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Fresh faces  The Class of 2014 was welcomed to the School of Medicine at the annual White Coat Ceremony held on August 13 at the Eric P. Newman Education Center. At the event, 122 first-year medical students were each presented with a white coat, a longtime symbol of the medical profession, and took an oath that the class wrote as a group during orientation.
A continuing need for scholarship support

Turn this card for the inspiring story of a generous legacy that still helps students at the School of Medicine.

Support for today’s students means a future of beneficial care and scientific breakthroughs.

See page 36
His generosity lives on

"Under the will of the late Jackson Johnson, the sum of $250,000 was donated to the School of Medicine, the income of which is to be used to aid worthy and desirable students in acquiring and completing their medical education."

With this brief item in the 1930 Washington University School of Medicine Bulletin, so began the endowed Jackson Johnson Scholarship Fund.

Jackson Johnson was president of International Shoe Company, the largest shoe manufacturer in the country early in the 20th century. He was elected to the Washington University Board of Trustees in 1919 and served until his death in 1929. He endowed the Jackson Johnson Scholarship Fund in memory of his son, Jackson Johnson Jr., who lost his life in "the Service of the United States during the Great War."

Coming during the Great Depression, these resources were critical in making it possible for aspiring young students to pursue their medical educations. And for over 70 years, this scholarship fund has continued to do just that. Since its inception, more than 700 young men and women have received about $1 million in financial assistance.

To maintain its reputation for excellence, Washington University School of Medicine must continue to attract the most promising and best qualified students. Many of these exceptional students will require financial assistance, and the need for scholarship support is growing faster than available resources can sustain.

To learn more about how you can make an impact, please contact the Office of Medical Alumni and Development at (314) 935-9691.
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Mapping the brain
$30 million project will trace the brain’s anatomical “wires”

An unprecedented five-year, $30 million effort to generate a first-of-its-kind map of all the major circuits in the human brain is being led by the School of Medicine and the University of Minnesota’s Center for Magnetic Resonance Research (CMRR).

Thirty-three researchers at nine institutions will contribute to the Human Connectome Project. Using powerful, custom-built brain scanners, a supercomputer, new brain analysis techniques and other state-of-the-art resources, they will trace the anatomical “wires” that interconnect thousands of regions of the human brain’s gray matter.

"This effort will have a major impact on our understanding of the healthy adult human brain," says lead investigator David C. Van Essen, PhD, the Edison Professor and head of the Department of Anatomy and Neurobiology at Washington University. "It will also enable future projects that probe what changes in brain circuits underlie a broad variety of disorders, such as autism and schizophrenia."

The project is funded by 16 components of the National Institutes of Health via its Blueprint for Neuroscience Research.

Brain scans of volunteer subjects for the project will be carried out at Washington University, the University of Minnesota and Saint Louis University. Scientists will use instrumentation and methods developed at the CMRR with the participation of researchers at Advanced MRI Technologies. Powerful new methods for analyzing these extremely complex datasets will be developed by investigators from Oxford University; Indiana University; University of California, Berkeley; Warwick University; University d’Annunzio; and the Ernst Strungmann Institute.

Much of the project will focus on the cerebral cortex, where complex mental functions are carried out. The wrinkles and folds of the cortex, the shape and size of other brain structures, and the wiring of individual brain circuits vary significantly from person to person.

The information gathered via scanning will allow scientists to map the brain’s connections, track how the connections transmit information, and identify how brain regions work together in dozens of networks and sub-networks.

Van Essen, who estimates the project will produce about 1 petabyte (1 quadrillion bytes) of data, says rapid and open data sharing will be a hallmark of the federally funded project. As the researchers gather and analyze results, the team will quickly make the data available to other neuroscientists for use in their own research.

As information about how brain circuits are normally connected reaches a critical mass, scientists can begin to use the data to study how those differences contribute to differences in human behavior.
Changes to cardiovascular disability benefits advised

Examining function as well as anatomy

A Washington University scientist has been working with the federal government to answer questions about heart disease and disability.

Serving on an Institute of Medicine (IOM) committee on cardiovascular disability, Robert M. Carney, PhD, helped prepare updates on how to evaluate cardiac disability.

Interestingly, Carney is not a cardiologist. Rather, he's a behavioral medicine specialist whose research is devoted to how psychiatric illness, depression in particular, increases risk for a second heart attack and for sudden cardiac death.

A professor of psychiatry and director of Washington University's Behavioral Medicine Center, Carney says sometimes it's not possible to determine cardiac disability with a stethoscope or an echocardiogram.

Almost 11 million adults and 1 million children are classified as disabled by the Social Security Administration (SSA). But Carney says that when dealing with disability, it isn't always easy to figure out what is truly disabling versus what is merely difficult to overcome. The SSA uses a screening tool called the Listing of Impairments — the "Listings" — to identify those so severely impaired that they cannot work.

Carney and the rest of the IOM panel recommended updates to the heart disease Listings. Although the extent of heart disease remains a key factor, Carney says the committee agreed that how a person actually functions is the proper "litmus" test for disability.

The committee recommended that functional testing — such as treadmill tests and stress echocardiograms — be used to determine cardiac disability. Collecting information about how an individual does performing day-to-day activities also is recommended. Further, the group suggested evaluating patients for depression and other mood disorders.

"There are physical issues associated with depression that are likely to impair functioning," Carney says. "As a matter of fact, most studies of depression and heart disease have shown that on their own, each of these conditions are among the most debilitating of any chronic medical condition.

Identifying at-risk medical students

Students who enter medical school with high debt levels, low scores on the Medical College Admissions Test (MCAT) or who are non-white are more likely to face difficulties that can prevent graduation or hinder acceptance into a residency program if they do graduate, according to a nationwide study.

The research, conducted by Washington University joint principal investigators Donna B. Jeffe, PhD, research associate professor of medicine, and Dorothy A. Andriole, MD, associate professor of surgery, was reported in the September 15, 2010 issue of the Journal of the American Medical Association.

The study of more than 84,000 students who entered U.S. medical schools from 1994–99 showed that by 2009, nearly 89 percent performed very well: They graduated from medical school and passed two key medical licensing exams on their first try. However, 11 percent either left medical school or graduated but had not passed one or both of the licensing exams on their initial try, which can hinder residency placement.

The study's findings are particularly important as medical schools nationwide are increasing enrollment and diversity to meet the country's growing health care needs.

The researchers say more study is needed to identify and address underlying factors that contributed to the outcomes they observed. Next they plan to study how medical school debt, among other factors, influences the kinds of careers new doctors choose.
Siteman's NCI designation renewed

The Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine has received renewal of its designation as a Comprehensive Cancer Center by the National Cancer Institute (NCI), a part of the U.S. Department of Health and Human Services and the National Institutes of Health. The designation, which recognizes Siteman's clinical research, basic science, community outreach and education activities, includes $23 million in research funding to Washington University.

"NCI designation as a Comprehensive Cancer Center confers the highest recognition of our exceptional cancer-focused scientists, clinicians and staff throughout Washington University and Barnes-Jewish Hospital," says Timothy J. Eberlein, MD, director of the Siteman Cancer Center and head of the Department of Surgery. "Most importantly, we are translating our cutting-edge science into better treatments for the more than 40,000 cancer patients we see each year."

University scientists and physicians affiliated with Siteman hold more than $165 million in cancer research and related training grants and are involved in many collaborative efforts with other leading cancer centers throughout the country.

The Siteman Cancer Center now provides cancer services in multiple locations for the convenience of its patients: the Washington University Medical Center campus, Barnes-Jewish West County Hospital and Barnes-Jewish St. Peters Hospital. A new site is planned in south St. Louis County.

Bariatric surgery program to focus on obese teenagers

Washington University School of Medicine has partnered with Barnes-Jewish Hospital and St. Louis Children's Hospital to open the first bariatric surgery program in the area for obese adolescents.

The obesity rate among teens has more than tripled in the past 30 years. Today, 18 percent are obese, which increases their risk of heart disease, diabetes, stroke and dying young.

"Obese adolescents face a lifetime of long-term health problems related to their weight," says Washington University bariatric surgeon Esteban Varela, MD, who directs the new program. "Bariatric surgery increasingly has become a viable treatment option for extremely obese teens who can't lose weight by other methods."

The comprehensive program includes the expertise of Washington University surgeons at Barnes-Jewish Hospital as well as a pediatric endocrinologist and a registered dietitian from St. Louis Children's Hospital.

Like adults who undergo weight-loss surgery, adolescents must adopt lifelong changes in lifestyle and diet.

Research Varela had done before he joined the faculty at Washington University showed that bariatric surgery is as safe in adolescents as in adults and that adolescents have fewer complications resulting from the procedure than adults.

Shapiro to chair health center group

Larry J. Shapiro, MD, executive vice chancellor for medical affairs and dean of Washington University School of Medicine, has been elected chair of the board of directors of the Association of Academic Health Centers (AAHC).

Shapiro, who also is the Spencer T. and Ann W. Olin Distinguished Professor and president of Washington University Medical Center, was elected to the one-year term at the association's annual meeting in Dallas.

An internationally renowned research geneticist and pediatrician, Shapiro is recognized for his significant research in human genetics, molecular biology and biochemistry.

The AAHC is a nonprofit organization that seeks to advance the nation's health and well-being through vigorous leadership of the nation's academic health centers. Its mission is to improve the nation's health care system by mobilizing and enhancing the strengths and resources of the academic health care enterprise in health professions, education, patient care and research.
A proposal to develop a vaginal gel that affords both contraception and HIV protection using nanoparticles that carry bee venom has won a 2010 Grand Challenges Explorations grant from the Bill & Melinda Gates Foundation. Samuel A. Wickline, MD, professor of medicine, of cell biology and physiology, and of physics and biomedical engineering, leads the effort and has assembled a multidisciplinary team of collaborators to carry out proof-of-concept activities for the grant.

"Sperm and HIV are remarkably similar in their natural mechanism of genetic transmission," Wickline says. "Both need to fuse with their target cell in order to deliver their genetic payloads — DNA in the case of sperm, and RNA in the case of HIV."

Wickline's plan is to use the very means by which sperm and HIV operate to destroy them. "The idea is to trick each to fuse with a synthetic Trojan Horse — a nanoparticle that will overwhelm sperm and HIV in numbers and in destructive power."

The Trojan Horse, or decoy, that will be used to attract the sperm and HIV is a lipid nanoparticle created by Wickline and colleague Gregory M. Lanza, MD, PhD, professor of medicine, that has already been proven safe for clinical use. The nanoparticles will carry a synthetic version of bee toxin, called melittin, to the targets. Since melittin can annihilate almost any cell, the trick is to target the melittin to the specific cells intended for destruction without causing collateral damage.

Wickline and Paul H. Schlesinger, MD, PhD, associate professor of cell biology and physiology, attacked that problem two years ago when they developed "nanobees," nanoparticles that sequester melittin so that it neither harms healthy tissue nor is degraded before reaching its target.

To destroy the sperm, Wickline intends to target a well-known "locking site" on the sperm cap. Sperm cells, which are roughly 160 times bigger than the 250-nanometer particles, will be swarmed with nanobees. HIV virions, which are less than half the size of the nanoparticle, will be captured and destroyed with special molecules attached to the nanobees that bind to complementary molecules on the virion that play a role in initiating HIV fusion to cells.

The nanoparticles will remain on site inside the vaginal vault until washed out by the body's natural fluids.
Helping to reduce pregnancies for girls in foster care system

Focus on education, risk reduction

A study of Missouri girls in foster care found that about half of them had become pregnant or had given birth by age 19.

To address this startling statistic, Washington University is launching a regional pregnancy prevention program for this high-risk population. With funding for five years from the U.S. Department of Health and Human Services, the project will serve an estimated 600 teens in foster care or "aging out" of foster care in the City of St. Louis and St. Louis County.

Spearheading the Teen Pregnancy Prevention Initiative is Katie L. Plax, MD, a Washington University adolescent medicine specialist at St. Louis Children's Hospital. She also is medical director of the SPOT (Supporting Positive Opportunities with Teens), a drop-in teen health center at Washington University Medical Center. The program director is Washington University colleague Kimberly Donica, the executive director of Project ARK (AIDS/HIV Resources and Knowledge), an initiative that coordinates medical care, social support and prevention services for women and children with HIV.

"We will use a proven program with these young women to help them prevent unwanted pregnancies and reduce the risk of contracting sexually transmitted diseases," Plax says. "We also want all youth in foster care in our region to have a comprehensive health assessment within 30 days of entering care to engage them in healthy behaviors."

Under the initiative, the SPOT will become the medical home for these teens, who often do not have a primary care physician. Health educators at the SPOT will use the Safer Sex intervention, a three-part program designed to reduce the rates of teen pregnancy. The intervention includes a short video, an education session with a female health educator and follow-up sessions at one, three and six months. Safer Sex is designed to increase condom use, reduce risky sexual behaviors and prevent recurrent STDs among female adolescents.

To ensure the target population is reached, Project ARK and the SPOT will team with the Missouri's Children's Division, adolescent and pediatric health providers, mental health experts, foster care legal and policy advocates, youth-serving community organizations and the statewide Teen Pregnancy Prevention Partnership.

Dacey joins Institute of Medicine

Ralph G. Dacey Jr., MD, has been elected to the Institute of Medicine of the National Academy of Sciences, one of the highest honors in health and medicine that medical scientists in the United States can receive.

Dacey is the Henry G. and Edith R. Schwartz Professor and chair of the Department of Neurological Surgery at Washington University School of Medicine and neurosurgery-in-chief at Barnes-Jewish Hospital. He was recognized by the Institute of Medicine for demonstrating outstanding professional achievement and commitment to service.

In addition to an active neurosurgery practice and serving as the neurosurgery consultant for the St. Louis Rams and St. Louis Blues, Dacey is internationally recognized for his contributions to understanding and treating conditions that affect blood vessels in and around the brain.

Among his clinical accomplishments was developing a device that uses magnets to guide surgical instruments through the brain and performing the first human magnetic-assisted surgery in 1998. His surgical interests are cerebrovascular neurosurgery and the surgery of cerebral aneurysms and vascular malformations. His research activities have concentrated on intracerebral microcirculation.

Good neighbors The Grove, the "front door" to Washington University Medical Center, recently installed a new entry sign. The 24-foot by 9-foot, double-sided neon sign spans Manchester Avenue just west of Vandeventer Avenue, marking the entrance to the Grove, which is located in the Forest Park Southeast neighborhood. The goal of the sign is to attract visitors to the rejuvenated area and to enhance the identity of the Grove as a diverse, appealing and pedestrian-friendly destination. The Washington University Medical Center Redevelopment Corp. (WUMCRC), a partnership between BJ HealthCare and the School of Medicine, led the sign project. To learn more about WUMCRC, visit wumcrc.com.

Ralph G. Dacey Jr., MD
Save your breaths
Chest compression-only CPR improves patients’ survival

Heart attack patients whose hearts have stopped beating and who receive cardiopulmonary resuscitation (CPR) from bystanders fare better if resuscitators skip the rescue breaths and do only chest compression, says a study led by School of Medicine researchers.

Published online Oct. 15, 2010, in The Lancet, the study determined that the chest compression-only method of CPR improved survival rates over standard CPR, which involves alternating chest compressions with rescue breaths.

“We looked at data from three studies,” says principal investigator Peter Nagele, MD. “Individually, the studies were ‘underpowered’ statistically and could not show a survival benefit. But when we combined all three studies, there was a significant increase in survival when witnesses were told by 911 dispatchers to provide chest compression only.”

Nagele, assistant professor of anesthesiology and chief of trauma anesthesiology at Barnes-Jewish Hospital, and his team combined data from the three studies in a meta-analysis and were able to analyze survival rates in more than 3,700 cardiac arrest patients.

A 22 percent improvement in survival related to chest compression-only CPR could save thousands of lives annually.

The research team, which included investigators from the Medical University of Vienna in Austria, determined that survival improved by 22 percent when bystanders called 911 and were advised by the dispatcher to do chest compression-only CPR.

“When a person goes into cardiac arrest because of a problem with the heart, that individual normally has plenty of oxygen in the body,” Nagele explains. “So rescue breaths aren’t as vital to survival as trying to keep blood flowing as regularly as possible. However, if cardiac arrest is secondary to trauma, drowning or a problem not directly related to heart function, then it is advisable to do standard CPR that includes rescue breaths. In those cases, getting oxygen into the system is crucial.”

Nagele stresses that the findings apply only to adults. In children, he explains, cardiac arrest is likely to be secondary to a severe asthma attack, an allergic reaction or something else unrelated to the heart. Under those circumstances, the body needs oxygen.

“The heart doesn’t literally stop during cardiac arrest,” Nagele says. “It gets super excited and electrically very active, and the only way to get it back into rhythm is with an electrical shock, a defibrillation. By doing chest compression-only CPR, a bystander is basically buying time until a paramedic with a defibrillator can jump-start the heart.”
The Power of Two

Students join forces to improve testing methods, speed drug screening, and...tie the knot

This is a story about pairs:

Two mentors, two students, two labs... and two molecules — specifically, protein molecules that stimulate cell growth. It’s also about how when pairs form, interesting things happen.

For example, when a pair of the protein molecules, with the long technical name of epidermal growth factor (EGF) receptors, joins together, it promotes the proliferation of cells. That property contributes to the growth of several kinds of tumors.

The other participants in the tale — two professors of biochemistry, one a computational biologist, the other an expert on growth factors, and two graduate students working on their doctoral degrees — wanted to find a way to interfere with the action of EGF receptors and offer a new approach to treating some cancers.

In the end, the researchers found a compound that did the job pretty well, and along the way, a wedding took place.

By Gwen Ericson

Proteins paired as “dimers” contribute to tumor growth; interfering with the pairing impedes the tumors. This computer model demonstrates the concept: Here, a compound (gold) blocks the pairing of protein 1 (purple) and protein 2 (green) that would otherwise pair up as a dimer.
"Rob (Robert Y.C. Yang, PhD) and Katy (Katherine S. Yang, PhD) met during their first year of graduate school," says Katy's mentor, Linda J. Pike, PhD, professor of biochemistry and molecular biophysics. "Then Rob went to Garland Marshall's computational biology lab. Katy came to my lab and began working on a method to measure EGF receptor dimer formation (a dimer is a bound pair of similar molecules). They started dating, and Rob became intrigued by the possibility of preventing EGF receptor dimer formation to prevent activation. They helped each other in the lab, and by their third year of school they got married."

It's a truism that in current research, collaboration is required. And it's hard to find a clearer illustration of the related maxim that two heads are better than one than the research that led to a new way to inhibit EGF receptors. EGF receptors are large proteins that float in the outer membrane of cells. Separately, the receptors are idle. But when the growth factor EGF comes along, it induces two receptors to bind together, or dimerize. That's when the receptors get active. A chemical tag attaches to their tail sections dangling inside the cell, setting in motion a cascade of internal signals that encourage cell growth and division.

In several cancers, such as some breast, lung and colon cancers, EGF receptors are overabundant, and that drives malignant tumor growth. Knowing this, scientists have developed anticancer drugs that inhibit EGF receptor activity: monoclonal antibodies such as trastuzumab (Herceptin) that bind to EGF receptors and stop their activation, and small-molecule compounds such as gefitinib (Iressa), which cross the cell membrane and inhibit tagging of the receptors' tails.

Unfortunately, both types of inhibitors have drawbacks. Monoclonal antibodies are expensive. The small-molecule agents can have unwanted side effects. In both cases, cancer cells will become resistant after a few months of treatment.

So Rob Yang decided to try to inhibit EGF receptors a different way, with a drug molecule that simply blocked dimerization. Dimerization requires two receptor molecules to fit nicely together like pieces of a jigsaw puzzle. If a drug molecule bound to the right part of the receptor, it could get in the way of dimerization and prevent activation.

"When EGF binds to the EGF receptor, the receptor reorganizes itself and sticks out an arm," explains Garland R. Marshall, PhD, professor of biochemistry and molecular biophysics. "Each receptor has an arm and an arm target site, which we affectionately call the armpit. The arms and armpits come together, and the two receptors make a dimer. Rob's idea was to interfere with receptor dimerization by using a small molecule that fit precisely into the armpit site."

This type of small-molecule inhibitor might be easier to administer and cheaper to produce than monoclonal antibodies. Being specific for EGF receptors, it would probably have few side effects. Importantly, cancer cells are less likely to develop resistance to such a drug because they would have to make adaptive changes in both pieces of the puzzle.
One thing Rob didn’t need to worry about was a shortage of drug candidates. Massive drug libraries exist containing millions of potential therapeutic agents. But it would take a prohibitive amount of time and money to test these libraries for drugs that prevent EGF receptor dimer formation.

Fortunately, there was another way. Marshall is a member of the university’s Center for Computational Biology and an expert in computer-aided drug design. He has devoted his career to modeling molecules and their interactions. Training in Marshall’s lab, Rob learned about and used virtual high-throughput screening technology to screen for EGF inhibitors.

In a virtual drug screen, the computer knows the shape, size and electrochemical properties of compounds as well as of drug target sites and can rapidly test how well drug molecules match the target. Rob screened 2,000 candidate molecules from a database of compounds built by the National Cancer Institute. He then designed a scoring function, which rated the degree of fit — the higher the score, the better the drug bind to the receptor.

When that was complete, Rob left his computer keyboard behind and went into Pike’s laboratory to test his top 80 drug candidates in the real world. Pike specializes in research on growth factors and cell signaling mechanisms and their role in cancer, so her lab had the necessary know-how and instrumentation for this part of the discovery process.

A preliminary assay eliminated 60 of the compounds, and Rob now had 20 good candidates to test further — a high percentage compared to traditional screening methods. That’s when the expertise of Katy Yang came perfectly into play.

By this time, Katy had refined a method of directly measuring EGF receptor dimerization by modifying a technique developed by David R. Piwnica-Worms, MD, PhD, professor of developmental biology and of radiology, that capitalized on yet another fortunate pairing. She had attached two halves of firefly luciferase to EGF receptors. When two receptors joined together, the two halves of luciferase also linked up, and the enzyme became functional.

The luciferase enzyme produces light by catalyzing the addition of oxygen to the pigment luciferin — that’s why fireflies glow. If any of Rob’s compounds were dimerization inhibitors, and therefore also kept luciferase from working, the assay wells containing them would emit less light. As it turned out, one compound was a good inhibitor, reducing the number of dimers by 60 percent.

Pike says that the compound Rob identified is the first of a new class of EGF receptor inhibitors. “This drug is a promising starting point,” she says. “Now we can look for similar compounds with extra chemical groups here or there that might allow them to fit better into the receptor armpit.”

The Yangs graduated and moved to Boston to continue their careers (Rob at Harvard University, Katy at Massachusetts General Hospital), but researchers Pike and Marshall plan to follow up on this potential new anticancer therapy, continuing this joint effort aimed at keeping a pair of molecules apart.
Crayfish boiled, baked or fried may taste fine. But eaten raw, they carry a dangerous parasite.
A medical mystery began one summer’s day on a Missouri waterway when someone ate something that most Americans would never think of putting in their mouths — that is, not unless it had first been sauteed, baked, boiled or fried.

Before this illness was diagnosed at Washington University School of Medicine, only seven such cases had ever been reported in North America, where a parasite, *Paragonimus kellicotti*, is common in crayfish.

Cooking destroys the parasite. But when mammals consume raw crayfish, the illness paragonimiasis is the result. It can cause fever, cough, chest pain, shortness of breath and extreme fatigue. Diagnostic clues also include elevated levels of a particular type of white blood cell and fluid around the lungs and sometimes the heart.

The infection is generally not fatal and is easily treated, if it is recognized. The story of this unusual case highlights the importance of getting a thorough medical history in order to arrive at an accurate diagnosis.

“We’re all taught this in medical school,” says infectious diseases specialist Thomas C. Bailey, MD, professor of medicine, “but increasingly physicians can rely too heavily on technology to make a diagnosis without listening to what patients — or patient’s family members — are telling them.”

There also can be value in the redundancy of an medical school/teaching hospital approach, he says, where multiple people take a patient’s history.

“Important details may be uncovered by one person but not another,” Bailey says. “And it’s not uncommon for a medical student — particularly the smart students here — to uncover a critical clue.”

BY CAROLINE ARBANAS
Infectious disease doctors at the School of Medicine routinely play the role of medical detectives, tracking down clues to diagnose unusual illnesses in patients. But of all the obscure diseases they see, this one stood out as truly bizarre.

It began when a 31-year-old man walked into Barnes-Jewish Hospital’s emergency room with fever, chills, shortness of breath and a cough. He already had been evaluated at a local urgent care center; doctors sent him home after tests for mono­nucleosis and strep throat came back negative.

Several days later, when his symptoms had not subsided, the patient went to an emergency room near his home for treatment. Results of blood tests, a chest X-ray and a lumbar puncture revealed nothing out of the ordinary. Because he had been on a camping trip several weeks earlier, doctors prescribed a seven-day course of an antibiotic to treat a suspected tick-related infection.

But a week later, the patient’s symptoms had worsened. He also was experiencing chills, rigors, drenching night sweats and headaches. This time, doctors prescribed another antibiotic, to no avail. Along with the shortness of breath, he had developed chest pains and was losing weight.

By the time the patient arrived at Barnes-Jewish Hospital, he’d had symptoms for more than two weeks. In the emergency room, doctors learned that he had visited Mexico six weeks before his symptoms — which mirrored those of malaria — developed. They also were worried about the possibility of a blood clot in the lung.

Doctors performed blood tests, a chest X-ray and a CT scan. As a precaution, the patient was prescribed an anti-malarial medication and admitted to the hospital for a consult with an infectious diseases physician. The chest X-ray and CT scan showed fluid around the lungs and a mass in the right lung. Blood tests revealed elevated levels of eosinophils, a type of disease-fighting white blood cell. The findings suggested that the patient might have cancer, possibly lymphoma, which is associated with lingering fever and a high eosinophil count. But they could also point to an autoimmune disease, allergy or even a parasitic infection.

“You have to be a bit of a detective and remain open to all the clues,” says Bailey, who later diagnosed and treated the patient. “As doctors, we are taught that unusual presentations of common illnesses are far more common than classic presentations of rare diseases. In this patient’s case, the duration of his symptoms already defined him as having something unusual, if not rare.”

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A fourth-year medical student was the first to see the patient after his admission to the hospital. She took a careful history and then examined him. The patient could not recall anything remarkable about his trip to Mexico or a recent camping trip on the Current River that might explain his illness. As an aside, his wife, who was in the room, casually mentioned that he had eaten two raw crayfish — on a dare — during the camping trip. The student noted the information and discussed the case with Bailey a short time later. Together, they went over the physical exam, laboratory results and the patient's medical history. Then, she told Bailey about the raw crayfish.

"That was a major clue," says Bailey, who recalled that in Asia eating raw or undercooked crabs can cause a parasitic infection. He quickly Googled crayfish, along with some of the patient's symptoms, and up popped reports of a rare parasitic lungworm infection called North American paragonimiasis, which had been described in patients who had eaten raw crayfish. The scenario fit perfectly. "I said, that's it," Bailey recalls. "That's what he's got."

Bailey prescribed the appropriate medication, even as he and other doctors worked to rule out other, more common illnesses. However, the patient's symptoms began to improve within two days and completely resolved within two weeks. But the paragonimiasis story doesn't end with this patient's case. Infectious diseases doctors at the School of Medicine have been diagnosing an increasing number of cases of the illness in recent years in patients who have consumed raw crayfish caught in Missouri's rivers and streams. Five such cases have occurred in the past year alone.

"The infection is very rare, so it's extremely unusual to see this many cases in one medical center in a relatively short period of time," says infectious diseases specialist Gary J. Weil, MD, professor of medicine and of molecular biology, who treated some of the infected patients. Because community doctors are generally not aware of paragonimiasis, many of the patients seen at the medical center had received multiple treatments for pneumonia, courses of steroids for possible autoimmune diseases, or had undergone invasive procedures before they were referred to Barnes-Jewish or St. Louis Children's hospitals for treatment. One even had his gallbladder removed.

The rising rate of paragonimiasis infections prompted the Missouri Department of Health and Senior Services to issue a health advisory about the infection to alert doctors across the state. The department also printed posters warning people not to eat raw crayfish and placed them at campgrounds and canoe rental businesses.

The message for physicians is to consider paragonimiasis in patients who present with chronic cough, fever, fatigue and elevated eosinophils. "Some of the invasive procedures could have been avoided if the patients had received a prompt diagnosis," says infectious diseases specialist Michael A. Lane, MD, instructor of medicine, who also treated some of the infected patients. "We hope more doctors will now have this infection on their radar screens."

It's unclear why more cases of paragonimiasis are being diagnosed, but doctors and researchers at Washington University continue to study the parasite and have made progress in developing better diagnostic tests for the infection. Diagnosing such interesting cases is what makes being an infectious diseases doctor so interesting, says Bailey.

"Every time you see a new patient," he says, "you have to be open to the possibility that the diagnosis could be something highly unusual."

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It's unclear why more cases of paragonimiasis are being diagnosed, but doctors and researchers at Washington University continue to study the parasite and have made progress in developing better diagnostic tests for the infection. Diagnosing such interesting cases is what makes being an infectious diseases doctor so interesting, says Bailey.

"Every time you see a new patient," he says, "you have to be open to the possibility that the diagnosis could be something highly unusual."
In 2013, the American Psychiatric Association (APA) will publish the fifth edition of its *Diagnostic and Statistical Manual of Mental Disorders*, a thick, well-respected publication that contains the latest diagnostic criteria, drawn from rigorous scientific studies. But only a few decades ago, the slender DSM-II reflected a very different field, with vague definitions of psychiatric illnesses based on scanty scientific data.

“Troublemakers” in the Department of Psychiatry later were hailed for having reshaped the profession.

BY CANDACE O’CONNOR

Everywhere, psychiatry departments were dominated by psychoanalysts, who focused on Freudian theory.

“I remember one meeting, when I told a psychiatry professor about a study I had read showing that no two psychiatrists could agree better than chance on diagnosis,” says retired Washington University psychiatrist George E. Murphy, MD. “He said: ‘But then our diagnoses don’t mean anything,’ and I replied: ‘That’s exactly true.’ And he never spoke to me again, because that was too bitter a pill to swallow.”

In their profound disagreement with the psychoanalytic model — and their determination to forge a new, evidence-based brand of psychiatry — Washington University psychiatrists stood virtually alone. At scientific meetings, they were often shunned, their papers ignored; they faced rejection upon rejection in applying for research grants. But they persevered.

“There was a spirit in that department of open thinking about psychiatric illness, a kind of free-floating intellectual energy,” says Charles F. Zorumski, MD, the Samuel B. Guze Professor and head of the Department of Psychiatry. “The faculty were very bright and very articulate, and the place became a magnet for these creative people to come together.”

CONTINUED ON PAGE 20
In a half century, psychiatry went full circle from the stereotypical analyst's couch to the lab, the pharmacy, the brain scanner and back to personalized therapies. The critical difference that emerged is that a discipline founded on intuition now relies on evidence-based methodologies. Parts of this transformation began in the Department of Psychiatry at Washington University School.
of Medicine. Iconoclasts here dared challenge the precepts of their profession. Their pioneering research still inspires successors to pursue similar goals in the understanding of psychiatric illness. *Demystifying Psychiatry*, by Charles F. Zorumski, MD, and Eugene H. Rubin, MD, PhD, explains what trends in psychiatry have meant for patients and families.

**MEDICATIONS**

Once psychiatric illnesses became better defined, serendipitous discoveries linked drugs to potential behavioral modification. The success of early drug therapies ushered in an explosion of new psychotherapeutic drugs. Despite the drugs' effectiveness, the concept of "take this pill and you'll feel better" oversimplified the complex interplay of life experiences, neuroanatomy and genetics.

**INDIVIDUALIZATION**

Evidence-based medical models are now standard. Current state-of-the-art treatment combines biological, psychological and social approaches to care — the "biopsychosocial" approach. Through better understanding the particulars of each patient, tomorrow's psychiatrists will apply a wider range of targeted therapies than ever before, including new avenues of brain stimulation and mental "exercises."

**NEURONS & GENES**

The human brain remains the undiscovered country. Advances in neuroscience — especially greater understanding of brain networks — will revolutionize psychiatric theory. Likewise, genetic research has begun to reveal the complexities of individual responses to specific therapies. An information explosion from collaborative, multidisciplinary networks of specialists ensures a bright horizon for psychiatry.
The Department's Accomplishments

Through their efforts, these university psychiatrists moved their field toward a new "medical model" of psychiatry that culminated in the publication of the DSM-III in 1980. For the first time, this psychiatric bible contained specific diagnostic criteria for all 200 categories of mental disorder — and omitted psychoanalytic concepts, such as "neurosis," that had previously been part of the psychiatric lexicon.

"The DSM-III was the completion of a major paradigm shift," says Eugene H. Rubin, MD, PhD, professor of psychiatry. "It was a new way of thinking, and that shift became profoundly influential."

A New Approach

In 1942, Washington University's combined Department of Psychiatry and Neurology attracted a new head, Edwin F. Gildea, MD, a Yale psychiatrist and dedicated researcher. A Harvard colleague, Mandel Cohen, MD, was delighted at Gildea's appointment. A staunch foe of psychoanalysis in a city dominated by analysts, Cohen was eager to spread his scientific approach, and he urged a talented protégé, Eli Robins, to accept an appointment in Gildea's department.

Robins arrived at the university in 1949 with his wife, Lee Nelken Robins, later a key founder of psychiatric epidemiology. In 1954 came George Winokur, MD, a strident enemy of psychoanalysis, followed the next year by Samuel B. Guze, MD, a skilled internist who shifted to psychiatry. These three worked closely and collegially, joined by others: Murphy, Richard W. Hudgens, MD, Robert A. Woodruff Jr., MD, Paula J. Clayton, MD, Ferris N. Pitts, MD, Donald W. Goodwin, MD, and Rodrigo A. Mutoz, MD.

"I really revered Eli Robins," says Hudgens, professor of psychiatry. "He was brilliant and exceptionally kind. He was a wonderful teacher, broadly read, who taught both by precept and by example."

The Department's Accomplishments

In the mid-1950s, Robins, Guze and Winokur persuaded Gildea to let them take over the educational aspects of the department; in 1963, Robins became head. Soon the three began making changes: Each resident would have to do some research. Residents, and eventually medical students, would learn an evidence-based approach to clinical psychiatry.

"What are your data? That became the question. Freud would say something, and it became like Moses saying it," says Hudgens, a 1956 graduate who returned in 1963. "There was a whole concept of orthodoxy in psychoanalysis. Well, here they didn't have anything to do with that kind of 'because I said so' thinking."

While using the latest clinical tools — medication, electroconvulsive therapy, psychotherapy — faculty members also embarked on groundbreaking research. Together, Robins and Murphy conducted a major study of suicide, but when they tried to publish the results in the American Journal of Psychiatry, the editor — a psychoanalyst — expunged all the diagnostic terms from the paper.

"That would have ruined the paper," says Murphy, "except that Eli was smarter than that, and he put the diagnostic terms in the legends for the figures and drawings. So we got it out there after all."

In 1972, they achieved an important milestone: the publication of a seminal paper, "Diagnostic Criteria for Use in Psychiatric Research" by resident John P. Feighner, MD, et al., which established 15 major categories of diagnosis. Then a 1974 book — Psychiatric Diagnosis, written by Woodruff, Goodwin and Guze — further codified these ideas. Many Washington University residents took jobs around the country and became missionaries for this effort.

DSM-III

In the 1970s, psychiatrist Robert L. Spitzer, MD, of Columbia University, was asked to chair the APA task force charged with developing a DSM-III. Among its 19 members, he appointed five who had trained or taught at Washington University. With his colleagues, Spitzer, who had already worked with Eli Robins on expanding the Feighner categories, believed that the time had come for the use of operational criteria for psychiatric diagnosis.

As successive drafts of the DSM-III made the rounds of the psychiatric community for field testing, the committee was surprised by the reaction. Few readers focused on the inclusion of diagnostic criteria; instead, they irately objected to the elimination of psychoanalytic concepts. However, the committee persisted and, with only a few compromises, the APA ratified the book's publication.

Proponents cheered the DSM-III as a victory for science. Now clinical practice and research would center on psychiatric diagnosis, and psychiatrists worldwide would speak a common language.

"For the first time, when someone in England said that you have schizophrenia and someone here said you have schizophrenia, they were talking about the same disorder," says Rubin. "The DSM-III standardized things."

The Future

Today, the Department of Psychiatry has ambitious plans on the horizon. Though DSM-V is in process, they are more focused on DSM-VI, some 15 years ahead. By then, they will have functional information about brain structures from a major brain-mapping project (see page 2) soon to be undertaken by David C. Van Essen, PhD, professor and head of anatomy and neurobiology. Through his work, they hope to understand the breakdown of brain systems in psychiatric disorders and design targeted therapies to treat them.

"Our job — what we have inherited — is to be troublemakers, and I like that," says Zorumski. "We want to keep reminding people that we haven't done enough and to keep asking: 'Where is the next thing coming from?'"
Hip surgery isn’t just for the elderly anymore. And for good reason.

Robert O’Dell was a 23-year-old U.S. Marine and a competitive martial artist in the winter of 2007, when pain in his hips began to intensify and interfere with his mobility. With a family history to alert him and a diagnosis of bilateral, developmental hip dysplasia — shallow hip sockets — he feared that degenerative arthritis in his hips was around the corner, followed eventually by two total hip replacements. He had a vision of himself “in a wheelchair at 30,” he says.

And had it been just 10 years earlier, O’Dell might have been correct. Historically, hip disease in young people was treated non-surgically as a pain issue, anticipating the progression of osteoarthritis, culminating in hip replacement. But recently, thinking about young people and hip pain has undergone a sea change. “We didn’t fully understand or know how to diagnose and treat young patients. But over the past decade we’ve developed an understanding of osteoarthritis of the hip and what leads to it. Now we know more about the anatomy of the hip and the effects of mild deformities” says John C. Clohisy, MD, the Daniel C. and Betty B. Viehmann Distinguished Professor of Orthopaedic Surgery and director of the Center for Adolescent and Young Adult Hip Disorders.

Instead of waiting until advancing arthritis dictated hip replacements, Clohisy, who is on the medical staffs of Barnes-Jewish and St. Louis Children’s hospitals, performed a periacetabular osteotomy on O’Dell’s left hip in July 2009, and on the right side in January 2010.

BY STEVE KOHLER
Repairs beat replacing

It dances, it runs, it curls up with a good book — the human hip is a marvel of natural engineering. But like all mechanical wonders, it can go wrong. A malformed hip spells pain and limited motion, leading to further damage that requires total replacement. Instead, orthopedic surgeons can reshape and stabilize these joints early on, getting young adults back in the game of life and keeping their hips healthier for the long run.

In the procedure, Clohisy makes a series of bone cuts to loosen the hip socket from the pelvis. The hip socket is then repositioned to create a deeper, more stable, hip joint.

Because his condition was corrected before the joint deteriorated, O’Dell says he had 100 percent correction on both sides. “Miracle surgery,” he calls it. He can run and has earned a score of 297 out of a possible 300 on the U.S. Army’s physical fitness evaluation. He left the Marines and is in the process of being hired by Homeland Security as a border patrol agent, a position in which he can use his experience and restored physical abilities in service to the country.

As it was in O’Dell’s case, the most common cause of dysplasia is a developmental deformity. And although O’Dell’s high level of activity and athleticism may have called early attention to the problem, they were not causal, Clohisy says.

Impingement, another form of hip disease frequently treated at the center, is also most often traceable to a developmental deformity of the hip. It occurs when the socket is too deep or the ball is misshapen. When the hip flexes, abnormally high friction causes pain and eventually damages the ball and/or socket surfaces or the soft tissue around the rim of the socket. Common in athletes, the problem is frequently misdiagnosed — sometimes even as a groin injury. Of course, the rest and pain management prescribed for a pulled muscle do not effectively treat hip impingement.

However, effective surgical treatments have been developed, and diagnosis is now much more precise. At the center, the most common treatment is hip arthroscopy, a procedure in which a fiber-optic camera is inserted through a small incision, allowing the surgeon to visualize the hip. Specialized instruments facilitate repair and some recontouring of the natural bones. In more complex cases, open surgery may be called for, to correct major deformities that are not accessible with arthroscopic techniques. Both arthroscopic and open surgical techniques can be very effective in relieving the impingement and improving hip function.

The purpose of these rapidly advancing approaches and techniques is universally to relieve pain, improve function and delay or perhaps even prevent the onset of arthritis, according to Clohisy. Taken collectively, they go by the name “hip preservation surgery.”

But that goal is not always possible. Rachel Van Winkle was only 9 years old when she was diagnosed with systemic juvenile rheumatoid arthritis, a chronic autoimmune disease that causes inflammation of the joints and their protective tissues. A progressive illness, it leads to destruction of the joint.

Van Winkle was 14 when she had gotten as much use as possible out of her hips, and pain told her and her physicians that something had to be done. At the center, the physicians found her arthritis was advanced and the natural hip joints needed corrective surgery to perform training moves such as this.
were ruined. They determined that complete hip replace-ments were called for — the right hip at age 14 and the left three years later.

Van Winkle’s hip replacements are five years in her past, and she is preparing to graduate from college. She now sees Clohisy on a two-year schedule, and together they expect that she will get 20, or even more, years of use out of the joints.

Any decision to replace a young person’s hip joint comes only after careful consideration by the center’s members. According to Heidi Prather, DO, associate professor of orthopaedic surgery and chief of the section in physical medicine and rehabilitation, when Clohisy created the center and invited participation of multiple disciplines, it was not just lip service. “The group is unique; it fully integrates those who are not surgeons. ‘We work together to evaluate, treat and research, looking at each problem from every angle.’”

Prather sees all patients, even those referred directly to one of the surgeons and those with undiagnosed hip pain. “There’s a lot of back and forth. In the clinic we share, I often convince surgeons to try something diagnostically,” she says. “We take great care to be specific about the patient’s history and physical exam. We need to be sure that what we see on an image is really the problem; that we are imaging the right thing.” Members’ close cooperation and open communication contributes to the center’s clinical success, she says.

A third principal, Perry L. Schoenecker, MD, professor of orthopaedic surgery and chief of pediatric orthopaedics at St. Louis Shriners Hospital for Children, performed joint preservation surgery on adults for 30 years and now concentrates on children, rounding out the comprehensiveness of the center and bringing care to that previously underserved population.

He says the collaboration in the group goes well beyond what is common in most such centers. He and Clohisy often work together in the operating suite as co-surgeons and have performed more than 300 periacetabular osteotomies. “It’s synergistic,” he says. “When things get difficult, the combination sees us through. We’re both technically demanding of our craft, and where a lone surgeon might settle for a less-than-perfect solution, one of us often says, ‘I think we can make that better.’”

To push back the number of young patients who need replacements and advance hip preservation treatments, members participate in a range of research projects. A multidisciplinary group studies diagnosis, treatment and outcomes, involving physical therapists, biostatisticians, psychiatrists, radiologists and basic scientists looking at the progression of pre-arthritis hip disease.

Center member Linda J. Sandell, PhD, the Mildred B. Simon Research Professor of Orthopaedic Surgery and professor of cell biology and physiology, is an expert in osteoarthritis, studying the mechanisms that mediate joint deterioration. Her clues: tissues removed from affected joints and their proteins and enzymes that lie outside the norm.

Members also lead the eight-center Academic Network of Conservational Hip Outcomes Research (ANCHOR) study group which enrolls more than 500 patients each year in various studies. Clohisy and his multicenter colleagues staff the coordinating center located at Washington University.

“What we’re learning is that there are major advantages to preserving the joint,” he says. “Hip replacement may have to be done, but we don’t want to do it in the patient’s teens, 20s or 30s unless there is no other choice.”
Patients temper the world of blood tests, bone scans and cancer treatments with the therapeutic power of artistic expression.

A GROUP OF ADULTS meets regularly in a room at the Center for Advanced Medicine (CAM) at Washington University Medical Center to learn how to shade with charcoals, master watercolor strokes, and mold and shape clay. These students may be rediscovering art after many years or learning techniques for the first time. But they also share another common bond — battling cancer.

"I teach participants simple techniques and move them forward through different media," says Vicki L. Friedman, a cancer survivor and the facilitator of Arts as Healing, a program designed to help cancer patients use art as a tool in healing and expressing themselves. "I don't do crafts; this is not a craft class," says Friedman. "This is college-level Art 101."

Six years ago, Friedman and colleagues from the School of Medicine's Medical Photography, Illustration and Computer Graphics (MedPIC) group decided they wanted to find a way to reach out to cancer patients and their caregivers. Thus began Arts as Healing, an initiative implemented at the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine.

Rolling a dolly loaded with acrylic paints and a mannequin to the Infusion Center on the 7th floor of the CAM, Friedman, along with the MedPIC group, including manager Marcy H. Hartstein and senior graphic designer Andrea J. Myles, set out to change the tone of the area where cancer patients receive chemotherapy.

"It can be a pretty somber place," says Friedman. "When people asked us why we were there, we told them we wanted to create a permanent piece of art and asked them if they would like to help."

Arts as Healing eventually recruited 200 patients, family members, friends, nurses, doctors and other caregivers to paint squares on the mannequin, which is now displayed at the Barnard Health and Cancer Information Center located in the CAM.

Today, MedPIC has expanded the Arts as Healing program to include studio classes, large group art projects, wellness fairs and support groups. Since its inception in 2005, the program has benefitted more than 5,000 people.

John F. DiPersio, MD, PhD, the Virginia A. and Sam J. Golman Professor of Medicine and director of the Division of Oncology, says Arts as Healing has been a transformative program for many of his patients. "One former patient told me that being in the Arts as Healing program was the only time she wasn't reminded that she was sick and in a hospital," DiPersio says. "It was the only time she felt free."
That's certainly been the case for breast cancer survivor Antoinette Crayton. After her diagnosis in July 2009, Crayton underwent a lumpectomy, follow-up surgery for a major infection in her breast, and radiation. One day while walking through the CAM, Crayton saw a sign advertising Friedman's art class.

"I decided I needed to do this," says Crayton, 58, who worked at Southwestern Bell for 32 years and now is a creative writer. "And I'm so glad I did. Coming here and feeling the energy and support of this class is such a wonderful gift."

Kaye Quentin, a 75-year-old who has volunteered at the Saint Louis Zoo for many years, has never thought of herself as an artist. But each time she attends an art class, she is reminded she's not alone in her fight against lung cancer.

"I enjoy talking to everyone," says Quentin. "It's nice knowing that we're all in this together and are all hoping for remission. You constantly live with the possibility that your cancer will return."

George Watson, 58, learned to draw in high school and always felt he would get back to his art some day. A diagnosis of colon cancer in March 2005 brought him to the Arts as Healing program. "This class has inspired me," says Watson. "It also lifts up your spirits and keeps your mind occupied."

On September 24, more than 40 patients in the Arts as Healing program displayed some of the art they have created at the Hope Grows Art Show at the Duane Reed Gallery in St. Louis. Along with their work, the artists posted biographies that described their individual journeys with cancer. "This was their night," Friedman says. "We wanted them to enjoy being artists and bask in the moment."

To learn more about the Arts as Healing program and to view additional patient art, please visit outlook.wustl.edu.
Fulfilling a dream

Program in Occupational Therapy benefits from couple's gift of gratitude

When Alice Cinader Oyer, OT 52, treated patients in clinic who had suffered strokes, she realized that addressing patients' emotions was a vital part of their recovery. Oyer also taught classes about the psychiatric aspects of occupational therapy and strongly encouraged her students to observe all aspects of patients' lives.

"The physical disabilities of a patient who has had a stroke are more concrete," says fellow occupational therapist Claire N. Glasser, who taught with Oyer at Kean College (now Kean University) in Union, N.J., for a number of years. "With psychiatry, you have to dig a little to find out what's going on. I think Alice taught that important skill to her students."

Alice Oyer was also known for her rapport with students and willingness to help others. "She was an endearing person," says Glasser, "and one of the most extraordinary people I've ever met."

Alice Cinader is remembered at Washington University as an excellent student with a great deal of poise and a wonderful sense of humor. She was held in high esteem by her peers as well as the faculty.

Her gratitude for her Washington University experience, coupled with her husband's appreciation for his own education, motivated the Oyers to endow a student scholarship in occupational therapy through their estate.

But after Alice Oyer's death in 2006, Calvin decided to go ahead and establish the scholarship with an outright gift to the Program in Occupational Therapy.

"This would mean so much to Alice," Calvin Oyer says. "She was a soft touch and wanted to help those in need."

The demand for scholarships is significant and is expected to increase in years to come. The annual cost for a student...
in the Program in Occupational Therapy is about $50,000, including tuition, room, board, and books. Starting salaries and average annual salaries in the field are outpaced by the debt burden experienced by occupational therapy graduates.

M. Carolyn Baum, PhD, OTR/L, FAOTA, the Elias Michael Director of the Program in Occupational Therapy, says the Oyers' gift is extremely important to the program. "The generosity and foresight of the Oyers will benefit occupational therapy students for years to come," says Baum, who also is a professor of occupational therapy and of neurology. "Many top students would not be able to attend Washington University without the benefit of scholarship support. Gifts from alumni like Alice Oyer pave the way for future occupational therapists."

Calvin Oyer and Alice Cinader met while Alice was completing a rotation in occupational therapy at Indiana University as part of her degree and Calvin was a medical student there.

After they both graduated and then married, they moved to Ann Arbor, Mich., where Calvin interned in internal medicine and Alice worked as an occupational therapist at a vocational rehabilitation center. They started a family after a few years, and Alice stayed home with their four children.

Years later, Alice earned her master's degree in occupational therapy at New York University before serving on the OT faculties of New York University and Kean College. In 1988, the Oyers moved to Providence, R.I., where Calvin, a pathologist who studies cardiovascular anomalies in fetuses and neonates, joined the faculty of Brown University's medical school.

Calvin Oyer says Alice was a devoted mother and the world's greatest grandmother to their 10 grandchildren. An avid reader, she often took her grandchildren to libraries and bookstores and found great joy in introducing them to literature.

In their spare time, the Oyers enjoyed attending the theater, visiting their grandchildren and hiking. They visited the Grand Canyon, Lake Louise in Canada, and Aspen, Colo. They also spent time cross-country skiing.

"She was a wonderful wife," Calvin Oyer says. At her 50-year Washington University School of Medicine Program in Occupational Therapy reunion, which she was instrumental in arranging, Alice Oyer marveled at the program's spacious facilities.

"She was incredibly gracious and kind, so pleased that the OT program at WU had grown," Baum says. "She couldn't believe how much things had changed since she was a student here."

Calvin Oyer says it is satisfying to fulfill his wife's dream of establishing a scholarship.

"We hope that other alumni, as they get older, will feel as Alice and I did about giving back," he says.

The couple also has given generously to the Eliot Society at Washington University through the years and established scholarships at Brown University.
pple of the Day

BY DIANE DUKE WILLIAMS

Caregiver inspires crusade
Patient spearheads fundraising efforts for research into rare disease

For 20 years, Kim Morey wondered and worried if she had inherited the devastating disease that killed her father at age 49. But she continued with her life, getting married and having three children, in her hometown of Bentonville, Ark.

In her early 40s, Morey noticed a blurry spot in her eye. An ophthalmologist she saw reassured her that the spot was just a floater.

But when an MRI the next year discovered a lesion on her brain, Morey knew that she had inherited the gene that causes cerebroretinal vasculopathy (CRV).

Defining the disease
Morey's doctor suspected the lesion was a sign of multiple sclerosis and referred her to a neurologist, but Morey had a special reason she wanted to see a physician at Washington University. She made an appointment with rheumatologist John P. Atkinson, MD, the Samuel Grant Professor of Medicine and the same doctor who had treated her father and through him identified CRV as a new genetic disease in 1988.

CRV is a rare disease that causes the progressive loss of tiny blood vessels, resulting in mini strokes in the brain. There is no treatment or cure. Patients, who usually have no symptoms until their early 40s, have a life expectancy of five to 10 years following diagnosis.

In a family that carries the CRV gene, 50 percent of the children will inherit the disease.

Atkinson and retinal specialist M. Gilbert Grand, MD, professor of clinical ophthalmology and visual sciences, initially identified CRV. Atkinson, Grand and their School of Medicine colleagues have been working for several decades to discover more about the disease. Through collaborations

John P. Atkinson, MD, and Kim Morey at the medical center's Ellen S. Clark Hope Plaza, named in memory of Ellen S. Clark, who succumbed to CRV in March 2010.
When arbors lose their limbs

A tree trunk extends into ever-finer branches. Blood vessels branch similarly, albeit on a micro scale, in “arborized” patterns. In the hereditary disease called cerebroretinal vasculopathy (CRV), portions of central nervous system vasculature simply wither away. For example, the eye at left shows less arborization than normal. Circles indicate regions where blood vessels have vanished; blind spots may result. In the brain at right, a loss of small blood vessels led to a central damaged core, surrounded by swelling not unlike that seen following a traumatic brain injury.

with physicians and scientists at the University of California, Los Angeles, and Leiden University Medical Center in the Netherlands, they have identified 15 families in the world who are affected by CRV. However, it's likely that more families may have CRV, says Atkinson, because it's often misdiagnosed as multiple sclerosis, a stroke or a brain tumor.

For many generations, Morey's family assumed the deaths of her grandmother, her grandmother's mother and other relatives were caused by brain tumors.

But because of the research conducted at Washington University, Morey's three children, Ashton, 19, Tyrus, 18, and Nathan, 12, now could choose at age 21 to find out whether they have inherited CRV.

Morey's only current symptoms of the disease are a few blurry spots in her eyes and fatigue.

"I really try to forget about the disease and live," says Morey, who still enjoys her part-time job as a business analyst at Pactiv, a parent company for Hefty. "We try to live in our house like my disease doesn't exist."

Taking action

Morey, her friends and extended family have taken on the challenge of raising money for CRV research. Through a sample sale at her company and two local golf tournaments in the past few years, they have raised more than $80,000 for what is being called the CRV Project.

Morey, who recently became a grandmother, hopes every day for a treatment that will extend her life. "I am very hopeful that there will be a cure in my lifetime. But most importantly, I want something for my children and grandson."

"I am very hopeful that there will be a cure in my lifetime. But most importantly, I want something for my children and grandson."

— Kim Morey

Rare diseases often get little attention and modest or no research funds. But Atkinson says that research is the key to unlocking the secrets of CRV.

"Through Kimberly Morey's efforts, and those of her friends and family, resources are being provided for this to happen," he says.

Funding from the CRV Project is being used to develop a mouse model of the disease, which will help Atkinson and his colleagues understand the pathophysiology of the disease and possibly find a treatment to slow its progression.

Additionally, the CRV Project has provided money for educational purposes. Atkinson and a number of other physicians recently presented a seminar for Morey's extended family from three states and a St. Louis family affected by the disease. "We presented what we've learned about the disease and told them using genetic testing or in vitro fertilization could stop CRV," says Atkinson.

Morey is grateful for the many years Atkinson has devoted to research on CRV and the care she receives from him. "I don't think any doctor could be more dedicated to finding a treatment or cure for this, and I couldn't be in better care," she says. "I can't imagine being in my shoes and not having him as my doctor."

And as he continues to study CRV and treat patients battling the disease, Atkinson says he is inspired by Morey's energy, perseverance and positive attitude.

"I have often thought about how I would behave if I knew I carried a gene for a rare disease that would shorten my life span and that I could pass on to my children," he says. "I just hope that I would react in the courageous, open and remarkably productive manner of Kimberly Morey."
Annual fund remains strong

Once again, the loyalty and generosity of alumni, former house staff, faculty and friends was on full display during the 2009–10 academic year. Led by a record-breaking year for the Eliot Society and another strong Reunion gift effort, the Washington University School of Medicine Annual Fund exceeded $2.35 million.

More than 6,200 alumni and friends made gifts to the School of Medicine Annual Fund in 2009–10. Alumni from the 12 classes that celebrated a reunion in 2010 contributed more than $675,000, and two classes — 1960 and 1985 — established endowed class scholarships.

The School of Medicine's Eliot Society also achieved new levels of success. For the first time in the school's history, membership in the Eliot Society exceeded 1,000, including 252 new members.

The Eliot Society and the Annual Fund are both critical to the continued success of Washington University School of Medicine.

The Annual Fund has an immediate and direct impact on many within our academic community — students, residents, fellows and faculty members. Gifts to the Annual Fund support scholarships for exceptional students, innovative training programs for residents and fellows, and program support in our academic departments and programs.

Scholarships off to stellar start

In November 2009, Chancellor Mark S. Wrighton announced the launch of Opening Doors to the Future: The Scholarship Initiative for Washington University. As part of this five-year, university-wide effort, the School of Medicine established a goal of $25 million.

In the first year of this effort, alumni and friends of the school have responded with gifts and commitments totaling $6.58 million. Over the past several months, the School of Medicine has secured an additional $7 million, bringing total gifts and commitments to $13.5 million — more than 50 percent of the established goal.

During this period, alumni and friends have established 30 new endowed scholarships to support medical, occupational therapy, physical therapy, or audiology and communication sciences students.

Many others have augmented existing scholarship funds, increasing support available to current and future students. Still others have chosen to establish named annual scholarships, which provide immediate support to students with the most significant debt burdens.

The Scholarship Initiative and the incredible response from alumni and friends place Washington University School of Medicine in a tremendous position to compete for the nation's most talented and diverse students.

WUMCAA 2010–11
Nine new alumni join executive council

The Washington University Medical Center Alumni Association (WUMCAA) began 2010–11 with nine new members of the Executive Council. The group, under the leadership of current president Alison J. Whelan, MD 86, HS 89, will continue to seek ways to engage alumni, enhance the educational experiences of current and future students, and boost the reputation and interests of the School of Medicine and its affiliated hospitals.

WUMCAA Officers 2010–11

President
Alison J. Whelan, MD 86, HS 89

President-Elect
Laura Bierut, MD 87, HS 91

Vice President
James Forsen Jr., MD 88, HS 94

Secretary/Treasurer
Subramanian Paranjothi Jr., MD 93, HS 96

Past Presidents
Robert Swarn, MD 83, HS 89
Jennifer Wray Cole, MD 84
Herluf Lund Jr., MD 85, HS 91
Professorships  Commitments to excellence

Kenneth M. Ludmerer, MD
Mabel Dorn Reeder Distinguished Professor in the History of Medicine

Kenneth M. Ludmerer, MD, professor of medicine at the School of Medicine and professor of history in the College of Arts & Sciences, was named the inaugural Mabel Dorn Reeder Distinguished Professor in the History of Medicine on August 31, 2010. The Reeder Distinguished Professorship is named for Mabel Dorn Reeder (1908–2007), the daughter of a prominent South Carolina businessman and state senator. Mabel L. Purkerson, MD (pictured with Ludmerer), co-trustee of the Mabel Dorn Reeder Foundation, was presented with a professorship medallion at the installation ceremony.

John C. Clohisy, MD
The Daniel C. and Betty B. Viehmann Distinguished Professor of Orthopaedic Surgery

John C. Clohisy, MD, professor of orthopaedic surgery, co-chief of adult reconstructive surgery, director of the Center for Adolescent and Young Adult Hip Disorders, and director of the joint preservation, resurfacing and replacement fellowship, was named the inaugural Daniel C. and Betty B. Viehmann Distinguished Professor of Orthopaedic Surgery on August 19, 2010. The Viehmann Distinguished Professorship is named for Dan and Betty Viehmann, who generously funded the endowed distinguished professorship. Clohisy presented a lecture, “21st Century Strategies to Cure Hip Disease” to more than 200 colleagues, residents and friends at the event.

Alzheimer's Disease Research Center named for Knights

More than 200 alumni, family members, friends, faculty and university leaders gathered in the Eric P. Newman Education Center on September 1, 2010, to celebrate the naming of the Charles F. and Joanne Knight Alzheimer's Disease Research Center at Washington University. Chancellor Mark S. Wrighton, Dean Larry J. Shapiro, MD, John C. Morris, MD, and David M. Holtzman, MD, discussed the impact of this important gift and the tremendous research being conducted at Washington University.

The center was named in honor of Charles F. and Joanne Knight in recognition of their generous commitment of more than $15 million to advance Alzheimer's research at the School of Medicine.

Photo above, from left: Lester Knight, Becky Knight, James Knight, Joanne Knight, Steven Knight, Chris Davidson, Anne Davidson, Charles Knight and Jennifer Beckmann pose with the plaque to honor the Knights' contribution.
GROWING UP in rural Missouri, fourth-year medical student Tassy Hayden and her family regularly drove more than an hour to see their physician, who always seemed to be running behind because of the extra time spent with each patient. But they didn't mind the long drive or the hours spent in the waiting room. "Our family physician was an excellent communicator who carefully explained the nature of the illness, the diagnosis, and the proposed treatment," she says.

These interactions fostered Hayden's interest in a career in medicine, a path that ultimately led to Washington University School of Medicine.

Hayden received a BA degree — magna cum laude — in psychology and biology from Washington University. As an undergraduate, she received a Howard Hughes Medical Institute research fellowship and travel stipend, which allowed her to present a poster at the American Diabetes Association conference in 2007.

With her dreams clearly in focus, Hayden applied to medical schools and ultimately chose to remain in St. Louis. "I selected Washington University School of Medicine because the financial aid package was so generous in comparison to other medical schools," says Hayden.

After her first year, Hayden returned to her home in Maryville, where she completed a primary care preceptorship with rural family medicine physicians. It was during this experience that she recognized her passion for primary care medicine.

"Her intelligence is complemented by her outstanding rapport with patients. ... Tassy embodies the qualities we want in our own doctors."

Megan E. Wren, MD 85

"It has been such a pleasure working with Tassy over the years," says Wren. "Her intelligence is complemented by her outstanding rapport with patients. Even as a first-year medical student she was poised at the bedside — professional, yet warm and kind."

Hayden's hard work has paid dividends. She was one of the top students in the Practice of Medicine course and won the Physical Diagnosis Award given by the American College of Physicians.

Hayden has also been involved in several extracurricular activities at the School of Medicine, including the student musical and the Saturday Neighborhood Health Clinic (a free clinic for the uninsured run by medical students). Additionally, she served as co-organizer of Student Support Services, a group dedicated to the health and wellbeing of medical students.

After graduation, Hayden plans to practice medicine in a rural area. "Tassy embodies the qualities we want in our own doctors," says Wren. "I was thrilled when she shared her plan to pursue a career in primary care medicine."
1940s

Purdue Gould, MD 48

Following his graduation from Washington University School of Medicine, Gould spent a year at University of Minnesota as a surgical intern. From 1952-56, he received training at the University of Minnesota in neurosurgery. He entered private practice in neurosurgery in 1956. In 1978, he became the international medical director for the Hospital Corporation of America’s (HCA) 27 overseas hospitals. Gould spent the next five years overseeing HCA operations or aiding HCA in potential development of overseas contracts. Since 1983, he has been involved in teaching boating safety to the public and in celestial navigation with the United States Power Squadrions, a boating and safety education group. Gould also spends one to two days each week as an unpaid planning consultant with a large software teaching company.

Helen Bennett Paust, BSN 48

After 25 years as a psychiatric nurse at Seton Shoal Creek Hospital in Austin TX, Paust retired and has worked for 14 years as a volunteer at the University Medical Center Breckenridge (UMCB). Her efforts there include sewing and knitting items for the UMCM/Komen Austin Breast Cancer Patient Project and raising money for the hospital’s planned Tranquility Garden. She recently was honored with a Spirit of Service Award from the Retired and Senior Volunteer Program of Travis County as an outstanding older adult volunteer whose activities have made a significant difference to the community.

1950s

Philip Norman, MD 51

After 54 years at Johns Hopkins School of Medicine, Norman remains active as professor of medicine in the Allergy and Clinical Immunology Division that he helped found in 1970. He attends clinic one day each week where he sees patients and teaches a postdoctoral fellow in allergy and immunology.

Richard Hudgens, MD 56

Hudgens works full time as professor of psychiatry at Washington University School of Medicine, seeing patients and teaching students and psychiatry residents. He and his wife, Shirley, stay busy with children, grandchildren and great-grandchildren, many of whom live in the St. Louis area. Hudgens recently spent two weeks in Nova Scotia.

Bill Reynolds, MD 56

Reynolds retired from full-time endocrine-internal medicine practice at the Western Montana Clinic in Missoula MT in 1994. After retiring, he worked as a part-time consultant in endocrinology for seven years. During that same time, he was involved in the governance of the American College of Physicians (ACP), serving on the governing board and as president, followed by six years on the governing board of the new ACP Foundation. Now fully retired, Reynolds and his wife, Jo, spend summers at their lake cabin. The rest of the year he is involved in the governance of and fundraising for Intermountain Children’s Home and Services headquartered in Helena MT. He greatly enjoys spending time with his three children and five grandchildren.

1960s

Stanford Lamberg, MD 63

Lamberg transferred his dermatology practice to a Johns Hopkins colleague three years ago in order to market medical documentation software, PCArchiver, which he designed and now sells worldwide. The online business has enabled Lamberg and his wife, Lynne, (married 48 years) to travel frequently. They have spent the last two winters in New Zealand and will be in Argentina this winter. Lamberg has done some teledermatology, while the company has expanded to Guatemala, and now continues this work for a mission in Ethiopia. He enjoys road biking several times a week and goes on at least six road bike trips a year (this year in Vietnam, India, Patagonia, and across Iowa, Louisiana, Virginia, and down the Hudson Valley). The Lambergs recently established named annual scholarships in Medicine and Arts & Sciences.

Gordon Schaye, MD 63

Schaye has an active ENT practice with Health Care Partners Medical Group in Los Angeles CA. He and his wife, Carmen, own a company called Historic Home Restorations. They manage short-term vacation rentals for properties in Santa Fe NM and Mexico City, Mexico, as well as long-term rentals in Los Angeles CA and Charleston SC.

George Powell, MD 64

Powell is retired and living on the Georgia coast after spending 26 years as a U.S. Army surgeon and 14 years in private practice in Augusta GA. During his career, he served in Vietnam and as an on-board trauma surgeon for NASA during ocean recoveries for Apollo and Skylab missions. He held associate clinical professor positions at four different medical schools, became program director for surgical residency programs in El Paso TX and Augusta GA, and finally served as a surgical consultant to the Surgeon General of the U.S. Army. Powell and his wife of 36 years, Alice Jane, have four children and four grandchildren. He feels he owes much to Washington University School of Medicine; this passion inspired him to set up a scholarship for current Washington University medical students.

Herbert T. Abelson, MD 66

Abelson has been honored by the trustees at the University of Chicago Hospitals and Pritzker School of Medicine with the establishment of the Herbert T. Abelson Endowed Chair. The first recipient is David Gozal, MD, the new chairman of the Department of Pediatrics and pediatrics-in-chief at Comer Children’s Hospital.

Allan C. Campbell, MD 67

Although Campbell retired from full-time practice at the end of 2007, he has continued with dermatopathology consultations. He also teaches at the University of Illinois College of Medicine in Peoria as a clinical professor of pathology and dermatology and serves as chair of the Department of Dermatology. He is president of the board of the Spurlock Museum, an archaeology/anthropology museum located on the
Marilyn Escobedo, MD 70
Escobedo is the Reba McEntire Endowed Chair in Neonatology, chief of neonatal-perinatal medicine in the Department of Pediatrics, and program director for the fellows in neonatology at the University of Oklahoma. She served with the Neonatology Workgroup of the International Liaison Committee on Resuscitation and is active in the Perinatal Section of the American Academy of Pediatrics, having served as the first woman chair of that group. She developed the baboon model of bronchopulmonary dysplasia which has been used for the past 20 years; her current interest is in newborn resuscitation.

Barry Ludwig, MD 71
Ludwig is a clinical professor of neurology at UCLA Medical Center. His daughter, Meaghan A. Ludwig, LA 10, recently graduated summa cum laude from Washington University.

Charlotte Jacobs, MD 72
Jacobs has recently become professor emerita of medicine in oncology at Stanford University. A biography she authored, Henry Kaplan and the Story of Hodgkin’s Disease, was recently released and named one of the top five medical biographies by the Wall Street Journal.

Michael Finkel, MD 73
Finkel practices neurology in Naples FL with Physicians Regional Medical Group. Active within the neurological community, he is president of the World Neurology Foundation, which works to improve neurological education, care and services in countries that do not have the same resources as the United States. The foundation is a funding supporter of the Florida – African Neuroscience Partnership formed by the Florida Society of Neurology, the Nigerian Stroke Society, and the Nigerian Society of Neurological Sciences. The partnership is intended to develop ongoing relationships that will help Nigeria improve its basic and clinical neurosciences. In addition to his advocacy work, Finkel has taken up golf and remains an avid gardener.

Thomas S. Harbin Jr., MD, MBA, HS 75
Harbin, a glaucoma, cataract and related diseases specialist at Eye Consultants of Atlanta, P.C., in Atlanta GA and a clinical professor emeritus of ophthalmology at Emory University, is the author of Waking Up Blind: Lawsuits Over Eye Surgery.

James Reitman, MD 75
Reitman, an internist retired from the U.S. Air Force, is currently medical director of a local clinic for the medically indigent in Colorado Springs CO and adjunct professor of hermeneutics at Denver Seminary. He recently published a commentary on the theology of disillusionment and mourning, Unlocking Wisdom.

Darrell D. Walter, MD 80
Walter resides with his wife, Patricia, in Covina CA, where he is a cardiologist at the Magan Medical Clinic Inc. He enjoys his volunteer work with Calvary Chapel Golden Springs and also found great meaning in his medical outreach to the city of New Orleans shortly after Hurricane Katrina.

Grace Tannin, MD 85
Tannin is a pediatric endocrinology specialist and an associate professor of pediatrics at UT Southwestern Medical School in Dallas TX. She and her husband, Howard Denemark, reside in Dallas with their children.

William S. Schwab, MD 90, PhD 90
Schwab recently gave grand rounds at the University of California, San Francisco, on Home-Based Multidisciplinary Treatment of Chronic Illness. The presentation was based on work he has done as the chief of geriatrics for the Ohio Permanente Medical Group, where he has been since 2001. He serves nationally on the Kaiser Permanente Aging Network Leadership Team, as a member of its guidelines and ethics committees, and as lead physician for dementia and related disorders.

Rebecca Wolfer, MD 90
Wolfer is a thoracic surgeon and associate professor in the Department of Surgery at the Joan C. Edwards School of Medicine at Marshall University in Huntington WV. She resides in Barboursville WV.

Jennifer Dunn, MD 00
Dunn is a partner at Northwest Pediatrics in St. Louis MO. She completed her residency and chief residency at St. Louis Children’s Hospital and has given the “Outstanding Primary Care Pediatrics” lecture to second-year students at Washington University School of Medicine. Dunn resides in Webster Groves MO with her husband and two daughters.

Christina Fong, MD 00
Fong completed her residency at The George Washington University. She resides in San Francisco CA and is assistant chief in the Department of Emergency Medicine at Kaiser South San Francisco.

William J. Miller, MD 43
Miller, a prominent Jackson County OR physician, died on April 28, 2010. He completed a pediatric residency at Milwaukee Children’s Hospital and served with the U.S. Army Medical Corps during World War II. In pediatric practice for more than 30 years, from 1951 to 1982, he served as president of the joint medical staff at Rogue Valley Medical Center in Medford OR. He was a member of the Jackson County Medical Society and the North Pacific Pediatric Society, both of which he served as president. He also worked as a staff physician at the Veterans Administration in White City OR from 1982 to 1987, from which he retired.

IN MEMORY

Winter 2010
in 1964 and later became chair of the Department of Orthopedics, a duty that was interrupted in 1975 when he proudly served in Vietnam on the hospital ship USS Sanctuary as chief of the orthopedic department. He later joined a multi-specialty group, Smith Hanna, where he practiced until 1983. He then returned to the Naval Medical Hospital as a civilian physician and served as director of the major joint service until he retired from surgery in 1992. He continued consulting for an additional seven years.

William R. Cole, MD 52
Cole died on July 14, 2010. He was a U.S. Air Force World War II veteran, earning the rank of second lieutenant and serving as a co-pilot of a B-17 aircraft. After retirement from medicine, he completed law school at Southern Methodist University. An avid flyer, he ran an aviation school, the Sedalia Flying Service, for many years. He also enjoyed playing golf.

Selna L. Kaplan, MD 55
Kaplan, a distinguished pediatrician who led the first nationwide clinical trials of artificial human growth hormone produced by genetic engineering, died on July 21, 2010 at the Jewish Home of San Francisco after a long period of Alzheimer's disease. She was 83. A professor of pediatrics at the University of California, San Francisco, for nearly 40 years, Kaplan was a specialist in the hormonal disorders of children and created a world-class training program for doctors in the field of pediatric endocrinology.

H. Marvin Camel, MD, HS 55
Camel, professor emeritus of obstetrics and gynecology, died on March 22, 2010, at age 85. He first came to Washington University Medical Center in 1950 as an intern at Jewish Hospital. He completed a residency in obstetrics and gynecology at Barnes Hospital in 1955, and then was on the clinical faculty in obstetrics and gynecology until joining the faculty full time in 1967 as an assistant professor. In the late 1960s, Camel and Alfred Sherman, MD, started the gynecologic oncology division at the School of Medicine. Camel was interim chair of the Department of Obstetrics and Gynecology from 1989 to 1991. He remained on the faculty until his retirement in 2001. He is survived by his wife of 59 years, Greta Camel, MD, HS 59; four children: Lisa Camel, Mark Camel, MD 81, HS 87, David Camel and Susan Camel Amme; and eight grandchildren.

If you would like to make a tribute in honor of any of the aforementioned alumni or faculty, please contact:
Pamela Buell, Washington University Medical Alumni and Development, Campus Box 1247, 7425 Forsyth Blvd., St. Louis, MO 63105, (314) 935-9691.
The Rewards Are Many

- You may name your scholarship in memory of a loved one, in tribute to a friend, or in honor of yourself, your family or your company.
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- You will receive an invitation to the annual scholarship dinner.

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  - Dean's Level: $25,000
- Patron's Annual Scholarship: $10,000
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- Benefactor's Endowed Scholarship: $1,000,000
- Founder's Endowed Scholarship: $500,000
- Sustaining Endowed Scholarship: $250,000
- Endowed Scholarship: $100,000

Scholarship support

Fourth-year medical student Victoria Yom with Ann Randolph Flipse, MD 59 at the second annual Scholars in Medicine Donor Recognition Dinner. Yom was the 2009–10 recipient of the Ann Randolph Flipse, MD Scholarship Fund at Washington University School of Medicine.

Scholarship Program

- Scholarship support is one of the highest priorities of the School of Medicine. As the costs of medical education continue to increase, it is our goal to provide financial support that reduces debt upon graduation and allows students to make career choices based more on passion and less on income.

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- Scholarships: Opening Doors to the Future
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Fold this form and seal edges with tape to mail.
Weathering the storm  The Willow Project, a sculpture located at the Alvin J. Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine, allows visitors to give voice to their fears, concerns and hopes. Each message is sealed in a glass vial and attached to a willow branch that is part of a “tree” representing the power of hope and the flexibility of the human spirit. The piece is one of many artworks created by participants in Arts as Healing, a program that encourages cancer patients to use art as a tool in healing and expressing themselves. To learn more about Arts as Healing, please turn to page 24.
LINCed up  Many computer scientists regard the closet-sized LINC — the Laboratory INstrument Computer developed in the early 1960s — as one of the first personal computers. An exhibit at the Bernard Becker Medical Library, funded by the Mallinckrodt Institute of Radiology, features a restored LINC and information on the roles it played in the development of medical and personal computing. In Fall 2011, the LINC will move to a permanent home on the university’s Danforth Campus.