Upright orthopedics

Spinal surgery reshapes lives
Chemical chaperones  The genetic defect in Niemann-Pick disease, a rare, deadly neurological disorder, could be overcome using chemical compounds that “chaperone” mutant proteins (green) through the cell’s quality control machinery. A team headed by Daniel S. Ory, MD, associate professor of medicine, believes that the approach would have fewer drawbacks than gene therapy and could be useful for more common diseases — such as cystic fibrosis — that stem from a similar type of defect. For more on this research, visit medschool.wustl.edu.
Truth vs. fiction: the science of smoking

Back Story
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Smoking out the Science
16 Popular, glamorous and even healthful — cigarette marketing belied a deadly reality. Researchers here began and continue to study smoking's ill effects.

Before Their Time
22 Understanding and preventing preterm birth through the study of genetic changes is the focus of a grant from the Children's Discovery Institute.

COVER Lawrence G. Lenke, MD, the Jerome J. Gilden Professor of Orthopaedic Surgery and professor of neurological surgery, is one of a handful of surgeons nationwide who routinely perform posterior vertebral column resection, a complicated procedure that corrects difficult-to-treat spinal deformities. For more on this story, please turn to page 8.

PHOTO BY TIM PARKER

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Entering the heart, more gently
Heart valve replaced; no open-heart surgery

A 78-year-old St. Louis woman was the first patient in this region to receive an experimental device to replace her defective aortic valve without opening the chest wall or using a heart-lung machine. The procedure, part of a national multicenter trial to evaluate the effectiveness of the new device, was performed by Washington University heart specialists at Barnes-Jewish Hospital early this year.

The new device holds enormous hope for patients unable to undergo the standard open-heart surgery for aortic valve replacement because they are too old or too sick to qualify for the surgery.

The technique, called transcatheter valve replacement, uses a catheter to thread a replacement aortic valve into the heart. Mounted on a catheter, the valve can be guided through the patient's circulatory system from the leg or inserted between the ribs into the heart and expanded at the site of the patient's diseased valve.

"Pending the study's outcome, this has the potential to be one of the most significant advances in all of cardiac medicine," says John M. Lasala, MD, PhD, principal investigator of the trial and professor of medicine. Lasala also is medical director of the cardiac catheterization laboratory at Barnes-Jewish Hospital.

The PARTNER trial (Placement of AoRTic transcatheTER valves) eventually will enroll about 600 patients at up to 15 sites across the United States. The device, developed by Edwards Lifesciences, consists of a heart valve made of cow heart tissue attached to a collapsible mesh cylinder.

In addition to Lasala, physicians conducting the trial at the School of Medicine are Ralph J. Damiano Jr., MD, the John M. Shoenberg Professor of Surgery and chief of cardiac surgery at the School of Medicine and a cardiac surgeon at Barnes-Jewish Hospital; Nader Moazami, MD, associate professor of surgery and chief of cardiac transplantation; and Alan Zajarias, MD, assistant professor of medicine in the cardiovascular division.

"An earlier, small feasibility study showed that the mortality rate with the transcatheter valves was nearly as low as that of conventional valve replacement surgery — around 10 percent," says Damiano.
National study to evaluate anorexia nervosa therapies

Improving recovery rate a key goal

Therapists and eating disorders specialists at the School of Medicine are joining investigators at a handful of sites around North America to evaluate anorexia nervosa treatments. Currently, only 25 percent of anorexia patients recover completely; the aim of this study is to improve those odds.

Funded by the National Institute of Mental Health, the study will look at two therapeutic approaches that involve families and also test whether antidepressant medication can enhance the results.

"We're examining whether one type of family therapy is superior to another and whether or not there is an added benefit from medication, both in terms of initial improvements and long-term health," explains Denise E. Wilfley, PhD, professor of psychiatry, medicine, pediatrics and psychology and principal investigator at the Washington University study site. "This disorder affects both physical and psychological health, and it has among the highest suicide rates of any psychiatric illness. In fact, while anorexia nervosa is rare, it has the highest death rate of any mental disorder."

The investigators will recruit 240 anorexia patients and their families at six sites, making this the largest National Institutes of Health-funded treatment study of the disorder. Some 40 patient families will receive treatment at Washington University School of Medicine.

Anorexia nervosa is associated with serious medical complications, including cardiovascular, dermatological, gastrointestinal and osteoporosis problems.

Stenson named Costrini Professor

William F. Stenson, MD, has been named the Dr. Nicholas V. Costrini Professor of Gastroenterology and Inflammatory Bowel Disease.

Costrini, MD, PhD, is medical director of the Georgia Gastroenterology Group. He completed a residency in medicine and fellowships in gastroenterology and biological chemistry at the School of Medicine and Barnes Hospital. He and his wife, Coral, who has served as his group's chief financial officer, endowed the professorship.

Stenson's major research focus is the role of inflammation in intestinal injury and wound repair. He studies enzymes produced in response to injury, which, in turn, synthesize prostaglandins. Prostaglandins are key to repairing damaged intestinal tissue, and they also regulate intestinal immune response.

He is a member of the American Gastroenterologic Association, the American Association of Immunologists, the American Society for Clinical Investigation and the Association of American Physicians. Stenson also is an editor for the journals Current Opinion in Gastroenterology and Inflammatory Bowel Disease, and he serves on the editorial board of the journal Gastroenterology. In 2007, he was a National Institutes of Health MERIT Award winner.

Outstanding faculty honored

Heidi Prather, DO, associate professor of orthopaedic surgery, receives a Distinguished Clinician Award from Larry J. Shapiro, MD, executive vice chancellor for medical affairs and dean of the School of Medicine, at the 2008 Faculty Recognition Event held on January 23 at the Eric P. Newman Education Center. Prather was one of 18 faculty recognized at the ceremony for their accomplishments in clinical care, community service, education and research.

For a complete listing of Distinguished Faculty Awards given at this inaugural event, please visit medschool.wustl.edu.
Gay named Hawes professor

W. Donald Gay, DDS, has been named the Christy J. and Richard S. Hawes III Professor.

Before their deaths, Mr. and Mrs. Hawes established the professorship in honor of and in gratitude to Gay, who directs the Division of Maxillofacial Prosthetics in the Department of Otolaryngology. Mrs. Hawes was one of Gay's patients.

Gay directs the maxillofacial prosthetics laboratory at the School of Medicine, which works to rebuild faces that have been affected by trauma, birth defects or disease.

He joined Washington University's School of Dental Medicine as chairman of the Department of Maxillofacial Prosthetics in 1979, transferring to the Department of Otolaryngology in 1991 when the School of Dental Medicine closed.

In addition to his work in the prosthetics lab, Gay is on staff at Barnes-Jewish Hospital and St. Louis Children's Hospital. He is a member of many professional societies and organizations and a recipient of the Meritorious Service Medal for Heroism and the "A" Proficiency Designator for Professional Excellence from the U.S. Army.

Interdisciplinary training for physical, occupational therapy

Diverse faculty to serve as mentors

The School of Medicine has received a five-year, $4.6 million grant to establish an interdisciplinary career development training program for physical and occupational therapists.

The grant is from the National Center for Medical Rehabilitation Research of the National Institute of Child Health and Human Development and the National Institute of Neurological Disorders and Stroke. The Washington University project, called Comprehensive Opportunities for Rehabilitation Research Training (CORRT), will fund 15 to 20 postdoctoral scholars and allow them to train at one of seven institutions: Washington University, University of Pittsburgh, University of Delaware, Johns Hopkins University, Emory University, University of Miami or University of Iowa.

Michael J. Mueller, PhD, associate professor of physical therapy, who leads the program, says this grant uniquely provides an interdisciplinary approach to bring other sciences into the field of physical rehabilitation. "There is a tremendous array of more than 60 mentors and laboratories where the scholars can do clinical research to improve the lives of people with chronic physical disabilities," he says.

Each scholar will work with at least two mentors: one a physical therapist or occupational therapist and another from a different discipline. Twenty Washington University faculty members from diverse research areas have agreed to serve as mentors for the scholars in the CORRT project.

Instilling hope

The Christopher Wills Hobler Laboratory for ALS Research in the Hope Center for Neurological Disorders was dedicated on February 18. Hobler was diagnosed with ALS in 2001 at age 35 and focused on helping to find a cure for the disease until his death in 2005. Among those attending the event were Dean Larry J. Shapiro, MD, left, Hobler's family, which includes his mother, Jean Hobler, second from left, sister, Leigh Gerard Hobler, center, and brother, Peter Hobler, and David M. Holtzman, MD, right, the Andrew B. and Gretchen P. Jones Professor and head of the Department of Neurology.
Something to talk about

Disrupting parasites’ ability to “talk” to each other reduces infection

One of the most common human parasites, Toxoplasma gondii, uses a hormone lifted from the plant world to decide when to increase its numbers and when to remain dormant.

School of Medicine scientists reported in the January 9, 2008 issue of Nature that they successfully blocked production of the molecule (abscisic acid, or ABA) with a plant herbicide. Low doses of the herbicide prevented fatal T. gondii infection in mice.

“As a target for drug development, this pathway is very attractive,” says author L. David Sibley, PhD, professor of molecular microbiology. “Because of its many roles in plant biology, we already have several inhibitors for it. Also, the plant-like nature of the target decreases the chances that blocking it with a drug will have significant negative side effects in human patients.”

T. gondii’s relatives include the parasites that cause malaria, which also appear to have genes for ABA synthesis. The new findings may explain an earlier study where a group of researchers found that the same herbicide inhibits malaria.

Scientists have known for a decade that protozoan parasites such as T. gondii and those that cause malaria contain many plant-like pathways, or groups of genes or proteins put to use for a particular biological task. That earlier revelation led to ongoing efforts to develop drugs that block plant-like proteins parasites use to synthesize metabolically important structures or compounds. However, until this study, no one had found the parasites using a plant-like protein for signaling purposes.

“Signals are sometimes even better targets for drug development than biosynthetic pathways,” says Sibley. “Taking out a biosynthetic pathway means you take away one thing from the parasite. But if you can successfully disable a key signal, this may potentially disrupt many more aspects of the parasite’s metabolism.”

Kisaburo Nagamune, PhD, formerly a postdoctoral fellow in Sibley’s laboratory, found the ABA pathway in T. gondii while searching the parasite’s genome for pathways linked to calcium signaling. Researchers knew that calcium signaling was important to the parasite’s ability to control its complex reproductive cycle, but a search for genes similar to the calcium signaling pathways found in mammalian cells, such as the calcium receptors or channels that are common in heart cells and neurons, found few analogs in T. gondii.

Sibley plans further studies to learn what other aspects of T. gondii biology are controlled by ABA and whether other inhibitors of ABA might make more potent treatments for toxoplasmosis.
Medical errors cause physician stress

Many physicians experience high levels of stress, anxiety and sleep loss following medical errors and even near misses, according to a School of Medicine survey of more than 3,100 physicians in the United States and Canada.

The survey examined the effect of errors on physicians in internal medicine, pediatrics, family medicine and surgery and points to the need for doctors and health care workers to receive support, including counseling, following an error. Results were published in the August 2007 Joint Commission Journal on Quality and Patient Safety.

"Medical errors are not only distressing to patients, they can have a profound effect on physicians providing the care," says Amy L. Waterman, PhD, assistant professor of medicine, who led the study. "Counseling is important and should be offered to physicians as well as to patients, so that everyone involved with errors receives the support they need."

The findings point out the need to improve organizational resources available to health care professionals so they can receive the support they need following an error.

Plans under way to build new Shriners Hospital for Children

Move will enhance research, clinical care

Shriners Hospitals for Children will build a new St. Louis facility at Washington University Medical Center. The new hospital's location, at 4440 Clayton Ave., will further enhance research opportunities and clinical care between Shriners Hospital for Children-St. Louis and the School of Medicine.

The current St. Louis Shriners Hospital is located at 2001 S. Lindbergh Blvd. The relocation will allow Shriners to return to the medical school venue: Shriners' first area hospital opened in 1924 on Euclid Avenue on the medical school campus. Today, 35 members of St. Louis Shriners Hospital medical staff, including the medical director, are Washington University faculty physicians.

The new hospital will have one floor dedicated to research. Most of the overlapping research interests between St. Louis Shriners Hospital and the medical school are related to bone, muscle and nerve development.

Because patients today spend less time in the hospital and more procedures are done on an outpatient basis, the new hospital is expected to have fewer patient rooms, but more operating rooms, than Shriners' current 80-room hospital.

Construction of the new facility is expected to begin in Spring 2009 and to take three years to complete.

Shriners Hospitals for Children will erect its new facility at 4440 Clayton Ave., between Taylor and Newstead avenues at Washington University Medical Center.
Major effort to sequence 1,000 human genomes

The School of Medicine will play a leading role in an international genome sequencing collaboration, the 1000 Genomes Project, which will create the most detailed picture to date of human genetic variation.

Drawing on the expertise of research teams in the United States, China and England, the project will develop a new map of the human genome that will provide a close-up view of medically relevant DNA variations at a resolution unmatched by current technology.

"A project like this would have been unimaginable only a few years ago," says Elaine R. Mardis, PhD, co-director of the university’s Genome Sequencing Center and one of the project’s lead investigators. "We now have the ability to examine in intimate detail variations in the genetic code that differ from person to person."

At the genetic level, any two humans are more than 99 percent alike. However, it is important to understand the small fraction of genetic material that varies among people because it can help explain differences in individuals’ risk of disease, response to drugs or reaction to environmental factors.

The new map will help identify disease-related genetic alterations, speeding efforts to use genetic information to develop new strategies for diagnosing, treating and preventing common diseases.

“Our best chance of knowing why some people remain healthy well into their 90s and others develop illnesses at an early age is to understand the numerous genetic variations that exist within humans," says Richard K. Wilson, PhD, director of the Genome Sequencing Center. "This project will accelerate efforts to pinpoint the many genetic factors that underlie human health and disease."

Catalog variations that occur at a frequency of 1 percent or more in the human population across most of the genome, and down to 0.5 percent or lower within genes

Produce a high-resolution map of larger differences in genome structure called structural variants (rearrangements, deletions or amplifications of segments of the human genome)
Jessie Morgan was born with a spinal deformity. Three hours post-birth, an X-ray revealed kyphoscoliosis, a curvature of the spine that would cause him to have a hump and a spine that twisted and corkscrewed, putting pressure on his ribcage and eventually making it difficult to breathe.

“It was like the loops on a roller coaster, except it was my spine,” says Morgan.

An operation followed by months of traction at age four hadn’t solved the problem, and although he did pretty much everything the other kids did, it often was difficult to explain his condition to other children.

“I always taught him not to lie or tell stories, but one time when we were at the swimming pool, the other kids were asking him what was wrong with his back,” recalls Jessie’s mom, Dottie Apperson. “And he asked me, ‘Mom, can I lie just one time?’ And I asked him what he was going to say, and he said, ‘I’m gonna tell them I got attacked by an alligator.’

“That worked for the longest time,” Jessie recalls with a laugh. “I remember kids seeing me and saying to each other, ‘There’s that boy who got bit by an alligator!’”

But his problem didn’t impress everybody. He was suspended in junior high after fighting with a boy who put a Quasimodo figure on his desk and repeatedly called him a hunchback.

Most doctors weren’t able to offer much help, but that changed when Jessie was referred to Lawrence G. Lenke, MD.
One long surgery can realign an extremely misshapen spine — boosting stature, restoring self-image and healing the pain.  

BY JIM DRYDEN
It’s important to stabilize the spine as much as possible before removing vertebrae.

In recent years, Lenke, the Jerome J. Gilden Professor of Orthopaedic Surgery, has concentrated his entire practice on correcting difficult-to-treat spinal deformities. A few spine surgeons will perform complicated vertebral column resections (VCRs) to realign and stabilize severely deformed spines like Jesse Morgan’s. But Lenke employs a novel technique.

Traditional VCR operations are just that, operations — as in more than one. One procedure involves the surgeon working through an incision made in the patient’s side (chest and/or abdomen) to get to the front of the spine. In a second operation on a second day, the surgeon works through an incision in the back and finishes the job. Lenke no longer uses that two-stage technique. He is pioneering a different approach, working through a single incision in the back of the spine to perform the entire correction, usually in a single operation. “These are big surgeries,” Lenke says. “My average surgical time is almost 10 hours, but that’s a lot less time than two operations.”

Lenke has performed more than 70 posterior VCR surgeries. Because he’s one of only a handful of surgeons using the posterior approach, he now treats patients from all over the United States and other countries. He also teaches the procedure to surgeons from all over the world.

At a recent meeting for spinal deformity surgeons, he asked 50 of his colleagues from around the country how many were using the posterior VCR approach.

“Only one raised his hand,” Lenke says. “And these are pretty advanced surgeons who attend this meeting. I would guess that maybe 50 surgeons in the United States do this procedure once or twice a year. There might be 5 or 10 who do it monthly. I’ve been doing two or three of these procedures each month.”

Lenke is renowned for his skills as a surgeon, according to Richard H. Gelberman, MD, the Fred C. Reynolds Professor and head of the Department of Orthopaedic Surgery.

“A posterior vertebral column resection is technically very demanding surgery,” says Gelberman. “The many referrals Dr. Lenke receives from spine surgeons across the country stand as a testament to the respect he garners from his peers.”

Lenke received international notoriety last fall when he received the Russell Hibbs Award for the best clinical presentation at the 42nd Annual Meeting of the Scoliosis Research Society in Edinburgh, Scotland. The award recognizes a paper in which he reported on his series of 43 consecutive cases of posterior-only VCR spinal deformity corrections.

“In our experience, this has been a very safe procedure,” Lenke says. “One thing we insist upon is monitoring the spinal cord during surgery to avoid neurologic deficit. In theory, paralysis is one of the biggest risks of this approach, but that hasn’t happened to any of our patients. In fact, all but two of my first 70 patients left the operating room with the same or better function following surgery.”
The spine is then separated into two sections, allowing for correction of the deformity.

than before it. In those two cases, there was severe preoperative spinal cord dysfunction, but both patients are slowly recovering following their reconstructions.

Lenke says these surgeries are used to treat very advanced problems, like Jessie Morgan’s curving, corkscrewing spine. Although much of the benefit is cosmetic, the surgery did more than improve Jessie’s posture; it also may have saved his life.

“As it advanced, everything was caving in on his heart and lungs,” explains his mother, Dottie Apperson. “One lung was pretty far gone.”

In fact, Morgan needed two months of traction at Shriners Hospital to take pressure off his lungs and get him healthy enough for his surgery at Barnes-Jewish Hospital in December 2005.

“As a youth, he played soccer and baseball and rode motorcycles,” Apperson says. “But just before the surgery, we saw a change. He couldn’t go as far when he walked. He was slowing down.”

Ten years earlier, Jessie might have been out of luck; at that time, most spine surgeons couldn’t treat very severe problems like his.

In the past few years, Lenke and other surgeons have learned to stabilize the spine with screws inserted above and below the site where one or more vertebrae will be removed. Temporary rods also are used to stabilize the patient. It’s important to get things as stable as possible before removing vertebrae because after Lenke removes bone from the back of the spine, he works underneath the spinal cord to extract bone and discs from the front of the spine, and the patient’s spinal column on the operating table is left in two pieces.

“The patient’s spine is basically separated into two halves,” Lenke says. “It’s held together by temporary rods and the spinal cord running down the middle. The spine is completely disconnected, but that is what allows correction of these stiff deformities.”
"It gives us a lot of freedom," Lenke explains. "Obviously, we move very slowly and carefully, but we can correct very severe deformities into a more normal alignment because the top and bottom of the spine are completely disconnected. That instability allows us to create better alignment. Then we restabilize the spine with rods and metal cages before finishing the procedure with a spinal fusion to make everything more secure."

But when the incision is closed, the repair is complete. The patient needs no cast, though a few small children will require a brace for a few months. Total recovery can take several months, but most patients are out of bed the next day and home from the hospital in a week.

Lenke says many patients like Jessie, who have experience with an earlier spine surgery, are surprised when they aren’t immobilized in a body cast and confined to bed for weeks or months. Still, the procedure does leave patients with some significant pain, requiring the use of postoperative pain medication for weeks to months.

"Most people are pretty sore for eight, 10, 12 weeks, and it’s a good six months to a year before a person is fully recovered," Lenke says.

Jessie’s mom knew that her son was recovering when she noticed him taking less pain medication in the weeks following surgery. Then, he really proved that he was feeling better. "The first thing he did when he got on his feet was he moved out," Apperson says. "He’s also driving now and has his own car. He became very independent."

"Dr. Lenke gave me a new lease on life," Jessie says. "I feel like I can do anything. If I think I can do it, I don’t hold back."

And he’s not the only one.

"It’s not uncommon to hear a patient say, ‘I’d rather die than continue to live like this,’” Lenke says. "People often are miserable before surgery, and they’re willing to take the chance. Luckily, our experience has been that although it’s very challenging, the operation has produced dramatic radiographic and clinical results for these severely deformed and often desperate patients.”

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**Results change lives**

Although the human spine should have a natural curvature, those seen by Lenke are typically far adrift. His cases have produced images such as these. The interior anatomical results seen here are clear even to people unused to reading X-rays. But it is the restored external appearance that rebuilds the self-esteem of someone who has lived with discomfort for years prior to the surgery.
Removing throat and neck tumors though the mouth minimizes risks and speeds recovery.

BY GWEN ERICSON
A diagnosis of cancer of the mouth or throat can be especially devastating. Chemotherapy, radiotherapy and surgery to treat the condition can dramatically alter facial appearance and threaten the ability to swallow, talk, eat, smell, taste, hear and even to breathe normally.

Bruce H. Haughey, MD, professor of otolaryngology, and his colleagues who treat head and neck cancer at the School of Medicine and the Siteman Cancer Center have been able to significantly lessen the impact of an oral or throat cancer diagnosis.

Whenever possible, they are using new surgical techniques that don’t require cutting through the skin and muscle of the neck. In many instances, these minimally invasive, transoral (through-the-mouth) surgeries are getting patients out of the hospital faster, controlling the cancer better, and preserving mouth and throat function more effectively.

Haughey, the Dr. Joseph B. Kimbrough Chair in Maxillofacial Surgery and Prosthodontics and chief of the Division of Head and Neck Surgical Oncology, tells of a patient who recently contacted him because her doctor had offered her lengthy and expensive chemotherapy and radiation treatment for vocal cord cancer.

“She had heard about the minimally invasive surgery we were performing for laryngeal cancer,” Haughey says. “It wasn’t something that was available at any of her local Washington DC-area hospitals. She wanted to get rid of her cancer but was hoping to avoid the long treatment and recovery and high expense of chemotherapy and radiation.”

Using transoral laser microsurgery — in which a microscope and laser are used to view and cut out the cancer without opening the neck — Haughey was able to get the patient out of the hospital in one day. And that was the extent of the treatment she needed because the surgery removed all detectable traces of the cancer. The patient was “tickled pink,” Haughey says.

The neck is packed with delicate and crucial structures — the voice box or larynx, the windpipe or trachea, the esophagus, the tongue, muscles that move the jaws and allow the head to turn, large nerves, lymph nodes and lymph vessels, blood vessels including the carotid artery, the spine and many more. Not only does reaching a throat tumor by opening the neck threaten these structures — potentially affecting speaking, eating, drinking, smelling, tasting and breathing — it creates a wound that even when healed can interfere with mobility and function. If it doesn’t heal well, the incision can be a conduit for leakage of saliva and other fluids.

So when a patient’s circumstances permit, Haughey and his Department of Otolaryngology colleagues, Brian Nussenbaum, MD, John B. Sunwoo, MD, and Ravindra Uppaluri, MD, PhD, remove throat and mouth tumors transorally, using instruments specifically designed for insertion through the open mouth. For cancer of the larynx, for example, the surgeon first inserts a tube into the throat and expands it so that he can slide an endoscope with a lighted camera and microscope lens to illuminate and view the area, a laser for cutting and other instruments to grasp tissue or to hold it out of the way.

Using an endoscope or operating microscope “leads to a high level of precision in removing the whole tumor,” says Haughey, “and contributes to the very good cancer outcomes we see with the procedure.”
In a typical open surgical procedure to remove a throat tumor, a larger block of tissue would be cut away around a tumor. But in transoral laser microsurgery, a lot of the guesswork is eliminated so that the tumor is cut out piece by piece with the laser until all traces are gone. Nearby tissue is disrupted to a lesser degree. The microscope increases the certainty that the doctors have eliminated all cancerous tissue.

Haughey and colleagues have just completed a study of patients with larynx, oral cavity and pharynx tumors treated with these endoscopic resection techniques and radiotherapy when necessary. After two years, none of the patients in the study have had a primary tumor recurrence. "We're delighted with that result," Haughey says. "Two years is the interval in which treatment failure usually occurs, if it is going to."

In addition to faster and easier recovery and better control of cancer, these techniques offer better preservation of speech and swallowing because of their conservation approach. Another reason transoral surgery leads to better functionality is that it often doesn't require a tracheostomy in which an opening is cut in the windpipe and a tube inserted for breathing. In open surgical neck procedures, about 80 percent of patients need a tracheostomy; with minimally invasive techniques that percentage is in the teens. Tracheostomy markedly affects breathing, speech and swallowing, temporary but sometimes permanent changes.

To enable effective transoral surgeries, physicians had to design instruments of the right diameter, length and configuration. Haughey is working with a German company that created many of the original instruments to develop one that will allow viewing and performing laser surgery around a corner, allowing removal of more types of cancer.

For some types of head and neck cancers, nonsurgical combination treatments consisting of chemotherapy and radiation therapy are the treatment of choice and may be used more frequently at other cancer centers for a variety of head and neck cancers. Unfortunately, in some patients this approach can lead to greater tissue damage than even open surgery and can obliterate swallowing and speech function permanently or require major reconstructive surgery.

"With the ongoing improvements in the surgical technology for transoral laser microsurgery and the compelling data suggesting this is an effective cancer-curing procedure, we are probably justified in offering it to virtually any patient who is suitable for the technique," Haughey says.

Because of the advantages of transoral surgery, the team is holding a course at the School of Medicine in the spring to teach these exacting techniques to experienced professionals from around the world. The attendees can then pass their knowledge on to other surgeons at their home institutions. This will be the first formal course in the United States on this type of surgical approach to head and neck cancer.

"We are dealing with some of the most visible parts of the body as well as some of the most used functions," Haughey says. "We have worked to develop these procedures because we take both the treatment of the tumor and the functional outcome very seriously."
SMOKING OUT THE SCIENCE

Researchers at Washington University in St. Louis helped establish the health risks of smoking, and they continue to examine its effects.

BY CANDACE O'CONNOR

TO ANYONE WHO TRUSTED THE OLD CIGARETTE ADVERTISING —

and millions did — smoking was not only pleasant and glamorous, it was also perfectly healthy. “Just what the doctor ordered,” proclaimed one L&M ad. “More doctors smoke Camels than any other cigarette,” added another, while a rival brand declared that “20,679 physicians say Luckies are less irritating.”

Amid this devil’s brew of dubious claims and pseudoscience, real scientists were busy establishing a biological fact: Smoking is dangerous, even deadly. We now know that smoking causes 87 percent of deaths from lung cancer, including 3,000 each year from second-hand smoke; it also triggers esophageal, bladder, kidney, pancreatic and cervical cancers. Further, it increases the risk for such non-cancerous problems as heart disease, stroke, emphysema and cataracts.

For decades, pioneering Washington University researchers have been working to understand, and combat, the blight of smoking. Today, they have a range of projects underway — both biologically and genetically based — that target aspects of this problem. At the same time, the medical school is working to help smokers quit. Faculty and staff have long held smoking cessation programs on campus and in the community. In 2007, the school established a “tobacco free” campus.
A study in contrasts: While marketing campaigns touted the approval of fictitious "facts" and "evidence," actual science and medicine revealed smoking's dangers.

Selling with a white coat

A FACT!

SCIENCE ADVANCES NEW DATA THAT MAY COMPLETELY CHANGE YOUR VIEW OF CIGARETTES.

*New Study Shows*

"Reach for a Lucky instead"

"It's toasted"

The Doctors behind the Doctor

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE.

What distinguished doctors found on comparing cigarettes

No unpleasant after-taste. Better feeling. Center-stripped. Always Buy CHESTERFIELD.

A recent government report indicated no single case of throat irritation in heavy smokers!

Call for PHILIP MORRIS. America's first cigarette.

Nose, Throat, and Accessory Organs not Adversely Affected by Smoking CHESTERFIELDS.

Buy CHESTERFIELD, Much Milder.

As cigarettes became a ubiquitous sign of American culture, so too did the array of clever ads intended to grow the market. Appeals to the authority of science and medicine even implied health benefits — weight loss, relaxation and sensory pleasure. Rampant claims that "facts," "data," and "evidence" supported these conclusions led an unwary public to believe that certain brands stood out from the pack. Even after the dangers of smoking were recognized, the tobacco industry continued to promote smoking as a matter of informed choice, with filtered cigarettes as somehow the better selection.

VIEW THESE AND OTHER EXAMPLES ONLINE AT: lane.stanford.edu/tobacco

IMAGES COURTESY OF ROBERT K. JACKLER, MD, STANFORD UNIVERSITY SCHOOL OF MEDICINE
Early University Researchers

As a medical student observing the autopsy of a lung cancer patient, Alton B. Ochsner, MD, 20, was told he was unlikely to see such a case again. But he saw many more, especially among World War I veterans who had picked up the smoking habit. In the 1930s, he wrote one of the first case reports linking smoking and lung cancer and mounted a lifelong war on smoking.

Three decades after Ochsner came medical student Ernst Wynder, MD 50. With the sceptical blessing of noted surgeon Evarts A. Graham, MD, a smoker himself, Wynder began a survey of smoking among lung cancer patients. His groundbreaking work was published in the 1950 *Journal of the American Medical Association*, with Graham as co-author. "Wynder's work provided the substance, and Graham's prominence provided credibility and authority," wrote surgeon C. Barber Mueller, MD 42, in his 2002 biography of Graham.

Already well-known for performing the first successful removal of a cancerous lung in 1933, Graham continued on with laboratory studies — and at last was convinced. Tragically, that recognition came too late for him; a 50-year smoker, who tried to quit after acknowledging the link, he developed an aggressive form of lung cancer in 1957 and died within three months. As he wrote to Wynder:

"I suppose you have heard... about the irony that fate has played on me... I was very anxious for you to be one of the first ones to know about my illness because...of our long and happy cooperation in the enterprise of trying to defeat the enemy who seems to have got the best of me now."
Senior scientist Eugene V. Agapov, PhD, and Michael J. Holtzman, MD, study slides related to their work on chronic obstructive pulmonary disease.

A Biologically Based Project: COPD

Today, the medical school has smoking-related projects in nearly every department. Recent studies, for example, have examined the impact of smoking in delaying tendon or ligament healing; others are looking at chemotherapeutics to prevent lung cancer among former smokers. A strong focus is on chronic obstructive pulmonary disease (COPD), and a year-old, $14.9 million grant from the National Heart, Lung and Blood Institute currently is giving a group of scientists, headed by Michael J. Holtzman, MD, the chance to understand how COPD develops.

Smoking is the major risk factor for developing COPD, a progressive and ultimately fatal condition that now ranks as the fourth-leading cause of death in the United States and “the only top-10 cause of death that continues to increase,” says Holtzman, the Selma and Herman Seldin Professor of Medicine and director of the Division of Pulmonary and Critical Care Medicine.

In 2007, Holtzman’s grant established a Specialized Center for Clinically Oriented Research (SCCOR), aimed at translating research findings quickly into clinical solutions. Their research indicates that a susceptible genetic make-up, combined with an early-in-life viral infection and smoking later on, may trigger COPD. Now the researchers hope to develop earlier and more precise ways of diagnosing COPD, as well as improved treatments, since few are available today.

Smoking and ADHD

The hazards of smoking are not limited to the smoker’s own health. As a 2007 study by Rosalind J. Neuman, PhD, and Richard D. Todd, MD, PhD, the Blanche Ittleson Professor of Psychiatry and professor of genetics, shows, prenatal smoking can seriously affect unborn children who carry one or more candidate genes for attention deficit hyperactivity disorder (ADHD). With one of these genes, their risk triples; with two, it goes up ninefold; and with three, it rises to 16 times the normal level.

The researchers studied children from nearly 800 Missouri families, asking mothers about their alcohol intake and smoking during pregnancy. Although only 5 percent reported drinking, 24 percent admitted to smoking — with 75 percent of the smokers having done so through at least two trimesters.

“Our study highlights the potential harm that children may incur because parents use substances with unknown consequences,” says Neuman, research professor of mathematics in psychiatry and of genetics.

Psychiatry, Genetics and Smoking

In another major area, psychiatric researchers are investigating the genetic roots of smoking. Washington University is one of the leading centers worldwide in the genetic research of smoking-related behaviors.

Pamela A. Madden, PhD, received her first grant for smoking-related research in 1995 before others were conducting research in this area. But she believed it was important.
"Smoking is the top public health problem in the world," says Madden, associate professor of psychiatry. "People who smoke throughout their lives can lose up to 10 years due to smoking-related factors."

She began by looking at the combination of smoking and alcohol problems, discovering that heavy smokers often need to drink more to become intoxicated — which puts them at greater risk for alcohol dependence. In other work, she focused on nicotine withdrawal, finding a strong association with psychiatric problems, especially depression. Michele L. Pergadia, PhD, research assistant professor of psychiatry, works closely with Madden and is expanding on her earlier work by examining symptoms of nicotine withdrawal through laboratory studies.

With twin data from other countries, she examined the importance of genetics in smoking. One study involved international gene mapping, in which she and her team found a strong signal that chromosome 22 is implicated in heavy smoking. Next, they will use data from male Finnish smokers to isolate the genes involved.

Ultimately, they hope to "better define what puts someone at risk for having difficulty quitting and flag risk factors for persistence of smoking that might be used to develop better treatments," Madden says.

**Genes and the Environment**

In 2007, Madden's colleague, Laura J. Bierut, MD, published two articles on groundbreaking work that she and her team had done: the first large-scale genetics studies of nicotine dependence, which showed that genetic differences can determine a person's risk for becoming addicted. Specifically, they pinpointed several genes as culprits, especially the alpha-5 nicotinic cholinergic receptor gene (CHRNA5).

"The best thing to do is to prevent smoking," says Bierut, professor of psychiatry. "But for those who do smoke and are nicotine dependent, this may lead to pharmacogenetic advances that can guide treatment."

Bierut and co-principal investigator John Rice also received NIH funding for Washington University's piece of the Genes, Environment and Health Initiative, a national collaboration between geneticists and environmental scientists aimed at unraveling the mysteries of addiction. In other research, she is trying to understand how genetic variants differ across racial and ethnic groups. For example, one amino acid change in a smoking-related receptor is common among those of European descent but not among those of African descent. This may mean that there are different risks in the two populations.

"Smoking is still one of the leading causes of death," she says. "One quarter of our population continues to smoke. We need to decrease that figure and reduce this terrible burden."
Nearly one in eight babies in the United States is born too early — three or more weeks before the estimated due date. Because these infants are born before their bodies and organ systems have fully matured in the womb, they have an increased risk of heart and lung problems, vision and hearing loss, infections and physical or learning disabilities.

Although there are known risk factors for preterm birth — including having a prior preterm birth or being pregnant with multiple babies, smoking, diabetes, high blood pressure, lack of prenatal care or some infections — for more than half of women who deliver early there is no explanation.

And while researchers have made tremendous strides in treating premature infants to ensure their survival, there has been little progress in preventing preterm birth.

Louis J. Muglia, MD, PhD, Alumni Endowed Professor of Pediatrics, and Justin C. Fay, PhD, assistant professor of genetics, suspect underlying genetic changes that have occurred over time may help to explain why some women give birth early and others do not. They are studying these changes through a grant from the Children’s Discovery Institute, using new technology to look for genetic variations that may influence the timing of birth.

Muglia and Fay began by comparing DNA from blood samples of 200 mothers who gave birth too early and from 200 women who gave birth at full-term. Their research team is testing individual genes to find those associated with premature birth and looking for genetic variations common in women who have had full-term babies, which might show a protective effect against premature birth.

By looking at genes in both mothers who have had full- and preterm babies, the researchers may uncover a combination of variations powerful enough to initiate preterm birth. Through their studies, they hope to define critical molecular pathways...
involved in preterm birth and their influence on risk factors such as nutrition and infection, which also may contribute to early delivery.

Their work has progressed more quickly than anticipated partly due to the use of high-throughput DNA genotyping machines recently made available through the laboratory of Thomas M. Morgan, M.D., assistant professor of pediatrics. Morgan is using CDI funding to look for the genetic causes of congenital heart disease.

"This state-of-the-art genotyping platform looks at the samples and genotypes of 1 million SNPs (single nucleotide polymorphisms) and several hundred thousand copy number variants," Muglia says. "It allows us to essentially define 1.8 million traits in the human genome looking at the data output from the microarrays."

The research team is among the first to use the high-tech machines, Fay says. During the process, they expect to narrow the field of key genes involved in preterm birth from 25,000 in the whole human genome to 10 that may be present in racially diverse nuclear families in the United States with recurrent preterm birth.

"We are sitting on the most exciting point of a two-year project," Fay says. "Now is the interesting part where we get to look at the data and figure out what genes might be involved in the timing."

As humans evolved from primates, brain size increased and walking upright reshaped the pelvis — changes that made it more difficult for babies to be delivered through the birth canal. Preterm birth ensures that babies will be born before their heads grow too large, but there's a limit to how early babies can be born without health risks.

"Human brain and head size are much larger than those of most other higher primates for a given body size," Muglia explains. "To accommodate this size difference, we suspect there was selective pressure put on genes to push the birth process to the earliest possible time compatible with good fetal survival."

To target genes potentially linked to premature birth, the researchers are scanning the genomes of humans, nonhuman primates such as chimpanzees and rhesus monkeys, dogs and mice to identify human genes that have accumulated significant changes. Such variations in the DNA code are of interest because they would indicate that a gene has acquired a new function.

The research team expects to spend most of 2008 pinpointing genetic markers that may help doctors predict which women are likely to give birth early. Once they narrow the field, they will test the genes to confirm their results. Eventually, they plan to study the genes of full-term and preterm babies as well to determine any differences.

"These initial studies will allow us to identify genes that are associated with the risk of preterm birth and are viewed as high-priority targets for an even larger international analysis," Muglia said. "If these are confirmed in subsequent validation, they have the potential to determine a woman's risk for preterm birth prior to becoming pregnant and give enormous biological insight into the actual molecular mechanisms in preterm birth."

Finding genetic markers that determine early birth would have a significant impact on child health and premature birth, which results in more than $26 billion in health care costs each year in the United States. The markers could provide a way to identify women who are at risk, to develop new drugs that could treat active preterm labor, to detect premature labor early enough to treat it and potentially to provide a way to prevent preterm birth altogether.

"The goal really is not just to understand the science, but to solve the problem," Fay says. "If we had a biomarker that identified someone at risk for preterm birth, physicians could monitor the mother throughout the pregnancy. If they knew a week or two in advance that the mother was going to deliver early, that would be remarkable."

Caroline Arbonas contributed to this article.

Preterm delivery occurs in 12.7 percent of all pregnancies in the United States.

- Major cause of infant mortality and morbidity, affecting 500,000 U.S. infants each year
- Results in $26 billion+ in health care costs annually
- Average acute medical cost for preterm infant born at 28 weeks gestation or less: $250,000+
He believed doctors had all the answers, until he began asking questions.

The ink was barely dry on his doctorate in physics before Sandeep Jauhar, MD 98, PhD, started medical school at Washington University. The dramatic change in career choice reflected Jauhar’s longstanding philosophical quest for meaning. Later, he would also come to question whether medicine was right for him before settling contentedly into his current position as a cardiologist. Along the way Jauhar used his talent for writing to record his thoughts and experiences, and he still writes regularly about medical issues.

Jauhar’s family immigrated to the United States from India in 1977. His father, a plant geneticist, and mother, whose father was a physician, encouraged Sandeep and his brother, Rajiv, to become doctors. From an early age, however, Jauhar was more interested in what he termed “the big questions of human existence,” questions he didn’t believe the field of medicine could answer. He thought he was on the right path as he progressed through school and opted to study physics.

Jauhar got all the way to graduate school when he began having misgivings about whether such esoteric subjects as quantum dots could truly have an impact on people’s lives. This uncertainty, coupled with a close friend’s diagnosis of lupus, got him thinking seriously for the first time about a career in medicine.

"Watching my friend struggle with lupus transformed my outlook on what I wanted to do with my life," Jauhar says. He began to read medical texts and talk to doctors. During that process, he was surprised to learn that lupus is a chronic illness with an undiscovered cause and no cure.

"I thought doctors had the answers," says Jauhar, who found the idea of an illness with no cure unfathomable. "It made no sense to me.

His search for understanding finally led him to commit to medicine.
After completing the necessary undergraduate medical requirements and finishing his PhD thesis, Jauhar began medical school. The transition wasn’t easy. He admits having a pretty hard time with the smells and “grossness” of the anatomy lab, and he wasn’t very good at memorizing, a critical skill for medical students. Still, he qualified for the School of Medicine’s “short track” program, which allowed him to graduate in three years instead of the standard four.

“Sandeep was a role model nontraditional applicant to medical school,” says W. Edwin Dodson, MD, associate vice chancellor for admissions. “At the time of his application, he had already demonstrated his intellectual gifts through his obtaining a PhD and making substantial research discoveries as a physicist at UC Berkeley. However, he missed human interaction in his day-to-day work and longed for a heightened sense of purpose by helping others.”

Following graduation, Jauhar began residency training at a busy New York City hospital. It was there that he began in earnest to question his decision to become a doctor, examining everything from the harrowing schedule (80 hours a week and night call every fourth day) to the sometimes callous attitudes of fellow doctors.

“There were times I wanted to quit, but in the end I decided that to me medicine was a very worthwhile profession. I am happy to be a doctor,” says Jauhar.

Jauhar says that medical training has undergone significant change since federal reforms in 2003, such as a ban on working more than 80 hours a week or more than 24 hours at a stretch. These are probably good changes, he says, as they lessen the possibility of putting patients and doctors at risk. Still, he worries that the very changes made to ease the burden on residents may actually restrict them.

“Moderating excesses of the past is good,” says Jauhar, “but I worry about moderating it so much that young doctors don’t see enough. I wanted to stay with my patients through the course of an acute episode so that I could see fluctuations in the course of their illness. Those are the nights I’ll never forget.”

Today, Jauhar directs the Heart Failure Program at Long Island Medical Center. Although he maintains an avid interest in chronic illnesses such as lupus, the decision to specialize in cardiology makes sense in many ways, he says.

“The heart is fascinating to me. It’s readily understandable; it’s a pump. Because I was already schooled in concepts like pressure and electrical currents, it came very easily to me.”

Jauhar says that working in other hospitals after medical school made him appreciate the seriousness and commitment of his professors at Washington University, something he didn’t fully comprehend while he was in St. Louis.

“Washington University is a school with a great tradition of medicine. I have great respect for the school and what it stands for — its commitment to teaching and training the best possible doctors.”

In addition to his career as a physician, Jauhar is an accomplished and prolific writer. Before medical school, he spent a summer as an intern at Time magazine in Washington DC, and while living in St. Louis he completed an internship at the St. Louis Post-Dispatch. Since then, he has parlayed that experience into some choice writing assignments as a regular contributor to the New England Journal of Medicine and The New York Times.

“I remember Sandeep the student with fondness and relish his writings in The New York Times,” says Dodson. “Since graduation, Sandeep’s writings have chronicled his personal journey and his expressions of wonder, compassion and personal honesty, he illuminates doctoring at its finest.”

For Jauhar, writing about cardiology and other, more general, areas of medicine is an effective counterbalance to his daily life as a physician.
A family affair

Tradition of learning starts early in life, carries on through the years

When pediatrician Sidney F. Pakula, MD 29, went on house calls in Kansas City MO, he usually didn’t ride in the family Chevy alone. His teenage sons, Lawrence C. Pakula, MD 57, and Stephen B. Pakula, MD 62, often chauffeured him when they were old enough to drive. And years later, his younger son, Jerry Pakula, and nephew and upstairs neighbor, Bruce L. White, MD 64, rode along in the backseat. The children waited in the car or were invited into the patient’s living room during the visit. On the way home, Sidney Pakula would explain the case. “With the hours he worked, it was a good way to spend time with him,” says Larry Pakula. “And it was an ongoing exposure to medicine.”

After Sidney Pakula retired from private practice, he joined the faculties of both Children’s Mercy Hospital and the University of Missouri-Kansas City School of Medicine. A “wonderful example of a physician” is how his sons and nephew describe him.

“He was kind, scholarly and worked exceptionally hard,” Larry Pakula says. “I think he set the standard for what should be expected of a physician when it comes to their patients and to the medical community in general.”

Stephen Pakula says his father taught him through actions, not words, that there was no finer calling than becoming a physician.

Sidney Pakula also passed on a love of Washington University School of Medicine, which he attended during his last two years of medical school with the help of financial aid. He transferred from the University of North Carolina, a two-year medical school in the 1920s.

“Our father and mother [Dora] both believed that Washington University was the best place one possibly could go for a medical school education,” Larry Pakula says. “I was thrilled to be able to attend Washington University, and I think my brother and cousin felt the same way.”

The Pakulas and White all learned anatomy from Mildred Trotter, PhD, known for her high academic standards. “We learned a great deal from her,” White recalls. “You couldn’t pull anything over on her.”
Larry Pakula finished a residency in pediatrics at The Johns Hopkins Hospital before serving as chief of pediatric service in the U.S. Air Force Medical Corps for two years. He returned to Johns Hopkins to complete fellowships in child psychiatry and developmental disabilities in children before entering private practice in 1963. He is the founder of Pavilion Pediatrics, a private pediatric practice in Lutherville MD, where he specializes in behavioral and developmental problems. He is an associate professor of pediatrics at Johns Hopkins and was recently awarded the 2008 Academic Pediatric Association/American Academy of Pediatrics National Pediatric Community Teaching Award.

After completing a pediatric residency at the University of Rochester and a pediatric fellowship at the University of Minnesota, Stephen Pakula spent two years in the U.S. Air Force. He then worked in a private practice for two years before joining the Kaiser Permanente Medical Group in Northern California, where he served as staff pediatrician and assistant physician-in-chief for many years. He also was a member of the clinical faculty at Stanford University School of Medicine. He retired in 1999. His wife, Laurie, has a master's degree from Washington University's George Warren Brown School of Social Work.

Bruce White's general surgery residency at Jewish Hospital was interrupted to serve as a physician adviser to the Vietnamese medical system while with the U.S. Air Force Medical Corps. He returned to St. Louis to finish his general surgery training at Jewish Hospital. Following the completion of a plastic surgery fellowship at Ohio State University Hospital, he established St. Louis Cosmetic Surgery Inc. in 1973. He specializes in endoscopic-assisted techniques of the face, breast and abdomen, liposculpture and laser surgery.

Lauren Walderhotz, Larry Pakula's granddaughter, is continuing the family's connection to Washington University. She is a freshman pre-med major on the Danforth Campus. The Pakulas and White are proud of their family's tradition. “Anywhere in the world we mention Washington University, everyone knows the school,” Larry Pakula says. “It has an impressive reputation, and I think we've all benefited from its reputation.”

Stephen Pakula echoes his thoughts. “My Washington University education has been the basis and foundation for the professional success I've had,” he says, “I remain permanently indebted to the university.”

“Our father and mother both believed that Washington University was the best place one possibly could go for a medical school education. I was thrilled to be able to attend, and I think my brother and cousin felt the same way.” Lawrence C. Pakula, MD 57

A reunion photo of the class of 1929, taken in 1954, with Sidney F. Pakula, MD 29, circled.
As a child in the 1920s, Edith L. Wolff lived with her family of six in an apartment on Westminster Place in St. Louis' thriving Central West End. Trolley cars were the main mode of transportation, and new apartments and hotels were springing up, including the Chase, Coronado and Melbourne. Mrs. Wolff learned the importance of helping others from her mother, a homemaker and frequent volunteer. Her father was in the wholesale hat business.

At 16, Mrs. Wolff began volunteering at the original Jewish Hospital. Throughout her long, productive life, she has continued to support organizations and institutions that help society's most vulnerable members, especially the mentally and physically disabled.

"I have always believed that people should be self-reliant, but I also believe the community has an obligation to help those least able to help themselves," says Mrs. Wolff, who has dedicated many hours to the St. Louis Association for Retarded Citizens and its Child Garden facility, the Barnes-Jewish Hospital Heart Transplant Program, many Jewish charities and numerous other causes.
Edith L. Wolff celebrates in 2003 with William A. Peck, MD, the Alan A. and Edith L. Wolff Distinguished Professor of Medicine, Kenneth S. Polonsky, MD, head of the Department of Internal Medicine, and Washington University in St. Louis Chancellor Mark S. Wrighton.

She and her late husband, Alan A. Wolff, also became strong proponents of medical research, which they hoped would ease suffering and improve people's lives by curing disease. Edith Wolff's sister-in-law, Johnnie Waldman, benefited from one of the first successful heart transplants performed at Barnes Hospital, which enhanced Mrs. Wolff's appreciation for medical research.

Alan and Edith Wolff first met at a party in 1939. He was nine years older and establishing himself in business. The couple married two years later and soon bought a home in Clayton, where Edith Wolff lives today.

In the late 1940s, Alan Wolff founded Wolff Construction Co., a real estate development, investment and management company. The business thrived, and after World War II, Alan Wolff built multiple shopping centers in Missouri, Kansas and Illinois. After her husband's death in 1989, Edith Wolff became president of the company, which continued to prosper under her guidance and now focuses on real estate investment and on the management and leasing of commercial buildings.

"My husband worked very hard for our money, and I want it to do some good," Edith Wolff says with conviction.

To that end, she made a $20 million gift to Washington University School of Medicine in 2007, establishing the Alan A. and Edith L. Wolff Institute, which will support biomedical research projects that lead to the prevention, treatment and cure of disease. Together, the Wolffs have contributed to many research areas at the School of Medicine over the past 30 years, including renal disease, diabetic and pulmonary diseases, and hematology and oncology.

"I hope that our gifts to medical research will have a positive, lasting impact in making people's lives better."

EDITH L. WOLFF

Additionally, Edith Wolff has established two professorships. In 2003, she endowed the Alan A. and Edith L. Wolff Distinguished Professorship in Medicine, held by William A. Peck, MD, former executive vice chancellor for medical affairs and dean of the School of Medicine and now the director of the university's Center for Health Policy. Earlier, in 1999, the Alan A. and Edith L. Wolff Professorship in Medicine was established to support progress in understanding cancer. That chair is held by Timothy J. Ley, MD, a specialist in cancer research, who also is a professor of genetics.

"We are very thankful to Mrs. Wolff for her wonderful generosity over the years," says Larry J. Shapiro, MD, executive vice chancellor for medical affairs and dean of the School of Medicine. "Her contributions to biomedical research will support many physicians, scientists and students at the School of Medicine and benefit many generations to come."

Edith Wolff says that her husband was reluctant to receive public recognition for their philanthropy, but she has allowed them to be recognized to encourage others to be generous. "If public recognition can set a philanthropic example, that would be all I would wish from it," she says.

Her dedication to the School of Medicine is owed in part to her longstanding relationship with I. Jerome Flance, MD, professor emeritus of clinical medicine and Edith and Alan Wolff's personal physician for more than 50 years.

"Edith's support of basic medical research, as well as her support for human services for people in need, is a very well thought out, deep-seated commitment," Flance says. "This is the legacy she and Alan wanted."

"I want to make the world a better place by helping people who are not fully able to help themselves," Edith Wolff says. "I have tried to give underprivileged and developmentally disabled children a chance to be all that they can be. I also hope that our gifts to medical research will have a positive, lasting impact in making people's lives better."
Marking the occasion

Reunion classes begin celebration early, continue tradition of generosity

Each year, hundreds of Washington University School of Medicine alumni travel to St. Louis to mark reunions ranging from the 10th to the 65th. This May, when members of the Class of 1998 have the opportunity to compare notes with Class of 1943 graduates, they will likely agree that both the teaching and the practice of medicine have changed radically during these decades.

However, School of Medicine alumni also are likely to recognize similarities in both the quality and the intensity of their student years, regardless of timing.

To that end, these classes launched an important part of their reunion celebrations: the Reunion Gift Effort. The Class of 1998 started first in October 2007 when gift chairs Julie L. Steiner, MD 98, and Tony Tsai, MD 98, sent a letter to their classmates announcing the class’ 10th Reunion Gift Effort. Since then, volunteer gift chairs from the 15th through 55th reunions have been encouraging classmates to support the School of Medicine in honor of their respective reunions.

Reunion giving is always an important part of the School of Medicine’s Annual Fund, and this year will be no exception. More than 300 reunion-year alumni already have marked this special occasion with generous support, surpassing $150,000 in gifts to the Annual Fund. Total gifts and commitments, including newly announced bequest plans, exceed $500,000 and will support everything from scholarships to research.

Scholarships stand out

Support for current medical students is always a priority for alumni, just as it is for the School. In 1984, the Class of 1969 made a special effort along these lines for its 25th Reunion. After establishing the Class of 1969 Endowed Scholarship, they launched a tradition when they challenged the Class of 1970 to do the same the following year. Fourteen consecutive classes have marked their 25th reunions with an endowed scholarship effort, along with some “pre-tradition” classes that established scholarships for their 30th, 40th or 50th reunion efforts. These endowed funds produced $92,900 in scholarship awards to students this year, and that impact should grow for years to come.

This year’s 25th Reunion class is continuing the tradition with the encouragement of gift chair David M. Pfeffer, MD 83. The Class of 1983 has already surpassed $50,000 in gifts and pledges to its scholarship fund to ensure that the fund is endowed in perpetuity, making it the 15th consecutive class to do so.
Friends! Food! Fun!

The following School of Medicine alumni and faculty members will be honored during the awards banquet at MD Reunion 2008 for outstanding professional and personal accomplishments:

**Alumni Achievement Awards**
- R. Edward Coleman, MD 68
- Charles O. Elson, MD 68
- Alexander Gottschalk, MD 58
- James P. McCulley, MD 68

**Alumni/Faculty Awards**
- Jacques U. Baenziger, MD 73
- Eugene H. Rubin, MD 78

**Distinguished Service Award**
- John A. Pierce, MD

And more...

Campus tours, class dinners, the Dean’s Luncheon and other events will provide time for catching up in settings from casual to elegant. Continuing medical education sessions will feature alumni speakers and School of Medicine faculty members discussing the latest in research and clinical practice.

**Gift Chairs**

For the 10th through 55th Reunions, volunteers are working with their classmates to make the most of their reunion-year giving to the School of Medicine:

- 1953: Jessie L. Ternberg, MD
- 1958: Donald R. Harkness, MD, and Mary N. Harkness, MD
- 1963: Gerald E. Melitzer, MD
- 1968: Emily L. Smith, MD
- 1973: Robert H. Karl, MD
- 1978: Carlton S. Pearse, MD
- 1983: David M. Pfeffer, MD
- 1993: Dan Sewell, MD
- 1998: Tony Tai, MD, and Julie L. Steiner, MD

**Reunion CME Speakers**

The following individuals will speak at the continuing medical education sessions:

- The Role of Information Technology in Health Care Transformation
  - Mark Frisse, MD 78
- Looking for Fat in All the Wrong Places
  - Jean E. Schaffer, MD
- Decoding the Brain
  - Alex S. Evers, MD
- Anesthesia Awareness
  - Eric C. Leuthardt, MD
- Selected Findings from Two Decades of Research in Disaster Psychiatry
  - Carol S. North, MD
- When is V-Q Scanning a Better Choice than CT Pulmonary Angiography for Diagnosing Pulmonary Embolism?
  - Alexander Gottschalk, MD 58

Festivities will take place at the Ritz-Carlton, St. Louis, located at 100 Carondelet Plaza in Clayton, Missouri.

Honors! Learning!

**SPOTS: Sun Protection Outreach Training by Students**
- Lynn A. Cornelius, MD; Stephanie Lickerman, RN; Medical Student Panelists

**Distinguished Service Award**
- John A. Pierce, MD

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**A group effort**

Reunion giving participation by class shows strength in numbers

Washington University MD alumni are among the most loyal Annual Fund supporters of any medical school in the nation: one out of three typically make a gift each year. Reunion year alumni play an important role, and already the 2008 Reunion group is ahead of the curve.

The Class of 1958 leads for highest participation under gift chairs Don and Mary Harkness (both MD 58), but the very active 40th and 55th reunion classes are focused as well. The Class of 1983, with its Endowed Scholarship effort, also may vie for highest participation. Overall, 36% of reunion-year alumni have participated in their reunion class efforts: a strong start, but in 2003, this same group topped out at 53% participation, so expect growth before it's over.

To make a reunion gift, please contact Ashley Snyder, Office of Medical Alumni and Development, at (314) 935-9686, or e-mail asking@wustl.edu.
1940s

David Statner, MD 43
Statner is retired from medicine and enjoys reading, biking and fencing.

Elfred H. Lampe, MD 48
Lampe is retired from medicine and enjoys golf, reading, gardening and spending time with his children and grandchildren.

Joseph H. Allen, MD 48
Allen recently retired after working for 35 years in radiology at Vanderbilt University. He remains close to his former colleagues and enjoys viewing current medical imaging. He reports that his five local grandchildren keep him happily occupied.

Purdue L. Gould, MD 48
Gould is retired from medicine. He now teaches basic computer techniques one day a week for a commercial software teaching corporation.

Everett R. Lerwick, MD 48
Lerwick is retired from medicine and enjoys spending time with his children and grandchildren.

1950s

Lee D. Cady Jr., MD 51
Cady and his wife, Alicia, retired to Phoenix AZ in 1993 after he served for 26 years with the County of Los Angeles USC, where he was medical director and occupational health services chief of its cardiopulmonary laboratory.

J. Neal Middelkamp, MD 48
Following residency at DC General Hospital on the George Washington University campus, Middelkamp became a faculty member in the Department of Pediatrics at Washington University and later was named director of the Division of Pediatric Infectious Diseases and director of Ambulatory Pediatrics. As an associate of the American Board of Pediatrics, he served as an oral examiner as well as on the Board of Directors and as Chairman of the Board. He also was part of the Pediatric Residency Review Committee, which evaluated pediatric training nationally. Since his retirement, Middelkamp works in the office of the Associate Dean for Graduate Medical Education as the internal reviewer of the 76 ACGME-accredited residency and fellowship training programs at Washington University Medical Center.

Marvin K. Mendenhall, MD 51
Mendenhall retired from the Army in 1973 after serving for 25 years. In 1995, he retired from the Scott and White Clinic in Temple TX. In 1985, he retired as professor at Scott and White and professor of anesthesiology at Texas A&M College of Medicine. Since retirement, Mendenhall has traveled much of the world. At 87, he reads extensively, including medical journals.

John D. Thorpe, MD 52
In addition to his 35 years of practicing pathology and nuclear medicine in Portland OR, Thorpe served as a member of Oregon's Nuclear and Thermal Energy Council for eight years prior to retirement. Since that time, he has been actively involved in Portland's Loaves and Fishes Centers Inc., a nonprofit agency providing hot meals on a daily basis to elderly seniors who are nutritionally at risk.

George L. Shmagranoff, MD 53
Shmagranoff has a clinical practice and is an associate professor emeritus at Sequoia Hospital. He enjoys tennis, watching Stanford basketball and Grand Rounds.

Bernard D. Zuckerman, MD 53
Zuckerman is semi-retired. He is an assistant clinical professor at Yale University School of Medicine.

Tradition of excellence
Four first-year medical students were honored during the 2007–08 academic year as Distinguished Alumni Scholars. Each scholarship is named to honor an alumnus or alumna who has served on the School of Medicine faculty. Front row, from left: Mark J. Manary, MD 82; Travis Keeling; Sumeeta Varma; Lawrence M. Kotner, MD 68. Middle row, from left: Matt Zinter; Louis P. Dehner, MD 66; Jerome J. Gilden, MD 52; Travis Shiba. Back row, from left: Robert McCormack, W. Edwin Dodson, MD.
Donald H. Tilson Jr., MD 55
After medical school, Tilson spent 21 years in the U.S. Army, a time frame that also included residencies in anesthesiology and orthopedics, a year in Vietnam, a continuing marriage, and four sons (the second died overseas in our country's service three years ago). He began a second career in 1977 with Kaiser Permanente, which continues full time. He also completed a third residency (occupational medicine) in 1984 and has focused on office orthopedics since.

Hubert C. Huebl, MD 56
Huebl is retired from clinical surgery. Now he is a teacher and coordinator for medical students from Wayne State University who take their surgical rotations at Oakwood Hospital in Dearborn MI. He has six grandchildren "who are all delightful!"

Dixon F. Spivy, MD 57
Spivy retired from psychiatry at the end of October 2007. His practice of 27 years continues on as Chicago Physician Associates, LLC. He is enjoying retirement and hopes to do some road travel with his dog when the weather permits.

John M. Dietschy, MD 58
Dietschy is a professor of internal medicine at the University of Texas Southwestern Medical School.

Jerome F. Levy, MD 58
Levy is retired from medicine and enjoys photography and exercising. He is completing an MLA degree at Washington University. He has become proficient in Italian and travels to Italy often.

Sidney Richman, MD 58
Richman recently left his position as chief of cardiology at West Palm Beach VA Medical Center and is now in private practice. In his spare time, he enjoys tennis and photography.

Gerald Meltzer, MD 63
Meltzer retired from active practice in 1995. He finished his MS HA at the University of Colorado in 1996. He then spent four years as the medical director of Eye Health Network with Omega Health Systems. He also has been a researcher for the Library of Congress. In his spare time, he enjoys model railroading and photography.

Gary and Penny Shackelford, MD 68
The Shackelfords are both retired and have moved to Wisconsin, where they manage their property (Fair Meadows) to restore its natural habitats. They recently had their land named a Wisconsin State Natural Area. They are both members of the Lake Koshkonong Wetland Association and the Wisconsin Woodland Owners Association. Penny likes to read and swim and Gary enjoys nature, photography and biking. They also have a new granddaughter, Isabel.

David J. Carlson, MD 73
Carlson served as a trauma surgeon with the 67th Combat Support Hospital in Iraq. He also has volunteered his surgical services to the Echo Clinic. He enjoys boating and participating in his children's activities.

Don Knudson, MD 73
Knudson is an active staff physician at two general hospitals and a freestanding ambulatory surgery center. He enjoys his children, golf, running and watching college football.

Margaret A. Montana, MD 78
Montana is heading into semi-retirement. She works from home in teleradiology. She enjoys reading, yoga, photography and her dog.

Kenneth B. Rhinehart, MD 78
Rhinehart is in private practice, working within a subspecialty group. He has spent the last four years serving medical missions with his wife in the Dominican Republic. In his spare time, he enjoys playing basketball for the YMCA men's league.

1970s

Matthew G. Deedy, MD 93
Deedy left the Cleveland Clinic after a fellowship and five years as attending staff. He has joined Cardiovascular Consultants, PA, in Kansas City, where he manages the CV service line for St. Luke's Health System-Mid America Heart Institute.

James A. Keeney, MD 93
Keeney completed his fellowship training in adult reconstructive surgery at Washington University School of Medicine (2003-04) and then moved to San Antonio TX. He will finish his military service commitment in 2010 and is looking forward to returning to St. Louis. He has served two times in Iraq doing reconstructive surgery on U.S. and Iraqi injured.

Elizabeth Swider, MD 98
Swider completed a residency at Children's Memorial Hospital in Chicago. She is now working as a general pediatrician in a group practice. She is a member of the Polish American Medical Society. She enjoys gardening and yoga.

1980s

Mark Cohen, MD 83
Cohen is a staff radiologist at the Cleveland Clinic Foundation and chairman of the Department of Radiology at the Lakewood Hospital. He traveled to Israel last year.

Thomas G. Prater, MD 83
Prater spent a week doing volunteer eye surgery in Tonga (South Pacific). He also participated in the first international cataract surgical teaching program in Hue, Vietnam. He is a member of the CSEE (surgical expeditions) volunteer group that provides worldwide eye surgical staffing. He also participates in the Community Foundation of the Ozarks and is board president of the Springfield Public Schools Foundation. He likes to run marathons, bike and travel.

1990s

Alan L. Goldman, MD 63
Goldman retired from pediatric medicine in July 2007. He enjoys playing tennis, fly fishing, woodworking and his banjo. He spends as much time as he can with his children and grandchildren.
2000s

Doran Fink, MD 00
Fink recently finished a year in the emergency department at Children's National Medical Center in Washington, DC. Currently he is at Johns Hopkins for a three-year fellowship in pediatric infectious diseases. In addition to his yearly medical relief missions in Haiti, Fink also is pursuing a fellowship research project on tropical/parasitic infections and international health.

Geoffrey L. Uy, MD 00
Uy is an assistant professor at Washington University School of Medicine. His focus is on bone marrow transplantation and leukemia.

Jessica Sachs, MD 01
Sachs recently completed a fellowship in pediatric hematology/oncology and is now attending on the bone marrow transplant service at Dana Farber Children's Hospital in Boston. She is also continuing her research on bone marrow transplantation and graft-versus-host disease.

Varun Kumar, MD 02
Kumar has been working as a senior pediatrician and medical advisor at Angkor Hospital for children in Siem Reap, Cambodia, for the last two years. In addition to clinical work in outpatient pediatrics, inpatient pediatrics, ER, ICU and all subspecialties, Kumar helps out with research and teaching the Cambodian residents.

Joanna Fair Lupinetti, MD 03
Lupinetti is in her last year of radiology residency, after which she will return to Washington University School of Medicine for a one-year fellowship. Upon the completion of her fellowship, she will return to the University of New Mexico as a faculty member.

Matt Council, MD 04, and Laurin Council, MD 04
Matt will be finishing his residency in ophthalmology this June and will stay at Washington University School of Medicine next year to be chief resident. Laurin is in her first year of dermatology residency.

In Memory

Richard Patrick Mason, MD 36
Mason, a retired U.S. Army colonel, died on April 9, 2007, at the age of 97. He served in World War II, establishing medical laboratories for the diagnosis and treatment of soldiers with typhus, typhoid and cholera. In 1945, he entered the Dachau concentration camp as part of the first medical team to treat camp survivors. During the Korean War, Mason directed the medical care of North Korean prisoners of war held in South Korea. After three years in command of the Army's 406th Medical General Laboratory, he returned to Washington DC to the Office of the Surgeon General. He served at the Walter Reed Army Institute of Research from 1956 to 1961, when he retired from active duty. He then moved to New York and became vice president for research at the American Cancer Society. Mason is survived by two children, five grandchildren and seven great-grandchildren.

Philip W. Bernstorf, MD 41
Bernstorf died on June 14, 2007, at the age of 92. After serving in World War II, he returned to his home town of Wichita KS to become a resident in medicine at the Wichita VA Hospital. He later became an instructor of internal medicine at the University of Arkansas School of Medicine in Little Rock AR.

William F. McGinnis, MD 41
McGinnis died on Dec. 23, 2007. He practiced obstetrics and gynecology for 49 years. He was chief emeritus and served for 15 years as chief of obstetrics and gynecology at St. Luke's Hospital in St. Louis.

Herman Blumenthal, PhD, MD 42
Blumenthal died on Nov. 5, 2007. He received a doctorate in pathology and a medical degree, both from Washington University. In 1956, Time magazine reported on Blumenthal's study that found emotional stress was the main cause of hardening of the arteries, then the nation's No. 1 health-related killer.

Angelo Madonia, MD 42
Madonia died on June 24, 2007, at the age of 91. After finishing medical school, he did an internship at Rochester's Highland Hospital and his residency in neuropsychiatry at the Air Force Hospital in New York City. He served as a squadron surgeon and psychiatrist in the Army Air Corps during World War II. Madonia had a private practice for children and adults providing psychological services at Rochester Institute of Technology. He was also an associate clinical professor in the Department of Psychiatry at the University of Rochester Medical School until 1981.

Ralph Luce, MD 45
Luce died on March 14, 2007, at the age of 87. After graduating from medical school, he joined the U.S. Army and served during World War II. When he returned home, he became a respected pediatrician and professor at the University of Washington School of Medicine.

William A. Abele, MD 47
Abele died on June 27, 2007, in his home town of Boonville MO, where he had practiced medicine for more than 35 years. After graduating from medical school, he completed his residency at Yale University. He also served in the U.S. Army. He was named chief of the Army Medical Dispensary in Tokyo, Japan, the largest Army medical facility in Asia.

Richard P. Bowles, MD 53
Bowles died on Aug. 28, 2007, at the age of 79 from an autoimmune disorder. After serving in the U.S. Army, he practiced as a family physician in his home town of Liberty MO. Bowles is survived by his wife, four sons, and 13 grandchildren.

Stanley A. Burris, MD 53
Burris died on June 16, 2007, at the age of 81. He lived in Springfield IL and is survived by his wife, three children and grandchildren.
James Harvey Glenn, MD 55

Glenn died on Nov. 30, 2007, in Tucson AZ. After receiving his medical degree, he did his residency in pathology at Barnes Hospital. He practiced medicine for nearly 30 years. He is survived by his second wife, Jane, three children, eight grandchildren and one great-grandson.

Robert L. Nelson, MD 55, MPH

Nelson died on Feb. 28, 2007, at the age of 78. Upon finishing his medical degree, he entered the U.S. Air Force and was chief of obstetrics and gynecology at the base hospital in Topeka KS. He did an internship and residency at the University of Miami at Jackson Memorial Hospital and served as chief resident. He also completed another residency program at Johns Hopkins Hospital in Baltimore MD, again serving as chief resident in obstetrics and gynecology. Nelson earned a master's degree in public health administration at the University of Arizona in 1999.

Faculty

Margaret "Margo" W. Skinner, PhD 76

Skinner, professor of otolaryngology and director of the Cochlear Implant and Hearing Rehabilitation Program at Washington University School of Medicine, died Jan. 11, 2008, at Barnes-Jewish Hospital after a long illness. She was 72. Skinner worked in audiology for more than four decades, earning an international reputation in auditory rehabilitation. Her research and insightful clinical skills culminated in the publication of a book considered the "bible" on hearing aids. She was a pioneer in the field of cochlear implants to help patients who do not benefit from hearing aids, and she served on the executive boards of state and national auditory societies and chaired international conferences in this area. Skinner began her academic career at Washington University as a lecturer in the Department of Speech and Hearing in 1977, eventually becoming a professor in the Department of Otolaryngology-Head and Neck Surgery in 1997. She became director of the Cochlear Implant and Hearing Rehabilitation Program in 1984. She received many awards and honors including the Pioneer in Hearing Aids, the Jerger Career Award in Hearing from the American Academy of Audiology, the Carhart Memorial Lecturer from the American Auditory Society, the Washington University Academic Women's Pioneer Award and the keynote lecture-ship at the 11th International Symposium on Cochlear Implants in 2007. Skinner earned a degree in chemistry at Wellesley College in 1956. She earned a master's degree in audiology from Case Western Reserve University in 1960 and worked as an audiologist for almost two decades before earning her doctorate in audiology at Washington University in 1976. Skinner juggled being a homemaker and raising two boys with her clinical responsibilities as an audiologist. Although she did not complete her doctorate until she was in her 40s, her progress was rapid due to her legendary clinical expertise and her well-honed multitasking capabilities. A translational scientist before the term was coined, Skinner's intense fascination and passion for her work led many patients "back into the world of sound." She is survived by sons George L. Kraft, Jonathan R. Kraft and daughter-in-law Lori Kraft, all of St. Louis; a stepdaughter, Linda Pigg of Kansas City, seven grandchildren, and many nieces, nephews and friends. Memorial contributions may be directed to the Cochlear Implant and Hearing Rehabilitation Program at Washington University School of Medicine, 7425 Forsyth Ave., Campus Box 1247, St. Louis MO 63105-2161, (314) 935-9688.
A gift through your estate or life income plan can have a big impact. Robert J. Glaser, MD, HS 47, and his late wife, Helen HofSommer Glaser, MD 47, have supported faculty, residents, scholarships for women medical students, and the medical library.

Jeffrey I. Gordon, MD, is the Dr. Robert J. Glaser Distinguished University Professor and director of the Center for Genome Sciences.

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Anatomical Re-presentations  Images from classic anatomies are familiar to students of the history of science. An exhibit at the Farrell Learning and Teaching Center by artist Libby Reuter revisits and re-interprets these time-worn images and ideas. Reuter explores ways that earlier artists encoded themselves — their beliefs, understandings and misunderstandings — in the art, and she layers contemporary imagery and inserts fragments of philosophical and scholarly texts that shape one's responses to the body. For more on the exhibit, which runs through May 15, 2008, visit medschool.wustl.edu.
A change of season An inviting spring day, a fortunate cyclist, restful waterfowl and Washington University Medical Center. This paved trail is among the highlights that make Forest Park beloved by members of the university community. Ongoing renovations to the park's amenities make it even more attractive for a quick getaway or enjoying its cultural and recreational destinations.