwest. Together, they published more than 10 books on tribal groups such as the Spokane, Cayuse and Chinook.

They traveled from museum to museum with portable typewriters, pecking out any scraps of information they couldn’t photocopy.

“It was a passion,” says Ruby, who wore out four Smith Corona typewriters over the course of his writing career. “I was fascinated by everything I learned, but I also was afraid these stories wouldn’t be told if I didn’t tell them.”

One of the most intriguing parts of his research, Ruby says, was getting to know the elderly tribe leaders who survived the Indian Wars of the late 1800s. “I guess I’ve romanticized this period in my mind,” he says.

Ruby, who grew up in Mabton WA, was curious about Native Americans as a child. This interest was rekindled when he was assigned to the Pine Ridge Indian Reservation in South Dakota by the United States Public Health Service during the Korean War. During his stint there, Ruby kept detailed diaries, which two biographers now are using to write a book about him.

Although retired, Ruby maintains his medical license and volunteers at a medical clinic for the Job Corps, a federal program that provides education and vocational training for young adults. He also enjoys theater and the symphony.

At 84, Ruby wants to be remembered for his research and hopes that his work leaves Native Americans in the Pacific Northwest with a sense of pride and interest in their history.

Ruby and his late wife, Jeanne, have four children.

Timothy Holekamp, MD 72, with prize Trakehner stallion Baron Verdi.

The Holekamps and three of their four children traveled to Greece in the summer of 2004, where their Trakehner stallion Windfall won a team bronze medal in the Three Day Event at the Olympic Games. The event, often termed an “equestrian triathlon,” includes dressage (a sort of equine ballet), show-jumping and cross-country (distance running and jumping for endurance and speed).

“It was a dizzying swirl of excitement, elation, despondency, internationalism and, ultimately, success,” he says.

Holekamp, who specializes in retinal/vitreous surgery, is a partner in Columbia Eye Consultants, a private ophthalmology practice.

“We pride ourselves on our ability to deliver patient-oriented, personalized and professional care,” says Holekamp, whose patients come from both the university town and surrounding rural areas.

Holekamp also volunteers at a secular college-prep school he helped to found seven years ago in Columbia. In addition, he is a licensed pilot and enjoys hunting, fishing and travel.
Building mind & body

Gift funds projects that enhance the traditional academic experience

"IT WAS INCREDIBLE — not only in size, but in its intention to enhance medical student life in ways for which no other gifts or funds exist. You just don't know how to react."

That was fourth-year class president Tom Shane's response when he learned about a generous gift given to medical students.

The diversity and creativity of students at the School of Medicine has long been the driving force behind their academic and extracurricular success.

Knowing this, businessman Richard J. Mahoney and his wife, Barbara, offered medical students a significant gift of "seed money," with two key stipulations: The gift must be used on projects to "enhance the student experience," and the students themselves must make the decisions as to what those projects would be.

What did the medical students do?
They met in committee to develop proposals. After polling classmates for ideas and then narrowing the field, a small group of medical students met with Mahoney. Impressed with the scope of ideas they presented, he increased the already generous gift substantially — on the spot.

"The students brainstormed a broad array of ideas that reflected the creativity and diversity of our entire medical student body," says Alison J. Whelan, MD 86, associate dean for medical student education. "As they developed and refined the list, I was very impressed with how seriously each committee member worked not to sell the group on a pet project, but to identify projects that would benefit the most students.

Tom Shane and Steven Sperry, fourth- and second-year class presidents, did some heavy lifting in the development of the new Student Health and Athletic Center.
The lion's share of the gift was used to fund a new fitness center, a proposal that won wide support. The Student Health and Athletic Center (SHAC), a 3,624-square-foot facility in Olin Hall, opened for business in September. It features a cardio room with treadmills, elliptical machines, stationary bikes and a rowing machine; a free-weight room with both circuit and fixed weights; men's and women's changing rooms; and a small vending area and lounge.

"Medical school's a stressful time, and I think it's extremely valuable to offer a healthy way to relieve that stress," says Shane, who was one of the project's leaders.

Second-year medical student Steven Sperry, who worked closely with Shane to research and develop the plan for the new facility, agrees. "Because we are planning careers in health and medicine, we definitely have concerns about keeping our bodies fit. If we're not practicing what we preach, how will we convince our patients that they need to be working out and staying in shape?"

The two led a committee that gathered input from fellow students about what sort of center they would like and then researched similar facilities and types of equipment. In less than a year, the group was able not only to conceive and plan the new facility, but see it built.

"I'm most proud of SHAC because it was student-driven — all the committees and the planning," says Sperry. "We are proud to use it and have it here."

Unique extracurricular experiences are not unusual at the School of Medicine, says Leslie E. Kahl, M.D., associate dean for student affairs and adviser for many medical student projects.

"Washington University School of Medicine is really good at supporting student-run projects and outreach programs," says Kahl. "These provide leadership opportunities and allow students to seek things out that are of interest to them. We really see them as vital components of the personal and professional growth and development of our medical students."

Educational and art initiatives are moving forward.

In addition, the gift is playing out in ways that spur learning and creativity. Part of the gift was designated to support medical student art in the new Farrell Learning and Teaching Center and has been used to purchase art supplies and a hanging system. These projects led to the development of the Washington University School of Medicine Arts Commission, an umbrella organization for visual and performing arts on this campus.

"Recently, there has been a lot of enthusiasm about arts initiatives, which undoubtedly enrich the medical school environment," says second-year medical student Andy Leitner. "This gift helps shape a strong tradition in the arts and provide members of our community with exciting opportunities for expression."

Educational initiatives also were identified as areas of student interest, including training in public speaking skills and additions to the current curriculum. Four projects currently in development will be supported by grants from the Mahoney's gift:

- Heart sounds training using new software, a heart sounds CD and a recording stethoscope.
- Offering fourth-year students the opportunity to bolster their surgical skills before residency.
- Use of an ultrasound machine to teach living anatomy alongside traditional cadaver-based anatomy.
- Developing pathology cases and posting them online for viewing and use by all medical students.

"It is great that medical students at Washington University are so active in the academic environment," says third-year student David Strong, who heads the educational grants committee that selected these projects. "The administration is very responsive to our suggestions for curriculum changes, and the Mahoneys' gift has given us the opportunity to implement those changes."
Scholarships lead alumni funding choices

Given rising tuition costs, alumni leaders did what only made sense: fund scholarships. Council president James W. Fleshman Jr., MD 80, reported on this and other accomplishments at the Washington University Medical Center Alumni Association's annual meeting.

In all, the Executive Council allocated $160,000 in scholarship funds in the 2004–05 academic year, continuing to provide support to 16 students at a time. Combined with funding from the School of Medicine, these Distinguished Alumni Scholarships not only recognize outstanding students, but also honor remarkable alumni.

The WUMC Alumni Association selected these educators as this year's honored alumni: Marc R. Hammerman, MD 72, Timothy J. Ley, MD 78, David G. Mutch, MD 80, and Bradley T. Thach, MD 68. Four students in the incoming class will receive the scholarships, each named for one of the alumni honorees.

The Executive Council helped students in other ways as well, allocating funds for social activities, primary care preceptorship opportunities, and community service efforts. They also continued the 10-year commitment to the Farrell Learning and Teaching Center, which will provide significantly upgraded learning spaces for first- and second-year students.

Fleshman highlighted the Alumni Endowed Professorship program, which pools alumni gifts to support top-notch researchers in several academic departments. "It's one example of the creative ways alumni help the School of Medicine recruit and retain talented faculty," he says.
Janet Mosley Ruzycki, MD 81, chief of the Department of Pediatrics at St. Luke's Hospital in St. Louis, has added another title to her CV this year: president of the Washington University Medical Center Alumni Association.

Why did she accept the nomination? “Guilt,” she says with a laugh, but then elaborates. “I think anybody who graduates from Washington University feels indebted — to the professors, patients, classmates — and I think you feel compelled to give something back in return.”

Ruzycki’s family, too, is familiar with the idea of giving back to the community. Her spouse, Stephen Ruzycki, is a chaplain for several hospitals in the SSM Health Care network. Their sons, Michael, a high school senior at St. Louis Priory, and Philip, who attends Davidson College in North Carolina, are Eagle Scouts and community service leaders.

A native St. Louisan, Ruzycki has spent her entire life in the area. The answer to the quintessential St. Louis question? Ritenour High School in North County.

She graduated summa cum laude from Washington University with a bachelor’s degree in chemistry. After finishing medical school, Ruzycki completed her residency training at St. Louis Children’s Hospital, where she says house staff director James P. Keating, MD, made a significant impression on her. To this day, she says, one question goes through her mind when she’s faced with difficult decisions in the care of her patients: What would Dr. Keating say?

Ruzycki has worked as a house pediatrician at St. Luke’s Hospital for most of her career, seeking the position at first because it offered her a part-time schedule and flexibility when her sons were young. Today, she balances her administrative responsibilities with regular clinical experience seeing young patients in the hospital’s nursery, emergency and pediatric inpatient units.

Looking ahead to her year as WUMC Alumni Association president — and her 25th reunion — Ruzycki is interested not only in reconnecting with classmates but also in getting to know today’s medical students. Her time on the Executive Council has already given her an idea of the professional leadership roles, community service projects and social activities many students undertake — all while undergoing the rigors of medical school.

“I’d like to get to know some of these students because they fascinate me,” she says. “I can’t figure out how they can do what they do, because as a student, I certainly didn’t do what they’re doing now.”

Mark your calendars now!

Plan to meet your classmates in St. Louis

May 11–13, 2006

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Registration materials will be mailed in February 2006.
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Built from the ground up, every year, by you!
Alumni and friends played their part once again in the School of Medicine's continued excellence by supporting the Annual Fund during 2004-05.

- Nearly 6,500 donors gave more than $2.4 million in Annual Fund gifts.
- The Eliot Society (gifts of $1,000 or more) closed the year with 798 members, including 166 new members.
- Health Administration Program alumni broke their previous year's record with $48,500 in gifts.

Reunion 2005
Reunion class giving always plays an important role in both Annual Fund and restricted support, and 2005 was no exception. Alumni celebrating reunions made more than $1.8 million in restricted and unrestricted gifts and pledges.

The Class of 1980, led by James W. Fleschman Jr., MD, and David G. Mutch, MD, launched an effort to establish an endowed class scholarship. Members of the class made more than $47,000 in gifts and pledges toward the five-year, $50,000 goal. With this effort, the Class of 1980 joins 17 other classes that are permanently endowing scholarships in their names. These class scholarships provided more than $68,000 in awards to medical students during the past academic year.

And speaking of reunion giving . . .
While celebrating his 35th reunion year, William T. Shearer, MD 70, took the special step of sponsoring the William T. Shearer New Commitment Challenge, from March 1 through June 30, 2005.

The challenge encouraged alumni and friends of the School of Medicine to increase their support by matching up to 500 new Century Club donors with $100 each, and up to 50 new Eliot Society members with $1,000 each. The response was strong:
- Fifty-six new Eliot Society gifts were made, exceeding the challenge goal.
- Three-hundred fifty-two donors made new Century Club gifts.

Alumni Results by Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Percent Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD Alumni</td>
<td>34%</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>26%</td>
</tr>
<tr>
<td>Health Administration</td>
<td>25%</td>
</tr>
<tr>
<td>Nursing</td>
<td>21%</td>
</tr>
<tr>
<td>Occupational Therapy</td>
<td>18%</td>
</tr>
<tr>
<td>Former House Staff</td>
<td>16%</td>
</tr>
</tbody>
</table>

Scholars, scholars everywhere
The "Scholars in . . ." program, established at the School of Medicine in 1998, allows individual donors to sponsor one or more $2,500 scholarships on an annual basis. The program had grown steadily to reach 27 scholarships. Last year, however, an unprecedented 16 new annual scholarships were established. As a result, more than 40 scholarships will be awarded to deserving students this academic year through the Scholars in Medicine, Scholars in Health Administration, Scholars in Physical Therapy and Scholars in PACS (Program in Audiology and Communication Sciences) programs.

Newest alumni get head start on support
- The MD Class of 2005 established a "seed fund" for community health projects as their graduation gift to the school. Nearly 50 percent of the class made gifts or pledges to the fund, and the Alumni Association Executive Council responded by matching the students' gifts 2-to-1.
- The Program in Physical Therapy's Class of 2005 became the third graduating class to support the Young Alumni Gift fund. Forty-one percent of the class made gifts or pledges to the award fund.
George L. Rider, MD 45, retired from his practice in Visalia CA in 2002.

Arthur E. Schmidt Jr., MD 46, is a professor emeritus of medicine living in Oklahoma City OK. He enjoys serving as a docent for the National Cowboy Hall of Fame and Western Heritage Center. He also reports that he is active in three dance clubs.

Lowell A. Gess, MD 51, enjoys his retirement from ophthalmology practice and continues to participate in eye clinics and perform surgery in the African countries of Sierra Leone and Nigeria. He lives in Alexandria MN.

Donald C. Meredith, MD 54, was honored on May 26, 2005, at The Sioux Award banquet at the University of North Dakota for his many years of service. Meredith received his bachelor's degree in medicine from UND. He served in the U.S. Army from 1945 to 1947 and practiced orthopaedic surgery until the early 1990s. Meredith is a fellow of the American College of Surgeons and is a diplomate of the American Board of Orthopedic Surgery.

Gerald E. Hanks, MD 59, has been honored by the establishment of an endowed chair in radiation oncology by the Fox Chase Cancer Center. Hanks served as Fox Chase's chairman of radiation oncology from 1985 until his retirement in 2001. He is recognized worldwide for his expertise in the field of prostate cancer and pioneered the use of three-dimensional, conformal radiation therapy (3D-CRT).

Martha Anne Coleman, GN 65, sends her greetings to classmates and says she was unable to attend her 50th nursing reunion in Wisconsin due to a broken arm. She planned to be in St. Louis in September 2005 for a St. Louis Children’s Hospital gathering.

Joshua B. Grossman, MD 65, was a presenter at a Seminar on Ethics in the Medical Record held in Knoxville TN on Feb. 24, 2005. Grossman, an internist, is a clinical faculty member at East Tennessee State University.

C. Ronald Kahn, MD, HS 68, was awarded the 2005 Dale Medal from the British Society of Endocrinology, the group's highest honor. Kahn is president and director of Joslin Diabetes Center, an independent nonprofit institution affiliated with Harvard School of Medicine. In the past 30 years, Kahn's research has defined the field of insulin signal transduction and mechanisms of altered signaling in disease.

Paul G. Tomich, MD, HS 78, has been elected as the assistant secretary of the American College of Obstetricians and Gynecologists (ACOG). Since 1990, he has held numerous positions on ACOG committees and task forces. Tomich is director of obstetrics at the University of Nebraska School of Medicine's Nebraska Medical Center in Omaha.

C. James (Jim) Holliman, MD 79, professor of Emergency Medicine and director of the Center for International Emergency Medicine at Pennsylvania State University, was recently appointed adjunct professor of Emergency Medicine at Nanjing Medical University in Nanjing, China. He is the first American to be appointed to this lifetime position by Nanjing Medical University. Holliman also has presented his international trauma training course recently in Croatia, Slovenia and Turkey, and he planned to teach it in Iraq in October 2005.

Richard A. Linneberger, HA 79, received his Doctor of Ministry in Ecumenism from Wesley Theological Seminary in Washington DC in May 2004.

Steven Wei, MD 94, was named “Top Doc” in the April 2005 issue of Connecticut Magazine.

Suman Malempati, MD 96, completed his fellowship in pediatric hematology/ oncology in the summer and joined the faculty at Oregon Health & Science University in Portland. He and his wife, Melanie, had a baby girl in June.

James C. Gordon, PT 97, welcomed Evelyn Grace to the family on April 14, 2005. Gordon opened Fort Wayne Physical Therapy on March 26, 2005, teaches biomechanics at Manchester College and is currently pursuing the postprofessional doctor of physical therapy degree in the Program in Physical Therapy at Washington University.

Kaye Nembhard Reid, MD 98, completed her general surgery residency in June and will do a two-year fellowship in hepatobiliary and pancreatic surgery at the Mayo Clinic in Rochester MN. She would love to hear from classmates; her email address is KayeReid@hotmail.com.

Justin Sell, OT 98, recently finished medical school at the University of Washington and headed to the University of Michigan to complete his residency in anesthesiology. He and Heather Sell, OT 98, have an infant son.

Amanda Heidemann, MD 99, and her husband, Mitch Johnson, welcomed Eric Michael Johnson into the world on Feb. 11, 2005. Big brother Adam is excited to teach him everything he knows (but, his parents hope, not too much mischief). Amanda is in her fourth year of practice at BJC Medical Group. She can be reached at ajb5053@bjc.org.
Arielle D. Stanford, MD 99, is in the second year of a schizophrenia research fellowship and just received a National Alliance for Research on Schizophrenia and Depression Young Investigator Award to study transcranial magnetic stimulation for the treatment of schizophrenia.

Sara (Schmiesing) Alhajeri, PT 00, and her spouse, Saad, welcomed Laila to the family on March 19, 2005, one day before their son, Zaid, turned 2 years old. Alhajeri continues to work at Barnes-Jewish Hospital and welcomes classmates to contact her by e-mail at sara@gtw.net.

Thaddeus S. Stappenbeck, MD, PhD, HS 00, assistant professor of pathology and immunology, has been named one of fifteen 2005 Pew Scholars in the Biomedical Sciences. Stappenbeck was given $240,000 to support his research over a four-year period, and he plans to explore the mechanisms that allow the intestine to recover from injury. His results could lead to better understanding of inflammatory bowel disease and colon cancer.

William Anthony Frisella, MD 01, MA 01, will be finishing his residency in orthopaedic surgery at the University of Iowa before starting a fellowship in shoulder surgery at Beth Israel Hospital in Manhattan. He is engaged to Elise Downer, a law student, and plans to relocate to St. Louis upon completion of his training.

Amy K. Ripperger, MD 01, has begun practice in her hometown of Batesville IN, where she describes herself as “the classic country doc.”

Rebecca A. Smith, MD 03, has completed her internship in psychiatry at the University of California, Los Angeles, and is now working on a master’s degree in public health there.

IN MEMORY
Milo K. Tedstrom, MD 24, died July 25, 2005, at the age of 104. He practiced medicine at St. Joseph’s Hospital in Orange County CA for nearly 50 years, establishing the hospital’s first intensive care unit in 1964 and the cardiac ICU in 1966. He served as president of the Orange County Medical Society and received the Physician of the Year Award in 1979. He is survived by a daughter, Jeanne Tedstrom, and a son, Milo Kenney Tedstrom Jr., five grandchildren, 13 great-grandchildren, and a sister.

Carl A. Rosenbaum, MD 27, died April 10, 2005, in Little Rock AR, where he had practiced general and vascular surgery. He would have been 106 in May. He was a member of the faculty at the University of Arkansas for Medical Sciences for 30 years and served on the university’s Board of Trustees. A past president of the Arkansas Medical Society, he was instrumental in the creation of the Arkansas Cancer Commission. Survivors include two sons and a daughter.

Katharyn Kufel Goers, NU 32, of Alamont IL, died Feb. 15, 2005.

Mary Neal Jones Cherry, NU 34, died March 17, 2005. She was 93 years old.

Arthur J. Lesser, MD 34, died Feb. 23, 2005. He had been a pediatrician in Washington DC.

Lt. Gen. Kenneth E. Pletcher, MD 36, died March 21, 2005, in Bellevue NE. He had practiced aerospace medicine.

Leta Marguerite Clark, NU 37, died on April 1, 2005, in Eugene OR, after a long battle with cancer. She is survived by her son.

Georgia Jean Melsheimer Bartosch, OT 38, passed away on March 26, 2005.

Hugh R. Smith Jr., MD 39, died March 5, 2005, in St. Louis MO. He was a retired obstetrician/gynecologist.

Mary McFayden Bishop Edwards, MD 40, HS 58, died March 25, 2005, in Green Valley AZ. She was 90 years old.

Renate Liebmann Vambery, OT 40, died Jan. 15, 2005, in Chicago IL.

Ruth Campbell Martin, MD 41, died Feb. 25, 2005, in Gainesville FL, at age 89. One of three women admitted to Washington University School of Medicine in 1938, she later became the first board-certified anesthesiologist in Gainesville. After retiring from medicine, she studied law at the University of Florida and spent 16 years as a volunteer in the juvenile court system. Among her survivors are two sons and a daughter.
Mary E. Kafka, OT 42, died May 1, 2005. She lived in Plant City FL and is survived by her husband, Richard Kafka, a daughter, Helen Kafka, and a granddaughter.

Burton Shatz, MD 43 December, died June 6, 2005. He served on the teaching staff of Jewish Hospital and Barnes Hospital and earned a full professorship of clinical medicine and surgery at Washington University School of Medicine. He introduced many new endoscopic techniques and contributed to the training of more than 200 surgeons. He is survived by his wife, Audrey, three children, including Gerald S. Shatz, MD 74, six grandchildren and two great-grandchildren.

A. Paul Naney, MD 43 March, died Feb. 16, 2005. He had practiced internal medicine and cardiology in Flora IL.

Howard S. Banton Jr., MD 45, died on February 26, 2005, following heart surgery. A retired family physician, he practiced medicine in Union Springs AL for 44 years. He is survived by his wife, four children, eight grandchildren and two great-grandchildren.

Thomas K. Hood, MD 45, died Jan. 24, 2003, at age 81. He lived in Elko NV.

Mary Jane Schneider Foster, NU 45, died April 17, 2005, in Doylestown PA. While at Washington University School of Nursing, she entered the Cadet Nurse Corps and upon graduation was commissioned a Second Lieutenant, Army Nurse Corps. Foster married, had three sons and was an active volunteer in Boy Scouting, the Red Cross and other societal and military-related projects. She is survived by two sons and three grandchildren.

Jane Washburn Sommer, NU 46, died April 30, 2005. Her survivors include her son, Rand W. Sommer, MD 80, HS 85, and two daughters.

Marvin Cornblath, MD 47, died Jan. 20, 2005, in Baltimore MD, at age 79. A renowned pediatric endocrinologist, Cornblath was clinical professor of pediatrics and chair of the Department of Pediatrics at the University of Maryland. Cornblath is survived by his wife, Joan, three children and five grandchildren.

Bernard T. Garfinkel, MD 48, died June 15, 2005. He was 80. He served with the Army in Korea and was a veteran National Football League physician serving with the then St. Louis Cardinals and current St. Louis Rams football teams. He also maintained a private internal medicine practice. He is survived by his wife, three children and four grandchildren.

Mary Cunningham McClancy, OT 48, died Jan. 25, 2005. She lived in Ormond Beach FL.

Robert W. Minnihan, MD 49, died on May 7, 2005, in Chesterfield MO. He is survived by his wife, Ann Minnihan, NU 48, and five children.

Patricia J. Raining Wesby, NU 52, died July 23, 2005. She was a registered nurse for more than 50 years. She is survived by her husband, Michael Wesby, her son, John Wesby, and one granddaughter. She lived in St. Louis.

Richard B. Windsor, MD 52, died March 9, 2005. He was a general surgeon in Sheboygan WI.

Seymour M. Schlansky, MD, HS 53, died May 2, 2005.

Barbara A. Taylor, NU 53, GN 58, of Belleville IL, died June 12, 2005. She taught nursing at Southwestern Illinois College for more than 30 years.

Casmer Jasinski, MD 57, died March 16, 2005. He is survived by his wife, Doris R. Jasinski, MD 56, and two children.

Bryce L. Munger, MD 58, died April 10, 2005, in Olympia WA. He specialized in neuroanatomy and served on the faculties of several institutions including Washington University School of Medicine, Pennsylvania State University, and the University of Tasmania in Australia. He is survived by his wife, three sons and a daughter.

Judith M. Thrane, NU 58, GN 60, died Feb. 1, 2005. She lived in Metairie LA.

Kimpanel Estathianos, MD, HS 58, died in St. Louis of complications from pneumonia on March 7, 2005, at age 80. Born in Greece, he earned his medical degree at the National University of Athens. He became an instructor of psychiatry at Washington University School of Medicine in 1965 and served as clinical director at the former Malcolm Bliss Mental Health Center in St. Louis. He became a naturalized citizen in 1968 and, from 1969 until his retirement following a stroke in 2002, he practiced in Belleville IL. Survivors include his wife, Maria, and a daughter.

June V. Howard, NU 59, died May 12, 2005.

Charlotte Davis, GN 65, died Feb. 14, 2005, in Leavenworth KS.

Peggy E. Liles, NU 67, died March 22, 2005, in Cuba MO.

Maria M. Lyskowski, MD, HS 67, died May 4, 2005.

Ida Grissom Harpole, NU 69, died on March 30, 2005.

Steven H.T. Chua, MD, HS 73, of Florissant MO, died Dec. 30, 2004. He had practiced internal medicine.

John D. Halverson, MD, HS 73, died Jan. 20, 2005. He had been professor of surgery and director of the surgical residency program at the SUNY Health Science Center in Syracuse NY since 1991. After completing residency at Washington University School of Medicine, he joined the faculty, and, except for two years in the U.S. Army Medical Corps, spent the next 24 years in St. Louis, specializing in gastrointestinal and breast malignancies. He was a past-president of the American Society for Bariatric Surgery. His wife, Petie, and four children survive.

Alan I. Mandell, MD, HS 73, died March 14, 2005, in Memphis TN, where he had practiced ophthalmology.
Bob Drews, MD 55, left, with Paul Schoening, director and associate dean of the Bernard Becker Medical Library. Drews has found that a charitable gift annuity is a great way to receive a lifetime income, generate a charitable income tax deduction, reduce capital gain tax and support the School of Medicine.

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<table>
<thead>
<tr>
<th>AGE</th>
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<td>90</td>
<td>11.3%</td>
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*Rates for two-income recipients will differ. Seek advice from your tax or legal adviser when considering a charitable gift annuity.
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☐ Securities ($________________) (ACQUISITION DATE)

First Beneficiary  Second Beneficiary
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Relationship ____________ Relationship ____________

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Specialty ________________________________ Class/HS Year ________________________________
E-mail ________________________________ May we list your e-mail address in our web page directory? ☐ Yes ☐ No

Signature ________________________________ Daytime phone ________________________________
Sea of white

Members of the incoming first-year class mingle with School of Medicine faculty and staff in the lobby of the Eric P. Newman Education Center following the annual White Coat Ceremony held on August 12, 2005.
Lighting the way  The scene of a minimally invasive surgery in the OR of Bryan F. Meyers, M.D. A bright bundle of fiber optics transmits high intensity light to a laparoscope, allowing manipulation of internal tissue. The black cable returns a signal from a camera on the laparoscope to a monitor, while the transparent tube removes fluid and smoke. Such procedures replace large incisions, metal retractors and headlights on surgeons — allowing for less painful operations and faster recoveries.

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