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An expert description of gel preparation is presented to House Democratic Leader Richard Gephardt by Robert H. Waterston, MD, PhD, director of the Genome Sequencing Center at the School of Medicine. Here, Waterston, the James S. McDonnell Professor of Genetics and head of the department, shows Gephardt how gels are readied for the DNA sequencing machine. Gephardt was in St. Louis on March 21 to tour the Genome Sequencing Center, the largest in the United States, and to stress the need for increased funding for medical research through the National Institutes of Health.

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THE COVER

The image depicts a 3-D surface model of the epicardial and endocardial surfaces of the human aorta. The blue inside the image reveals the right endocardial surface, while the gold shows the left endocardial surface. The white depicts the epicardial surface. Three-dimensional, computer-generated models such as these are used by School of Medicine researchers to study how electricity flows over the heart's surface, providing valuable insight into disease. For more on heart mapping, see page 16.

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McAlister, Whelan Named Associate Deans

Rebecca P. McAlister, MD, has been named associate dean for graduate medical education and Alison Whelan, MD, has been named associate dean for undergraduate medical education.

As associate dean, McAlister will oversee the residency and fellowship programs at the Medical Center, one of the responsibilities previously held by S. Bruce Dowton, MD, associate vice chancellor and associate dean for medical education. Dowton left Washington University last December to become dean of the medical school at the University of South Wales in Sydney, Australia.

Whelan, an assistant professor of internal medicine and of pediatrics, is assuming the undergraduate medical education responsibilities of Dowton, who also directed the training and shared successful strategies with training directors at the School of Medicine. She also will help residency and fellowship program directors accomplish program goals and set standards.

She will maintain her responsibilities as chief of the division of gynecology and director of the residency program for the Department of Obstetrics and Gynecology.

Whelan will oversee all matters pertaining to the education of medical students at Washington University. She will coordinate education programs and implement changes in curriculum and teaching methods to maintain high degree standards.

Whelan will oversee preparation for the upcoming accreditation review by the Liaison Committee of Medical Education.

A medical geneticist, Whelan teaches medical genetics and trains medicine residents to teach medical students, a process she hopes to extend to other departments at the medical school.

Eberlein Named Bixby Professor And Head Of Surgery

Timothy J. Eberlein, MD, has been named Bixby Professor and head of the Department of Surgery, succeeding Samuel A. Wells Jr., MD, who has served as head of surgery since 1981.

Wells is leaving Washington University to become director of the American College of Surgeons, effective July 1, 1998. With 63,000 members, the American College of Surgeons is the largest surgical organization in the world. Wells is renowned for research and clinical expertise in oncology and endocrinology, and he developed the first genetic test for a particular form of thyroid cancer. A simple surgery can prevent the disease.

Eberlein was the Richard E. Wilson Professor of Surgery at Harvard Medical School. He also served as vice chairman for research in the Department of Surgery at Brigham and Women's Hospital.

"It is an honor to succeed Dr. Wells, who has left what can arguably be characterized as the best department of surgery in the country," says Eberlein. "It will be my privilege to work with Dean Peck and the leadership of Barnes-Jewish Hospital and the BJC network to build on Sam's tradition of clinical and academic excellence."

An author or co-author of more than 200 scientific articles, Eberlein is a surgical oncologist who is renowned for his clinical expertise in the management of breast cancer, gastrointestinal malignancies and soft-tissue sarcoma. His current research projects focus on T cell immunotherapy, interactions of tumors and lymphocytes and identification of tumor antigens. He has conducted many clinical trials of immunotherapeutic agents and has supervised treatment protocols for various forms of cancer.
Clifford Selected For New Neurology Post

DAVID B. Clifford, MD, professor of neurology, has been named vice chairman of the Department of Neurology.

Clifford will work with Dennis W. Choi, MD, PhD, the Andrew B. and Gretchen P. Jones Professor and head of neurology, on a variety of administrative tasks, particularly the delivery of clinical services and the mentoring of junior faculty.

Clifford also sits on the boards of St. Louis Regional Medical Center and the Institute of Medical Education and Research. He is a staff physician at Barnes-Jewish Hospital and chief of neurology and president of the medical staff at ConnectCare, the organization succeeding Regional Medical Center.

As principal investigator of the federally funded Neurologic AIDS Research Consortium, Clifford coordinates clinical trials around the nation that address neurologic problems among HIV-infected patients. More than half of AIDS patients develop serious neurological complications such as dementia, painful neuropathy or rapidly fatal damage to the spinal cord.

Clifford joined the faculty as a research instructor in neurology in June 1981, attaining the rank of professor by 1994. He also is director of residency training in the Department of Neurology and clinical representative to the executive faculty at the School of Medicine.

Two Medical Students Receive Scholarships

TWO students at the School of Medicine have recently been awarded scholarships. First-year medical student Robert Blanton has been named the first Musselman Scholar, and will receive an annual scholarship throughout his medical education at Washington University. Melanie Everitt-Watson, a third-year medical student, has received a one-time scholarship from the Southern Medical Association (SMA).

Blanton, who is from Houston TX, received his undergraduate degree in biology and history at Washington University in 1997. As an undergraduate, he was elected into Phi Beta Kappa; Alpha Epsilon Delta (AED), the pre-medical honor society; and received a Howard Hughes Research Fellowship. In addition to his academic achievements, Blanton is an accomplished trombone player who has performed with the Washington University Wind Ensemble and the University's symphony orchestra.

"I had hoped to stay at Washington University for medical school since the programs and opportunities here fit in so well with my personal and professional goals," says Blanton. "Just being accepted was a great honor for me; receiving a scholarship came as even more of a surprise. Without financial aid, especially grants like the Musselman Scholarship, I might not have been able to attend medical school here."

Each year the SMA, which is based in Birmingham AL, awards one-time tuition scholarships to third-year medical students who have been recommended by their deans. Everitt-Watson, who is from Searcy AR, graduated summa cum laude with a degree in microbiology from the University of Arkansas.

She was selected Phi Beta Kappa Scholar as an undergraduate, and also was a National Science Scholar, a Phi Kappa Phi fellow and received the Delbert Schwartz Award for outstanding achievement in microbiology as a senior. In addition, she served as a volunteer missionary to Guatemala and to Russia, and worked as a lab assistant on a NASA-funded project exploring the possibility of life on Mars.

"It is such an honor to be selected for this award," says Everitt-Watson. "As with every good thing that happens, I must give thanks and praise to God for always providing the strength and motivation to work at whatever I do with all of my heart. During my clerkship year, I have learned that the love of knowledge and the love for those around you must be in your heart to succeed in medicine and to make a difference in the lives of patients."
U.S. News Ranks School Of Medicine, OT And PT

THE School of Medicine is one of the top three medical schools in the country, according to the U.S. News & World Report 1998 annual rankings of graduate and professional programs. The medical school's No. 3 ranking — behind Harvard University and Johns Hopkins University — is up from No. 5 in 1997.

"It gives the university community great pride to see our medical school ranked so highly among the esteemed institutions clustered at the top of this list," says William A. Peck, MD, executive vice chancellor for medical affairs and dean of the medical school. "This is a well-deserved compliment to our medical faculty, staff and especially our students. I am also extremely pleased, but certainly not surprised, at the top ranking of our programs in physical and occupational therapy."

The school's Program in Physical Therapy remains No. 1 nationwide, a stature it has held since the magazine first ranked that category in 1995. In a new ranking category, the Program in Occupational Therapy was positioned third.

"I am very pleased that the program is ranked among the top three," says Carolyn Baum, PhD, occupational therapy program director. "The ranking recognizes academic excellence, and most importantly, it is an opportunity for individuals seeking graduate education to realize that occupational therapy is an additional health care career option they can explore. We expect that the Program in Occupational Therapy will receive many inquiries based upon this achievement."

McDonnell Family Makes Gift For Pediatric Research Building

The McDonnell Family Makes Gift For Pediatric Research Building

The new McDonnell Pediatric Research Building will be a focal point for investigations into the biology of childhood diseases. Shown is an artist's rendering.

The new McDonnell Pediatric Research Building will be a focal point for investigations into the biology of childhood diseases. Shown is an artist's rendering.

The McDonnell Pediatric Research Building will be a focal point for investigations into the biology of childhood diseases and will enable researchers to speed the application of basic science discoveries to the clinical care of children. It also will consolidate pediatric research activities into one building at Washington University Medical Center, where both the School of Medicine and Children's Hospital are located. The medical school and hospital have worked together on research and health care for more than eight decades.

Currently, pediatric research at the Medical Center exists in five separate sites. The 10-story, 226,000-square-foot building will provide six floors of pediatric research laboratories for new programs and the expansion of existing ones. The building is designed to provide investigators with opportunities for creative interdisciplinary research by allowing clinicians and clinical investigators to work alongside basic scientists.

Located at the corner of Children's Place and Euclid Avenue, the pediatric research building will be a wing of the Clinical Sciences Research Building, which houses research activities for other clinical departments. Outside of pediatrics, molecular microbiology/host-pathogen interactions and basic cancer biology will have labs in the facility.

Perkins & Will of Chicago is the design architect group for the pediatric building. Construction began in early 1998 and should be completed in 2000.
**A Job Well Done**

**THE Washington University Medical Center Transportation Management Association (WUMC TMA) received the award for Outstanding Contribution for Outreach and Education at the third annual RideFinder's Clean Air Awards event last December.**

RideFinders, the regional ridesharing organization for the St. Louis area operated by Madison County Transit, annually honors local individuals, organizations and media working to reduce the number of work-related, single-occupancy vehicle trips in an effort to improve the region's air quality and reduce traffic congestion. The awards recognize creativity, dedication and effectiveness in developing and implementing programs and services that work to achieve this end.

The WUMC TMA is a cooperative partnership among Barnes-Jewish Hospital, St. Louis Children's Hospital, St. Louis College of Pharmacy and Washington University School of Medicine to reduce traffic congestion and improve air quality for the Medical Center and the St. Louis community.

TMA services include discounted parking for carpools, operating a fleet of van pools, on-site transit pass sales and route planning assistance, and developing bicycle storage facilities.

For information about the TMA, contact (314) 747-0726 or rideshare@facilities.wustl.edu.

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**Kasthuri Is Off To Oxford University**

**NARAYANAN “Bobby” Kasthuri, a first-year medical student, is one of 32 Americans to receive a Rhodes Scholarship to Oxford University, England. He will begin his studies this fall.**

Kasthuri is the 18th Rhodes Scholar from Washington University. Chosen on the basis of academic excellence, integrity, leadership ability and athletic prowess, Rhodes Scholarships provide two to three years of study and include tuition and a stipend. Kasthuri will pursue a PhD in neuroscience.

Kasthuri currently holds a Howard Hughes Medical Scholarship and is studying for a master of arts degree in Washington University's MA/MD program. He is working with Jeff Lichtman, MD, PhD, professor of neurobiology, on visualizing changes at the junctions between developing nerve and muscle cells in mice.

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**Student Award Winners**

Second-year medical student Daniel R. Berg was awarded a set of hand-illustrated medical texts for receiving the Novartis Pharmaceutical Corp. Award for Community Service. Berg was among 28 first-, second- and third-year medical students recognized at the 1996-97 student awards luncheon in December.

Researchers Uncover A New Genetic Risk For Alzheimer's

INVESTIGATORS at the School of Medicine and the University of Madrid, Spain, have found a genetic variation that appears to increase the risk of developing Alzheimer's disease. The finding provides a link between two substances previously implicated in the disease — APOE, a cholesterol-carrying protein, and beta-amyloid, a protein that forms plaques in the brain.

Scientists have known of a relationship between the APOE gene and Alzheimer’s disease, but no one knew of a mechanism by which APOE might lead to the disorder. In addition, there are several forms of APOE, but only the form known as APOE e4 was closely related to the risk for Alzheimer’s disease.

The new study, reported in the January 1998 issue of Nature Genetics, shows that other forms of APOE also can increase the risk of Alzheimer’s and suggests how this might happen.

A team led by Alison M. Goate, PhD, associate professor of genetics in psychiatry and a lead author of the study, collaborated with Spanish researchers, led by Fernando Valdivieso, PhD, at the University of Madrid. The two groups studied individuals with Alzheimer’s and compared them with individuals of the same age who did not have the disease.

In both the American and the Spanish subjects, investigators found three normal variations, or polymorphisms, in the promoter region of the APOE gene. The promoter is a stretch of DNA that determines how active a gene becomes. One of the genetic variations was linked to a higher frequency of Alzheimer’s disease. It caused a higher level of expression of APOE, regardless of whether the APOE gene was the e4 variety. Subjects with this polymorphism were about three times more likely to have Alzheimer’s than those who did not have the variation.

After confirming the relationship between the genetic variation and risk of Alzheimer’s in both populations, the investigators did test-tube experiments to determine how the polymorphism affected production of the APOE protein. They found that it caused higher levels to be produced.

In animal models of the disease, other researchers have shown that increased APOE levels can raise the amount of amyloid that is deposited in Alzheimer plaques. Amyloid protein contributes to the development of senile plaques, which dot the brain’s cortex in Alzheimer patients. Little is understood about the causes of these deposits.

Dispelling Misconceptions About Mammography

ABOUT half of U.S. deaths from breast cancer each year occur in women who are 65 years of age or older. Yet older women, especially those from minority groups, get the fewest mammograms. A new study at the School of Medicine suggests that doctors may help reverse this trend by addressing women’s fears of finding a lump and other barriers to being tested.

“IT'S important to first find out what a woman is thinking. If she's not leaning toward getting a mammogram, the first step should be to find out why,” says Celette Sugg Skinner, PhD, assistant professor of radiology at Washington University’s Mallinckrodt Institute of Radiology. Skinner was the primary investigator in a study of 253 women living in urban St. Louis. A 1995 telephone survey of these women, aged 65 years or older, explored the erroneous beliefs, fears and practical issues that deter women from getting mammograms.

The findings are published in the January 1998 issue of the American Journal of Preventive Medicine. Overall findings revealed that women were more likely to have had recent mammograms if they were under age 75, were educated, did not smoke or received regular medical care.

The survey also showed that many women shared certain misconceptions about breast cancer and mammography. For example, many mistakenly believed that self-exams can detect lumps as small as the pea-sized ones revealed by mammograms. However, women who were not considering getting mammograms were more likely to believe that:

- breast cancer is a young woman’s disease,
- finding a cancerous lump likely lead to a mastectomy,
- a woman who protects her breasts from being bumped, bruised or fondled is less likely to get breast cancer.

Fear of finding a cancerous lump was the major barrier for women already considering getting tested. Skinner says these women may need more information on mammography’s benefits and reassurance that most breast lumps are not cancerous.
WASHINGTON University has signed an agreement with SIGA Pharmaceuticals Inc., that gives the company exclusive rights to new antibacterial technology. The agreement will allow SIGA to develop an entirely new class of antibiotics that are less likely to be sidelined by bacterial resistance than current therapies. It also provides three years of research funding for the Washington University scientists who are involved in the project.

SIGA Pharmaceuticals is a New York-based drug development company that produces vaccines, antibiotics and novel anti-infectives. It also signed agreements with MedImmune and Astra, two biotech companies that previously had licensed the technology from Washington University.

The technology was developed by Scott J. Hultgren, PhD, associate professor of molecular microbiology at the School of Medicine. Over the past decade, Hultgren's group has determined how Gram-negative bacteria manufacture the structures that allow them to cling to human tissues and therefore cause disease. Gram-negative bacteria have an outer lipid layer and do not take up Gram stains.

Most of Hultgren's work has focused on strains of E. coli that infect the kidney and bladder. But the same principles apply to many other pathogens, including those that cause middle-ear infections, pneumonia, meningitis and gonorrhea. "The knowledge that we generated by studying the structure and function of microbial attachment has provided a blueprint for the development of novel antimicrobial therapeutics and strategies," Hultgren says.

E. coli is covered with hair-like structures called pili. The tips of the pili carry proteins that fit into receptors in the kidney or bladder lining like keys into locks. Firmly anchored, the bacteria go about their business undisturbed.

Hultgren's team has identified the major components along the pili assembly line. The researchers, also have identified compounds that may inhibit one of these proteins. With the SIGA funding, they now will develop and test additional compounds. Such drugs should prevent Gram-negative pathogenic bacteria from making pili. The bald bacteria would be unable to cause disease.

"The mode of action of this new class of anti-infectives will be unlike any other previously discovered," Hultgren says. "This will circumvent the resistance mechanisms already established in many Gram-negative bacteria. And because the pathway that makes pili is conserved in these microbes, inhibitors discovered by the SIGA/Washington University collaboration have the potential to be broad-spectrum antibiotics."
CLINICAL STUDIES
By Design

Biostatistics Division Helps Researchers Analyze and Focus Investigations

BY BARBRA RODRIGUEZ
Medical maxims, such as "Exercise can reduce heart attack risk," often help physicians direct their healing efforts. Such guidelines result from well-designed clinical trials that are integral to research institutions such as the School of Medicine.

But developing studies to add to the breadth of medical knowledge is difficult. It requires dedicated physicians, cooperative patients and scrutiny of myriad issues that can cast doubt on study findings.

The medical school’s division of biostatistics, which guides clinical study design, data collection and analysis, helps investigators tackle the challenges posed by clinical trials. Division members offer advice on diverse issues, such as the number and type of patients to enlist to ensure confidence in a drug study’s results, how to measure the effects of a lifestyle change, or provide statistical know-how to make the most of study data. The division also collaborates with the recently established Center for Clinical Studies when protocols need to be designed or data is to be analyzed for industry-sponsored studies.

“The ultimate goal is to use the information we gain for the benefit of average Americans,” says Dabeeru C. Rao, PhD, director of the division and professor of biostatistics.

A leader in the field of genetic epidemiology, Rao joined the medical school faculty in 1980 to direct the division at a time when biostatistics was rapidly developing. Until the mid-1960s, says Rao, clinical trials often suffered from lack of focus. The medical school’s biostatistics division, begun in 1966, established a network of support services that Rao says has resulted in a higher caliber of clinical studies.

QUALITY CONTROL

Clinical study specialists, such as J. Philip Miller, AB, professor of biostatistics, and Ken Schechtman, PhD, associate professor of biostatistics and research associate professor of medicine, help ensure the quality of studies at the medical school.

“There are many ways that problems can creep into a study,” Schechtman says. “Biostatisticians tend to be more sensitive to these issues than the people in the trenches gathering data from real patients.”

For example, division members convinced researchers it was important to focus a study on the normal progression of a poorly understood eye disease before they pursued an involved investigation on potential treatments. In another study on exercise and genetics, they favored the use of both simple and complex tests to measure how well volunteers handle glucose, a finding that can serve as a warning sign for adult-onset diabetes.

Schechtman guides several studies on the physiological benefits of exercise in the elderly. In one study, staff at the medical school’s Claude D. Pepper Older American Independence Center are evaluating 300 elderly men and women undergoing nine months of exercise training. Schechtman worked with researchers to select tests to measure physical strength, aerobic fitness and other fitness attributes before and after the training period.

Schechtman and his colleagues in the division also investigate ways to ensure the success of clinical studies. For example, Schechtman has found that researchers benefit from meeting with potential volunteers before a study begins to see if they make their appointments and are comfortable performing the required regimens. This process weeds out those who may be unable or unwilling to follow study guidelines, he says.

Schechtman and Miller also assist in setting standards for cancer studies as part of the Medical Center’s efforts to become a National Cancer Institute-designated Cancer Center. Miller, who

J. Philip Miller, seated, director of the Washington University Biostatistics Computing Resource Center, and Erich L. Schraer, systems manager for the biostatistics division, work on developing a web site in the computing resource center.
directs the Cancer Center's Biostatistics and Clinical Trial Core, spends much of his time collaborating with investigators planning new cancer studies.

He also oversees biostatistical efforts for collaborations here that focus on aging and other health issues. Currently, Miller is codirector of the coordinating center for studies on ocular hypertension and glaucoma. In another study — a landmark investigation on Duchenne's muscular dystrophy begun in 1978 — Miller convinced Washington University researchers and others to use standardized tests to gauge disease status and patient responses to potential therapies, an uncommon procedure at the time. The approach allowed the investigators to pool results and provided convincing support for treating Duchenne patients with corticosteroid hormone drugs that slow the muscle-weakening disease. As director of the division's Washington University Biostatistics (wubios) Computing Resource Center, Miller creates web sites for information about clinical studies, provides e-mail discussion lines, and encourages use of advanced computer programs that provide combined access to patient information and research data.

Along with Miller and Schechtman, Michael Province, PhD, associate professor of biostatistics, conducts workshops on clinical study design to assist junior faculty and others in soliciting grant funding. In addition, he provides expertise on study management and related areas that ensure data integrity and quality and is one of several senior faculty who conduct seminars and short courses on biostatistics.

**MANAGING MULTICENTER STUDIES**

In addition to assisting researchers here, the biostatistics division involves itself in a number of large, multicenter studies outside of the Medical Center. Rao coordinates the most comprehensive family study of its kind to examine factors that may alter the risk of some sedentary people for diabetes or cardiovascular disease with regular exercise. The HERITAGE Family Study began in 1992 after previous studies suggested that some people who exercise only lose weight, while others also improve

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![Actual Data](#)  ![BMI distribution](#)  ![Recessive Gene](#)

**In the Quebec Family Study, biostatisticians Trena Rice and Ingrid Borecki are looking at genetic factors associated with obesity, which puts people at risk for certain diseases. The diagram above shows the link between genetics and a measure of obesity, an individual's body mass index. The green line represents people who carry two copies of a recessive gene associated with obesity; the data, in red, show that those people who carry the recessive genes are prone to obesity.**
Some members of the division of biostatistics are, from left, Treva Rice, PhD; Michael A. Province, PhD; Ingrid Borecki, PhD; and Dabeen L. Chao, PhD, who directs the division.

Their heart rates and gain additional benefits that reduce disease risk.

"We want to nail down the genetic and environmental factors underlying these differences and determine how they interact," Rao says.

To do that, clinicians put sedentary members of 103 African-American families and 98 Caucasian families on a 20-week exercise program at field centers at the University of Indiana, Texas A&M University, the University of Minnesota, and Laval University in Quebec, Canada. Rao and Province managed the complex study that involved performing tests for cardiovascular fitness and diabetes risk before and after the exercise program.

In phase two of the study, Rao, Province, Treva Rice, PhD, research assistant professor of biostatistics, and Ingrid Borecki, PhD, research associate professor of biostatistics, will work with Laval University researchers to combine health data with genetic data gathered from blood samples of each volunteer.

The analyses are expected to reveal dozens of lifestyle and hereditary factors that may be relevant. For the past two decades, Rao has directed funding toward development of biostatistical models to help tease out elements that warrant further study. Province has used his background in mathematics to develop a model called SEGPATH to provide more powerful ways to look for disease genes.

Province also is principal investigator for the Family Heart Study begun in 1992 to define factors that influence development of heart disease. In phase one of the multicenter study, he helped select a battery of tests to be used at four research sites in evaluating 1,200 families — 600 that were suspected of being at risk for heart disease and 600 of unknown risk. The Herculean task of hunting for specific heart disease genes in these families is now underway, using markers that function like flags along the DNA to indicate gene locations.

"If there are any fairly big genetic players in heart disease, this study should find them," Province says of the investigation, which is taking place here and at Boston University, the University of Utah, the University of North Carolina at Chapel Hill and the University of Minnesota.

Biostatisticians Rice and Borecki, who help develop and manage large epidemiology studies such as the Family Heart Study, also participate in their own collaborations with other universities. For example, both work with Claude Bouchard, PhD, at Laval University, who began searching two decades ago for genetic factors associated with obesity.

Their work suggests that a relatively rare gene is associated with extreme obesity. The unidentified gene appears to influence how much fat a person carries and an individual's body mass index, a measure of weight and height that helps indicate disease risk. Another more prevalent gene also appears to influence obesity. "There's a good list of candidate genes we can take a closer look at to find those specifically involved," Borecki says.

The division's success with clinical trials has paved the way for larger endeavors that could provide a model for medical research in the 21st century. With Province's assistance, Rao directs a multicenter hypertension study called HyperGEN that is part of the largest research effort funded by the National Heart, Lung, and Blood Institute (NHLBI).

HyperGEN researchers at five field centers will evaluate more than 1,200 brothers and sisters who share a risk for high blood pressure. Rao and his collaborators will combine results from this network with those of three other similar networks the NHLBI has funded.

"The entire National Institutes of Health system is watching closely," says Rao. "I am certain the division will continue providing crucial support for key genetic studies such as this and for active clinical efforts at the School of Medicine."
After four surgeries on her jaw and two on her wrist, Diane Salarano, of St. Louis, took to her bed. The pain in her face, wrist, arm, shoulder, and neck was so intense that she couldn't talk on the phone, drive, do laundry or even load the dishwasher. A registered nurse, Salarano had just given up her job. It was 1991, and she had been in pain since 1983, when she was 28.

In 1992, Salarano was referred to the Pain Management Center, a joint venture of the School of Medicine and Barnes-Jewish Hospital. Five months later, she was able to bake muffins. The following year she became a volunteer for Pets Are Wonderful Support, or PAWS, helping AIDS patients retain their pets. "The quality of my life has improved tremendously," Salarano says. "I can get out, drive and talk on the phone. That's a lot different from lying in bed several hours a day."

Managing Pain

Established in 1991, the Pain Management Center now treats 800 to 1,000 patients each year, providing physical therapists, psychologists and pain management specialists — anesthesiologists who have completed a fellowship in pain management. Other experts, such as neurologists and physiatrists (who specialize in physical medicine), also are on hand. "This multidisciplinary approach is very important," says
the center’s director, Robert A. Swarm, MD, assistant professor of anesthesiology. “Patients with chronic pain often need physical therapy to keep them at a reasonable level of activity, and they may need help dealing with emotional factors that exacerbate pain or make it less tolerable.”

As a pain management specialist, Swarm offers low-tech approaches such as aspirin, Tylenol® and ibuprofen. Unlike drugs such as tricyclic antidepressants and anti-seizure medications also are on the palette. For patients who are among the 30 million to 40 million Americans whose moderate to severe pain isn’t quelled by these compounds, there are high-tech solutions such as implanted spinal cord stimulators or spinal drug administration pumps. There also is the controversial class of pain medications called opioids.

“Ten years ago, most physicians thought it was absolutely inappropriate for patients with noncancer chronic pain to take opioids on a long-term basis,” Swarm says. “Now, the majority would say there are other advanced illnesses, such as end-stage rheumatoid arthritis or AIDS, where opioids are a reasonable option. But some of us believe that long-term opioid use also can be appropriate for some younger patients.”

Teaching people about pain also is part of the center’s mission — the staff help patients distinguish between hurt and harm. When a tissue is first injured, pain is a warning signal, which becomes more shrill if the same place is injured again. But the hurt can continue long after the harm has gone away, making life miserable for people with amputated limbs or nerve damage due to diabetes. “With the knowledge that this chronic pain does not indicate new or ongoing damage, patients often can manage it differently than if they viewed it as an acute problem,” Swarm says. “That insight frees them to lead a more active life.”

The center cannot help all pain patients, however. Cancer patients in the last few days of their lives or people with severe diabetic neuropathy may be beyond help from even the most effective anesthetics. “To develop even better therapies,” Swarm says, “we need a greater understanding of how the nervous system amplifies pain signals and how it dampens the sensation of pain.”

Tracing Pain Pathways

Min Zhuo, PhD, assistant professor of anesthesiology, has discovered a new way the nervous system can jack up pain.

Though we feel pain fast when we touch a hot stove or bump an elbow, much happens in that split second. Heat receptors on the burned finger trigger an electrical impulse, which travels along a nerve fiber to the dorsal horn of the spinal cord (in cross section, the spinal cord has two horns that point to the dorsal surface of the body.) This fiber hooks up with a fiber that passes pain messages from the spinal cord to the brain.

On reaching the brain, the message goes through a relay station to the anterior cingulate cortex, a region on top of the brain. Imaging studies have shown that the anterior cingulate cortex becomes active when a heat pain signal is sent to the brain.

Because pain signals cross junctions called synapses on their journey from the skin or internal organs to the anterior cingulate cortex, they can be modified en route, altering the brain’s perception of pain. This may explain why gravely wounded soldiers sometimes are unaware of their wounds and why alternative medicines, such as acupuncture, can be effective against certain types of pain.

A region of the brainstem called the rostral-ventral medulla (RVM) is influential in this respect. Briefer by the cingulate cortex, it can command the spinal cord to stop sending pain messages, as if it were closing a gate to the brain. “This inhibitory system works well in healthy people,” Zhuo says. “But when patients have cancer or nerve damage, it appears to be overridden.”

Zhuo is testing a bold new idea: that chronic pain teaches patients to hurt the same way repeated practice teaches a child to read — by strengthening synapses to make them more efficient. Such an effect is called long-term potentiation or LTP. Intrigued by this notion, Zhuo spent three and a half years as a postdoctoral fellow at Columbia University, learning how to study learning.
descending pathway

Min Zhuo, PhD

certain wavebands, they don’t respond to glutamate, the neurotransmitter secreted by low-threshold fibers. This inattention results from a lack of glutamate receptors — proteins tuned to this neurotransmitter. So these neurons can pick up only emergency broadcast — pain messages conveyed by peptides, which the high-threshold fibers secrete.

Zhuo has discovered that low-threshold fibers that persist in sending messages eventually get heard, however. He has found that placing an irritating chemical such as formalin on the skin of a rat activates neurons in the RVM. This in turn activates a facilitating system that descends from the RVM to the dorsal horn. The net result is that dorsal horn neurons become sensitized to non-noxious stimuli.

This finding may explain why some patients experience touch as pain. People with a condition called allodynia are so sensitive that some cannot bear to put on clothes.

“If nerve cells in the spinal cord become tuned to high-threshold fibers, the brain thinks it is receiving pain signals instead of touch signals because these nerve cells normally relay only pain signals to the brain,” Zhuo says.

New strategies to help such patients — and those with other types of chronic pain — have focused on strengthening the inhibitory pathway between the RVM and the spinal cord. “But the discovery of a facilitating pathway gives us another option — getting rid of the descending excitation could be another choice for drug development,” Zhuo says.

Zhuo has shown that serotonin receptors in the spinal cord enable the facilitating pathway to function. Therefore, drugs that block these receptors also might block pain. In studies with rats, Zhuo has shown that such compounds are, in fact, effective.

“Our ultimate goal is to borrow knowledge gathered from studies of LTP to relieve pain,” he says. “For many years, people thought that when you treated a disease, the pain would go away. Now we know that treating pain often can prevent a disease from getting worse.”
Stopping Pain At Its Source

Arpad Szallis, MD, PhD, senior research associate in neurobiology, is taking a different approach — stopping pain at its source.

"Traditional painkillers suppress the signals that go from the spinal cord to the brain," Szallasi explains. "The novel approach would be to silence the neurons that generate those signals." Szallasi is focusing on substances in plants that warn away grazing animals. These include capsaicin, the fiery substance in chili peppers. Though capsaicin initially burns and stings, it later deadens nerves, relieving pain for hours.

Capsaicin has some offbeat applications. It is used to squirrel-proof bird seed because birds can't taste hot pepper. And it is used to ward off bears, though it actually may act as bear camph. Capsaicin injected into the urinary bladder via a catheter is used to treat bladder hyperreflexia, which often plagues people with multiple sclerosis or injured spinal cords. Such patients have to empty their bladders several times an hour because their nerves say the bladder is full when it isn't. Capsaicin silences these nerves, but the initial injections are very painful.

A related substance in the irritating latex of cactus-like Euphorbia plants might lead to a better treatment. In fact, Euphorbia sap has been used as a topical painkiller for at least 2,000 years. The active ingredient, resiniferatoxin (RTX), is currently on trial for patients with diabetic neuropathy, an intractable stabbing pain that results from nerve damage. And a small trial with urinary bladder hyperreflexia patients was reported last year. "I would risk the prediction that we will have a resiniferatoxin-containing drug on the market in the foreseeable future," Szallasi says.

RTX has two big advantages over capsaicin. First, it does not burn as much when applied, and, second, it desensitizes nerves for much longer periods of time. "But it isn't the perfect drug," Szallasi says. "It's expensive because you have to isolate the parent compound from a plant. If you could come up with a simpler version that is easier to synthesize, that would be a big step. Such a drug also could be taken by mouth, whereas RTX has to be injected or applied topically."

To design such a drug, researchers need to know which part of RTX is active. Therefore, they have to find the component it switches on and determine how the switching occurs.

Szallasi became interested in RTX in 1989, when he was a postdoctoral fellow at the National Cancer Institute. His section head, Peter M. Blumberg, PhD, wanted to explore its possible cancer-causing properties. Although RTX proved not to be carcinogenic, Blumberg realized it is chemically related to capsaicin. So Szallasi is exploring its analgesic properties.

In the 1960s, Nicholas Jansco, a pharmacologist from Szallasi's native Hungary, had suggested there must be receptors for capsaicin on certain nerve terminals. Szallasi and Blumberg decided to test this idea with RTX, which is several thousand times more potent than capsaicin. Using a radioactive analog of the compound, they proved the existence of a receptor that binds both capsaicin and RTX. Because capsaicin and RTX share a chemical group called a vanillyl moiety, which is essential for biological activity, their common target is termed the vanilloid receptor. One type of vanilloid receptor appears to be an ion channel that admits calcium to the cell.

RTX and capsaicin have different effects on cells that contain this receptor, however. Whereas RTX is much better at desensitizing neurons, capsaicin excels at exciting them — hence its demand as a spice. And although RTX binds to cultured nerve cells with 10,000-fold higher affinity than capsaicin, it is only 30-fold more potent at evoking calcium flow. And whereas capsaicin induces ion currents that begin rapidly and quickly subside, RTX induces leisurely, long-lasting currents.

The most logical explanation is that there are at least two receptors for these compounds. Blumberg and Szallasi have decided. They propose the existence of a C-type vanilloid receptor, an ion channel that binds capsaicin better than RTX, and an R-type receptor that binds RTX better than capsaicin and is not an ion channel. Last year, researchers at the University of California-San Francisco cloned what appears to be the C-type vanilloid receptor. Szallasi's ambition is to find the R-receptor, using the radioactive RTX analog to hunt it down.

Szallasi envisions compounds that could switch off this receptor and therefore serve as analgesics for currently intractable conditions, such as cancer pain, diabetic neuropathy and the pain that can follow mastectomy or shingles. Once the receptor is cloned, such compounds could be designed. •
School of Medicine researchers have captured hearts on computers. Using the most sophisticated three-dimensional images in the world, surgeons and bioengineers can see every ridge, valley and bump on the complex surface of the heart. Most importantly, they can study how electricity flows over this topography, giving them new insight into heart diseases.

With a click of a mouse, a researcher can turn the heart sideways, upside down, or any other direction. "It's just like holding a heart in your hands," says John P. Boineau, MD, professor of surgery and medicine. And he should know. As a pioneer in the field, Boineau remembers when heart mapping was a little more "hands-on."

In the early 1970s, mapping involved reaching into an open chest and nudging a beating heart into position while someone took close-up color Polaroids. A researcher would measure electricity on the heart by moving a single electrode from place to place while another wrote the electrical readings on the corresponding photographs. Later, these researchers developed multiple electrodes in
flexible nets that could fit over the heart and measure electricity at many different points simultaneously. Unfortunately, the new wealth of data still had to be mapped on flat, distorted two-dimensional models of the atria.

Today, thanks to the ongoing work of a team of researchers at the School of Medicine and support from the National Institutes of Health, powerful software has replaced instant cameras, and life-like three-dimensional models have replaced flat pictures. Most of the current research here focuses on the upper chambers of the heart, or atria. The mapping group works closely with cardiologists Michael Caine, MD, Tobias and Hortense Lewin Professor of Cardiovascular Disease; Bruce Lindsay, MD, associate professor of medicine; Joseph Smith, MD, assistant professor of medicine, and Thoralf Sundt, MD, assistant professor of surgery.

To see how electricity travels across these convoluted structures, a surgeon uses tiny clips to attach rows of electrodes to specific points on the surface. The mesh currently carries 512 electrodes. The data from the electrodes goes directly to a computer that carries a three-dimensional image of a heart. Researchers constructed the model by photographing ultra-thin slices of cadaver hearts and scanning the images into the computer. By superimposing the electrical data on the model, they can watch the wave fronts of normal heartbeats as well as the electrical chaos of arrhythmias.

Computer engineer Barry Branham wrote the software that made the mapping possible, and electronics technician Steve Labarbera constructed amplifiers for the electrodes. Electrophysiological technician Dieter Ambos helps attach patients to the system. Cardiothoracic surgery resident Mark Rodefeld assisted in building the electrodes and continues to take an active role in mapping.

In some cases, the maps show that all of the abnormal contractions originate at a single point, and removal or destruction of that point can often cure the problem. Unfortunately, it's usually not that simple. Irregular heartbeats usually spring from many areas of the heart, and maps don't point to any quick fixes. Still, careful study of the path of electricity might eventually lead to new treatments. "These maps are invaluable even if they don't produce an immediate solution," Boineau says. "Before you can understand a problem, you need to gather a lot of information. The maps give us some of the best information possible."

Earlier versions of heart maps have led to major advances in heart surgery. In the 1980s, James L. Cox, MD, then the Evarts A. Graham Professor of Surgery at the School of Medicine and now director of the Georgetown Cardiovascular Institute at Georgetown University Medical Institute, and colleagues...
The heart has been rotated to show the anterior surface. The spectrum of colors represents the activation times, with red being the earliest activation and blue being the latest. From an image such as this, electrophysiologic abnormalities can be detected.

researchers started mapping a more challenging terrain: children's hearts distorted by congenital defects. Children born with a single functioning ventricle must undergo a series of operations to improve their circulation, but the treatment has a price. About half of these children develop a dangerous arrhythmia called atrial flutter soon after the final operation.

Boineau, Schuessler and others, he developed an animal model of atrial flutter and began mapping the disorder. He soon discovered that the position of the stitches played a big role in the arrhythmia. By moving the stitches slightly, he was able to prevent atrial flutter.

“Based on that study, we immediately changed the way we stitch the heart,” Huddleston says. That change took place two years ago, and none of the 40 children he has operated on since then has developed flutter. With the new maps of atrial flutter as a guide, Huddleston and co-workers also have developed a new procedure that may stop the arrhythmia. He has tried the new operation on two children and managed to erase the flutter in both.

No other centers in the world are producing three-dimensional maps of children's hearts, but many are benefiting from the research conducted here, Huddleston says. Other surgeons have adopted the new method for placing stitches, and there's much interest in the operation to block atrial flutter, he explains.

In the near future, Huddleston hopes to develop more realistic animal models of atrial flutter and further refine techniques to prevent and stop the disorder. He also intends to study other, less common types of congenital defects and subsequent operations that can trigger flutter.

Clearly, the vast information made available by the accurate maps will continue to shape heart surgery for many years. "The maps have come a long way since we first started working on them in the 1960s," Boineau says. "We can see more details than ever before, and we get the information quickly. We couldn't do that with the Polaroids."  

Editor's Note: Chris Woolston, former medical sciences writer in the Office of Medical Public Affairs, is now a staff writer with Hippocrates magazine in San Francisco.
WEIGHT MANAGEMENT CENTER HELPS PATIENTS SCALE DOWN BY CHANGING THE WAY THEY LIVE

by JIM DRYDEN

"I want to be able to fit into the seats at movie theaters and on airplanes."

"I'm tired of people assuming I'm pregnant."

"I want to exercise and have the energy to make it through a strenuous workout."

"I just want control, so that I can honestly say I don't want a second portion."
he setting for these comments is a group behavior modification meeting at Washington University's Weight Management Center. The discussion is focused on what represents success. All of the participants are obese, yet no one mentions a desire to lose weight.

One reason for that may be that success at the Weight Management Center involves more than losing weight, says Samuel Klein, MD, professor of medicine and medical director of the center. Klein and his colleagues teach clients to lose weight slowly with a program of healthy eating, exercise and lifestyle changes designed to keep weight off.

A full range of services is offered, including support groups, exercise therapy, and, if necessary, surgery. But no matter the specific therapy implemented, the focus is always long-range. Though many patients come looking for a miracle cure, they are encouraged to take a longer view.

"The program has taught me to set small goals," says Gina Harris, 28, who has lost almost 60 pounds in just under four months. Harris, who weighed 271 pounds on the day she joined the center, has dropped to 214. She says she has learned to think not about losing another 60 pounds this year, but rather a pound or two this week. "It's too discouraging to look at the big picture, and it doesn't help me get through the day," she says.

DEFINING SUCCESS

Since being launched in 1995, the Weight Management Center has treated more than 450 people. Though some have lost hundreds of pounds, the center considers treatment successful if patients lose 10 percent of their body weight.

"Losing a little bit of weight is medically beneficial and achievable for many patients," says Klein. "If an obese patient can lose 10 percent of his or her body weight and keep it off for life, he or she will have achieved medical benefit."

That's true whether the patient drops to 180 pounds from 200 or to 360 pounds from 400 — the risk for various diseases related to obesity is reduced.

"Instead of saying, 'You must lose 300 pounds,' we tell patients to take it in smaller increments," says Kim Yates, the center's program director. "We ask them to make a yearlong commitment to the program."

Klein, who treats obesity as a chronic disease like alcoholism or diabetes, says the condition requires lifelong treatment. He says those who see obesity as a character flaw are missing an important aspect of the condition.

"We wouldn't treat a diabetic with insulin for six months and then stop insulin therapy because their blood sugars are normal again. The same is true for obesity. Obese patients know they should eat fewer calories and increase physical activity, but they can't always accomplish that on their own," Klein says.

Even if patients are successful at losing weight, the odds are stacked against them keeping it off. Long-term statistics show that 95 percent of people who lose weight regain it after five years. Many regain it even sooner.

People fail for many reasons, says Karen Weller, PhD, Washington University psychologist and behavioral director of the Weight Management Center. Some may have a genetic predisposition for weight gain, she says, but even they can succeed. It's not easy, because it involves changing their behavior and way of thinking. That's something most people don't do, she says, and that makes it nearly impossible to maintain weight loss over months or years.

"It's my belief that people don't eat themselves up to 300 or 400 pounds because they love food," Weller explains. "What often happens is that once a person starts gaining weight, they don't want to get on the scale. They get into an abstinence-violation effect. In the program, we call it 'diethead.'

"Diethead thinking is an all-or-nothing attitude. If a co-worker brings in donuts, a person in the diethead mindset may succumb and eat one," she says. "Then, after eating one donut, he or she will decide that his diet is blown for that day and eat another donut, or maybe six."

Controlling diethead thinking means learning new ways to eat, to live and to think about food, says Weller. "It's not that you can never eat pizza or twinkies again," she says, "rather, you have to learn to eat in moderation."

THE PHYSICAL COMPONENT

Exercise also is crucial to long-term weight loss, and it is a key element of the lifestyle changes promoted by the Weight Management Center.

The Weight Management Center's "On the Move" exercise component was developed specifically for obese people by Susan Deusinger, PhD, director of the Program in Physical Therapy, and Robert Deusinger, PhD, assistant professor in physical therapy. Because obesity strains the joints and obese people often have medical conditions that require special care, the exercise program is designed to improve the health of participants.
by increasing their physical activity
level without putting them at risk
for injury or aggravating any pre-
exisiting medical problems.

"On the Move" is a series of
eight-week, one-hour exercise ses-
sions led by physical therapists.

In the last year, Eagon has per-
formed a procedure known as gastric
bypass on 12 obese patients. The
surgery involves stapling off the
stomach, then connecting a loop
from the intestine to the new,
smaller pouch. Food goes into the
stomach pouch and then imme-
diately into the intestine.

After surgery, patients are physically
unable to eat large quantities
of food, and the reconfigured
stomach/intestine prevents
absorption of some of the food
they do eat.

"Patients
begin losing
weight immedi-
ately," Eagon

"We try to examine all of the
excuses for not exercising and then
eliminate them," Robert Deusinger
says of the exercise program. "We
believe that individual attention is
critical to helping participants make
a commitment to improve
their health and to follow through."

THE SURGICAL
OPTION

But according to Klein, for
many severely obese patients,
remaining obese carries a greater risk
of complications than having the
weight reduction surgery.

Even with the combination of
treatments and services the Weight
Management Center offers, losing
weight is a difficult task.

"We don't have any magic
approaches to obesity, but we do
have those pockets of success that
are very rewarding," he says. "We
have many patients who do
extremely well in the program, and
their accomplishments change their lives.
That makes everything we do
here worthwhile."
Beth Herwig takes pleasure in simple things — driving a small car, spending a day at Six Flags, walking around the block — activities she could not fathom doing six years ago.

Today, at age 33, Herwig is literally a different person than she was at 27, when she weighed more than 700 pounds.

"I remember stepping on two scales with a piece of wood between them, and they said I weighed 745 pounds, and I thought, 'I have to lose 600 pounds even to be in the realm of normalcy!' Who does that? Nobody. So I had no choice but to take it day by day," Herwig recalls.

Herwig became a patient at Washington University's Weight Management Center and now weighs about 265 pounds — a weight she has maintained for a year. Since starting her weight reduction therapy, she has undergone four surgeries to remove excess skin from her former physical self. She wants to lose more weight, but says she is happy — while she has not lost any additional weight, neither has she gained.

"Once I lost 100 pounds in four months and gained it back in four months. I've lost 150 pounds and regained 200 pounds in one year," she says.

"I remember thinking, 'Gee I'd better buy some larger size clothes,'" she says. "I remember once sitting in a chair with arms, and I got stuck when I got up. My thought was that I should avoid chairs with arms, rather than thinking I needed to lose a few pounds."

A star patient at the Weight Management Center, Herwig is now the center's star employee too. Samuel Klein, MD, professor of medicine and medical director of the center, and Kim Yates, program director, were so impressed with Herwig and her accomplishments that they invited her to join the staff as an executive assistant.

"Beth is just an incredible person," Yates says. "She's like my right arm in the office. And she's such an inspiration to our clients."

That is the single reason why Herwig agrees to publicly share her story. She does not enjoy the notoriety.

"I remember my first interview, on Channel 30," she laughs. "The night it aired, I had taken an out-of-town guest to Pizza Hut. And I remember a woman coming up to me and asking, 'Didn't I see you on TV tonight?' I decided then that I'd better have a salad."

Even with the loss of privacy, Herwig says she wants people who are severely obese to know that they can come back.

"I think there are a lot of people out there without hope," she says. "I want to give them some hope that they can live more normal lives."
Going For The Goal

AS a third-year medical student, I am used to being asked difficult questions. Such questions are an integral part of our education. Recently, however, my classmates have been asking me a question of a different nature: "When are you leaving?"

In June, I will take a leave of absence from the School of Medicine to pursue my dream of playing water polo in the 2000 Sydney Olympics.

I did not come into contact with the sport of water polo until 7th grade. Before then, my experiences with swimming pools had not been good. When I was 5, my parents enrolled me in swim lessons. I fought them every step of the way. I hid when it was time to leave for the lessons; I cried in the car on the way to the pool, and I refused to do anything once I got in the water. After several weeks of these antics, my parents gave up.

Sometime later in my childhood, I taught myself to swim, though I'm still not very good at it.

In junior high, water polo was part of physical education class. In California, where I grew up, this is cross-country or football, the other fall sports. For some reason I enjoyed water polo. Although I wasn't much of a swimmer, I could tread water well, so I chose to play goalie.

The position involves both individual and team skills. The pressure can be enormous — there is no way to hide your mistakes — but I found it exhilarating. Goalies are ultimately responsible not only for their individual play, but also for the defense of the team as a whole. There is a lot of give and take between how the coach expects the team to play, what the goalie wants to happen, and what the players are willing to do once the game starts. The end result is that the goalie is part diplomat and part psychologist.

To stay on top of the game, my coach encouraged me to swim in the off season and join a local club team. In addition, he took me to workouts of the National Junior Water Polo Team, the U.S. team for players age 20 and under. This introduction to a higher level of water polo was a wonderful gift; I found out how much I really loved the sport and saw where I wanted to go with it.

At age 14, I was working out with some of the top young college talent in the country. This "baptism by fire" tremendously elevated my level of play.
The next year I started in goal for my high school varsity team. We placed second in our high school championships. Even more exciting, at age 15 I was invited to travel to Cuba as the backup goalie for the National Junior Team. Over the next several years, I traveled with the National Junior Team to Europe, Puerto Rico and Cuba. The trips, which were funded by U.S. Water Polo, the U.S. Olympic Committee and several corporate sponsors, provided tremendous experience.

By my senior year of high school, I was looking for a college where I could play water polo and get a top-notch education. I chose Stanford University, where the water polo team needed a goalie, and I knew I would get an excellent education.

Even then, I was considering going into medicine. After all, water polo is not a sport that will make a person rich as a professional. I started in goal at Stanford all four years. Three of those years we placed at National Collegiate Athletic Association (NCAA) championships: twice at second, and first once. During this time I also competed in Hawaii and Israel.

As my college career was winding down, I began to wonder if I would be able to compete with the U.S. National Water Polo Team — the team that goes to the Olympics every four years. I tried out for the team in 1993 and played well, but became discouraged when the coaches opted to stick with older, more experienced goalies. By the end of my last water polo season at Stanford, I was ready to stop playing competitive water polo, which is what I did for the next two and a half years.

Then, during my second year of medical school, I came back to St. Louis from Thanksgiving break and surprised all of my friends here by announcing that I was going to try out for the U.S. National Water Polo Team in January. I had seen some friends at Stanford over Thanksgiving and played with the water polo team. The experience reminded me how much I missed the sport and how well I could still play. I thought I would give it one last try. For the next several weeks, I swam about six hours a week, and, in January 1997, I went to tryout camp in southern California and played very well. Suddenly, a coach was encouraging me to move to California so I could train with the team. This was the last thing I had expected to hear, so I was not sure what to do.

Thankfully, many people offered good advice. My parents (rightfully so) wanted me to integrate plans to graduate from medical school with my training schedule, while I felt that it made more sense to leave California so I could train with the team. This was the last thing I had expected to hear, so I was not sure what to do.

Of course, my life at the School of Medicine has been significantly changed. I was class president during my first and second years, but I did not run for a third term. Much of my free time instead is devoted to working out. How often I get to the pool depends a great deal upon the particular rotation I am on. At this point in the year, I try not to miss two consecutive days of swimming; experts say that missing a day of swimming is like taking a step backward in your training program.

Many members of the faculty, administration, and student body have offered encouragement and support throughout this time. Even people outside of the medical school have helped me get access to swimming pools, water polo equipment and weightlifting facilities. All told, a lot of people are making this happen for me, and my thanks go out to all of them. Wish me luck!
Lighting The Way

Ophthalmologist Travels To Africa To Aid The Blind

by Debra Stieferman

As an ordained minister of the United Methodist Church and an ophthalmologist, Lowell A. Gess says his mission is twofold: physical and spiritual healing of his patients.

Gess, MD '51, has spent a career surgically helping to restore sight to the people of Africa, and, at the same time, spiritually nourishing them with his Christian faith.

For more than four decades, Gess and his wife, Ruth, a registered nurse, have served as missionaries appointed by the Board of Missions of the Evangelical United Brethren Church. They first served in Nigeria in the early 1950s, but spent most of their time in Sierra Leone, a West African country roughly the size of South Carolina with a population of about 4.5 million people.

Although the couple no longer lives in Sierra Leone, which is currently embroiled in war, they continue to volunteer there when possible and in other countries around the world.

"I am persuaded that one does not throw away one's life by losing it in service, but rather finds it in the natural expression of the will of God," Gess explains of his dual and sometimes dangerous role. "I am convinced that merely the maintenance of life is not that important. The important thing is remaining faithful. As a missionary, I seek to identify myself with the needs and sufferings of people. To such a service of love I am willing to sacrifice this time, they helped to establish the Kissy UMC Eye Hospital, which serves the needs of some 20 million people of Sierra Leone and surrounding countries.

In recent years, civil war has raged in and around Sierra Leone, which is nestled on Africa's Atlantic coast between Liberia, Guinea and the Ivory Coast. This has made travel there to perform surgery and deliver medical supplies risky. Rebel forces armed with AK47 rifles move through the area looting, killing and intimidating village teenagers into joining their ranks. A trip that was scheduled for last September had to be canceled due to political instability. At the present time, volunteers such as the Gesses are not allowed to enter the country.

"People are fleeing for their lives; there is anarchy at the present time," Gess says. "Land mines cause terrible injuries and sometimes death. The rebels carry out indis-
team to Bolivia, South America, to treat and restore sight to diseased eyes.

"It is hard to realize that there are people sitting in darkness waiting for someone in Christian compassion to spring them into the light and a new life," Gess says of his motivations for volunteering. "Docile, unproductive people suddenly come alive and are productive again. They are so overjoyed, and, of course, those who help to make that so share in their joy."

Gess relates the story of an especially memorable patient named Safia, a 29-year-old woman with severe cataracts. Safia was a Christian and willing to accept that she might be blind for the rest of her life, but Gess says she earnestly prayed for the miracle of sight. "On the day of her surgery, she brought an audio cassette to be played during the procedure," he recalls. "On the tape, she and her church were singing 'There is Power in the Blood.'"

"Safia had light perception in only one eye, and we gave her little hope, fearing that behind the complicated cataract her other eye might not be functional," Gess continues. "But, on the last day of my three-week stay, she walked into the clinic without being led and was able to read the letters on the eye chart. Few experiences are as moving as that."

Although the couple led an intercontinental existence for many years, Gess managed to remain active in the latest advances in ophthalmology and published several papers when he was in the United States. He also designed and copyrighted his own intraocular lens and made the advanced technology available to millions of people in West Africa.

He continues to teach and demonstrate surgery for cataract extractions with intraocular lens implantations in many countries. Three years ago, after he instructed 33 ophthalmologists in South Vietnam on the procedure, there was a dramatic increase in intraocular lens implant surgeries there — to more than 15,000 annually from fewer than 5,000 cases per year. "It's a thrill to know that teaching bore real fruit," he says.

While serving as medical missionaries, the Gesses raised and educated six children on a salary that never exceeded $99,000 annually. Gess says his wife, Ruth, who was invaluable as a surgical nurse and manager of correspondence for the eye care medical program, also tended their children as mother, homemaker and often teacher.

"Several of our children were born in Africa," says Gess. "We worried whether they would do as well academically as children born in the United States who have all of the advantages that young people have today. But each of our children has done fine." Among the Gess children there is an ophthalmologist, an optometrist, a clinical psychologist, a teacher and two ministers.

Throughout his career, Gess has received many honors. Among them, the Alumni Achievement Award from Washington University School of Medicine in 1996, the Distinguished Humanitarian Services Award from the American Academy of Ophthalmology in 1993, and the Distinguished Citizen Award from Macalester College, St. Paul MN, in 1992. He also has received the Service to Mankind Award from the Sertoma Club and an honorary Doctor of Humane Letters from Westmar College, LeMars IA.

His experiences and skill have earned him opportunities to speak at the American Intraocular Implant Society in New Orleans, the Welsh Cataract Surgical and Intraocular Lens Congress in Houston, and the International Congress of Ophthalmologists in Cairo, Egypt.

Gess says that the medical work cannot be accomplished without the help of volunteers from the United States and Europe — physicians who donate from one to three months of their time each year. "Volunteering can be done in almost any situation," he says.

"There are teams that go to Honduras, Costa Rica, South America, Africa, India and China. There are so many opportunities to use your skills for short periods of time. It's exhilarating!"

"I'm certain that people who know my age think I should be in slippers in front of the fire," continues Gess, who is 76. "But we count it a privilege to be able to do volunteer eye care at this stage of our lives. Sharing the joy of patients who have new sight is an experience that cannot be forgotten."

Editor's Notes: Debra Stieferman is a St. Louis freelance writer.
John Morris Named Friedman Professor Of Neurology

JOHN C. Morris, MD, co-director of the Alzheimer’s Disease Research Center (ADRC) at the School of Medicine, has been named the Harvey A. and Dorismae Hacker Friedman Professor of Neurology.

“Harvey and Dorismae Friedman are among a very few far-sighted individuals who recognized early the importance of research on aging and of coordinated academic programs to provide care for the elderly. Their support has been nothing short of pioneering,” says William A. Peck, MD, executive vice chancellor for medical affairs and dean.

The Friedmans previously established a Geriatric Rehabilitation Nursing Scholarship Award at Jewish Hospital, the annual Metropolitan St. Louis Physician Geriatric Service Award and the Jewish Hospital of St. Louis-Washington University Harvey A. and Dorismae Friedman Program on Aging.

Morris came to the School of Medicine in 1982 as a research instructor in pharmacology and moved into the neurology department in 1983. During most of his career, he has focused on the clinical symptoms of Alzheimer’s disease, which now affects 4 million Americans. Since 1992, Morris has directed the Memory and Aging Project, which recruits and tests participants in memory and aging studies. He also directs the Memory Diagnostic Center and Alzheimer Treatment Unit at Barnes-Jewish Hospital. These units diagnose and treat patients with memory problems. His major contributions to Alzheimer’s research have been in the area of early identification.

Washington University Alum Joins Elite Group Of Woman Deans

CAROLYN Robinowitz, MD ’64, has been named dean at Georgetown University School of Medicine. She is the first woman dean in the school’s history and joins only eight other women as leaders of the nation’s 125 medical schools. She is the first woman psychiatrist to hold the position.

Robinowitz, who has served as Georgetown’s associate dean for students since 1994, will assume her new role on July 1.

Prior to joining Georgetown,}

Carolyn Robinowitz, MD '64

Robinowitz held several leadership positions within the American Psychiatric Association (APA) over the course of 18 years. She served as the first director of the APA’s office of education and later became senior deputy medical director and chief operating officer. In these roles, she was responsible for all aspects of psychiatric and public education, policy development and health care reform.

At Georgetown’s School of Medicine, Robinowitz has led efforts for new teaching methods that include computer-based learning and evidence-based medicine. And, throughout her career, she has maintained direct involvement in the development of young physicians and is highly regarded as an educator.

As an alumna of Washington University, Robinowitz fills a leadership role on the Washington DC Eliot Committee, which she has been a member of for more than 12 years. As a member of the committee, she helps recruit other alumni in the area for membership in the Eliot Society.

Robinowitz and her husband, Max Robinowitz, MD, HS ’61, frequently attend alumni events in Washington DC.
20s
Venice C. Partenope, NU '25, is 95, active and in good health, and is especially interested in politics.

30s
E. Norris Robertson, MD '37, writes that he and his wife, Mary, LA '35, enjoyed attending his 60th reunion this year. They also celebrated their 60th wedding anniversary. He is still in part-time practice in ophthalmology in Oklahoma City, where they have resided since his discharge from the U.S. Navy in 1946.

Jane Taylor Bennetessen, OT '38, recently completed a wonderful trip to Tuscany and Florence, Italy.

40s
Edith Heisler, OT '41, is retired and living in Carrboro NC. She is now 92.

Harry Lichtwardt, MD '43, retired from the practice of urology in 1983 and from the Board of Directors of the American Urological Association in 1997 after serving 16 years. He plans to pursue his photography hobby.

Terrell Covington Jr., MD '43, continues his solo practice in Tulsa, begun in 1950. He is in good health and has 10 grandchildren, including three sets of twins.

Carlton G. Watkins, MD '43, has completed writing The History of Pediatrics in the Twentieth Century in Charlotte-Mecklenburg County.

James O. Davis, MD '45, PhD, a member of the National Academy of Sciences, was honored on Cardiovascular Day in February at the University of Missouri School of Medicine, with the annual James O. Davis Distinguished Lecture in Cardiovascular Science.

C. Harwell Dabbs, MD '45, recently celebrated his 76th birthday. He still works full-time at the Greene Valley Developmental Center in Tennessee.

Edward L. Pinney, MD '49, lives in Puerto Rico, doing "a minimal practice and teaching."

Dolores J. Warner, NU '46, is enjoying planning the reunion for her nursing school class (February 1946) which will be held June 4-7, 1998, in Peoria IL.

50s
M. John Epp, MD '50, is fully retired in Lincoln NE. He is doing well following a five-vessel bypass in April 1997.

Stephen L. Washburn, MD '52, continues the practice of psychiatry four days a week, including some teaching with Harvard medical students.

Stanley Burris MD '53, retired last December from the practice of general and vascular surgery at the Springfield Clinic, Springfield IL. Burris joined the clinic in 1958. In addition, he also served as clinical associate professor of surgery at Southern Illinois University School of Medicine.

Edgar Draper, MD '53, maintains a home office and small practice. He is busy with national organizations in which he is a fellow and officer: APA, SPA, ACP, ACP. His other interests include golf, duplicate bridge and birds.

Jean A. Chapman, MD '53, of Cape Girardeau MO, was installed as president of the American College of Allergy, Asthma & Immunology (ACAAI) during the group's annual meeting in San Diego in December. ACAAII awarded Chapman the Distinguished Fellow Award in 1989. He was elected to membership in the American College of Physicians in 1995. Among his many activities, he is the creator and host of "Ask Your Doctor," a weekly educational cable television program.

William D. Sawyer, MD '54, and his wife Jane Ann, NU '50, traveled to China in October 1997 where he was honored by two of the nation's medical schools for distinguished contributions to their programs of education, research and service while he was president of the China Medical Board; a New York-based foundation. Tibet Medical College in Lhasa, the Autonomous Region's only modern medical school, dedicated a stele to Sawyer praising his role as founder. Xi'an Medical University, one of China's key national medical institutions, installed a bronze bust of Sawyer in the courtyard of its International Center in his honor. Sawyer retired in June 1997, and the couple now lives in Georgetown TX.

L. Bruce Ellis, MD '55, has retired by the ocean in Santa Cruz and comments, "We had the 'Golden Years."

Elizabeth Seitz Hudson, OT '55, is OTR in a school system in West Central Indiana. She also supervises Level II field work students.

Irving J. Weigensberg, MD '56, spent the fall of 1996 as visiting professor and special consultant in the Department of Radiation Oncology at the University of Hamburg, Germany. Weigensberg lives in Boca Raton FL.

Sidney Richman, MD '58, is chief of cardiology at the West Palm Beach Veterans Administration Medical Center.

Donald M. Roberts, MD '58, writes, "Lynn and I retired in 1992 and moved to the Florida Gulf Coast."

William E. Bridgers, MD '59, has retired from the University of Alabama at Birmingham as University Scholar Emeritus. He was the founding dean of the School of Public Health there. He now heads a health care reform advocacy effort, "The Eutaw Group," serving vulnerable populations via a Community Care Plan Network.

C. Robert Cooke, MD, HS '59, still works full time as professor of medicine at the University of Tennessee in Memphis and chief of the nephrology section at the VAMC there.
**60s**

Joe Utley, MD '60, was named Distinguished Alumnus by Oklahoma City University during Homecoming in November 1997. He retired in 1996 as chief of cardiac surgery at the Heart Center of Spartanburg SC. He is founder and president of the Cardiothoracic Research and Education Foundation, a non-profit organization dedicated to the treatment of heart and lung diseases. In addition to a successful career in medicine, Utley occupies a chair as second trumpet with the Spartanburg Symphony Orchestra.

Ted L. Grayson, MD, HS '61, has retired from the practice of surgery and keeps busy with volunteer and agri-business activities.

George R. Harper, MD '64, of Centralia WA, rode a tandem bike from Canada to Mexico in the summer of 1995. He plans a transcontinental ride from San Diego to St. Augustine from March to May 1998.

Ronald G. Evens, MD '64, HS '64-'70, chairman of the American College of Radiology (ACR) Board of Governors, was at the White House last October as President Bill Clinton signed legislation to improve access to mammography screening for low-income and minority women. The initiative will emphasize the coverage of yearly screening mammograms for all women age 40 and over who participate in the Medicare program. The ACR created the nation's first mammography accreditation program 10 years ago. Evens is director of the Mallinckrodt Institute of Radiology at Washington University.

Marilyn Heinemann Seat, NU '64, retired March 1, 1997. She lives in the St. Louis area.

Lewis H. Koplik, MD '65, writes "As of Sept. 1, 1997, I retired. I am now the house spouse and am enjoying the role reversal. I can be reached at Koplik@lobo.net."

Gustave L. Davis, MD, HS '66, is clinical professor of pathology at Yale Medical School and chair of pathology and laboratory medicine at Bridgeport Hospital. He writes that he can't finish his book chapter because of mergers and acquisitions.

Amy (Amelia E.) Allen, MD '66, has been elected president of the Medical and Allied Health Professional Staff at Oregon State Hospital for 1998.

Ettta Rae Brener Frankel, NU '67, is now a physician practicing hematology, oncology and internal medicine in New York City. Her husband, Martin, is also an internist. Their children are doing well: Aaron, 22, is spending the year in Israel and will enter Harvard Law School in the fall; David, 20, is a sophomore at Penn, interested in medicine; Miriam, 13, looks forward to high school and camp; and Ari, 7, is busy with Nintendo and second grade.

Stanley Asnis, MD '68, has been named chief of the division of orthopedics at North Shore University Hospital in Manhasset NY. With Richard F. Kule, he is co-editor of the text, *Cannulated Screw Fixation*, dedicated to Elaine Asnis and published by Springer & Verlag in 1996.

Sharon Koch-Parrish, NU '69, recently completed the Advanced Registered Nurse Practitioner Program at the University of Florida and is licensed to practice as an ARNP.

**70s**

Roslyn Kaplan Yontovian, MD '74, and her husband Isaac are raising four daughters ages 8 to 17. She continues to direct the blood bank at the University Hospitals of Cleveland.

Gordon B. Cutler, Jr., MD, HS '75, has moved to Eli Lilly and Company as director of growth research and clinical investigation. He previously had been at the National Institutes of Health for 22 years.

Steven Scheer, MD, HS '75, sends greetings from Cincinnati, where he is professor of physical medicine and rehabilitation at the University of Cincinnati College of Medicine.

John Fredrick Meyers, MD, HS '75, of Richmond VA, is president of the North America Arthroscopy Association. He was head physician for the 1994 Winter Olympics.

Linda B. Ford, MD, HS '76, will become national president of the American Lung Association in April 1998.

F. Allene King, MD '78, has incorporated and added a second associate in the practice of general and oncologic surgery in Houston's Texas Medical Center.

Allen L. Gutovitz, MD, HS '77, was recently elected governor-elect for Kansas by the Board of Trustees of the American College of Cardiology (ACC). He assumes the duties of governor in March 1999 and will remain in that position until March 2002. Gutovitz is a member of Cardiology Consultants of Topeka.

Robert L. Schmitz, MD '78, married Amy Gorba, a family physician. They have two sons, ages 5 and 10, and a daughter, 11. He writes that he "plays tennis, swims, and renovates and manages real estate instead of practicing medicine."

Pamela F. Gallin, MD '78, is the proud mother of Laura, 16, Abby, 13, Hillary, 10, and Peter, 6. She writes "It is hard to believe that we are now looking at colleges. Professionally, I am director of pediatric cardiology at Columbia Presbyterian. To my great delight, I was recently remarried to Leonard Yablon, a Forbes executive."

Donald Opila, MD '79, has been appointed to the Health Services Committee of the American Society of Internal Medicine (ASIM), which assists HCFA in determining health policy.
Howard Silverman, MD '79, is president of Intellidose, a chemotherapy software developer.

80s

Warren Loevinger, MD, HS '80, is the 1997-1998 president of the Missouri Society of Internal Medicine and is actively involved with the merger of the American College of Physicians and the American Society of Internal Medicine. He practices general internal medicine in Nebraska MO, having moved there immediately following his residency at Barnes Hospital.

Robert Paine III, MD '81, is associate professor, division of pulmonary and critical care medicine, in the Department of Internal Medicine, University of Michigan in Ann Arbor.

Myron Tanenbaum, MD '81, has a practice limited to oculoplastic surgery in Miami. He and his wife, Monica, a neonatologist, have three children: Geoffrey, 11, Laura, 9, and Rebecca, 5.

Tye Ouzounian, MD '81, and wife, Karyn Wong, delivered twins, Nicole and Timothy, on May 1, 1997. They live in Tarrytown CA.

Linda Olson Douglas, MD '82, has been appointed assistant professor of family and community medicine and assistant director of the Waukesha Family Practice Program at the Medical College of Wisconsin in Milwaukee. Her special interest is adolescent medicine. She co-edited the 1992 edition of Outlines for Patient Study at Rush Medical College and was assistant medical editor of five volumes of Growing Up, A Handbook to Becoming an Adult, by World Book Inc., of Chicago. She and her husband, Michael, have two children and live in Nashotah WI.

Dennis R. Whaley, MD '82, is married and has four children ranging in age from 1 to 14. He is chief of radiology at Central Baptist Hospital in Lexington KY, and has passed advanced radiology boards in both interventional and neuroradiology.

David Melamed, MD '83, is chief resident in dermatology at the University of Chicago Hospitals. Thomas C. Chelinsky, MD '83, sends greetings from Cleveland. He says, “Drop in if you're in town. Get a special sauna in my sweat box or get needled in the Pain Center!”

Gary P. Chun, MD '84, writes, “Still in San Diego. Still have all the kids. He's a rascal. Hello to Louise, Joan, Julie and Mike, Steve, Neil, Ethan, Becky, Eric, and many more.”

Gary R. Collin, MD '85, has received the 1998 Surgical Section Specialty Award from the Society of Critical Care Medicine for research he conducted on the placement of tubes within the intestine to provide nutrients to severely malnourished patients. Collin is associate director of trauma for Carilion Roanoke Memorial Hospital in Roanoke VA.

Robert L. Mittl Jr., MD '85, and his wife, Valerie, had a daughter, Carrie Jean, born March 18, 1997. She joins his brothers Greg and Brian. Mittl is a neuroradiologist practicing at Carolinas Medical Center in Charlotte NC.

Herluf G. Lund Jr., MD '85, writes that his “honorary Class of '85 Dad, Herluf Lund Sr., turned 80 on May 14 and wishes all his adopted kids from the Class of '85 well. Future swim parties will occur at the next reunion.”

90s

Tamara (Stephenson) Paul, OT '90, and her husband, Gary, had a son, Benjamin Stephen, born Sept. 29, 1997. They live in San Antonio.

Renee Micek, PT '90, is married, has one daughter, 18 months old, and is expecting another child.


Jeff Boris, MD '91, writes from Germany: “I am the military's pediatric cardiologist for Europe and am working in Landstuhl, about 75 minutes southwest of Frankfurt. Sheila, Hannah, now 2, the dogs, the cat and I are settling into life in rural Germany. There's lots of good wine, desserts, time for travel, and very nice people to meet. We'll be here at least through the summer of 2000.”

Susan K. Bennett, MD, HS '91, has gone into private practice with a large single specialty group, Cardiology Associates, PC, in Washington DC. Her family also has grown and now includes two sons, Ben, 3, and Daniel, seven months.

Steven Kleppa, MD '96, is a second-year resident in orthopaedics at Barnes-Jewish Hospital. He spends free time with family, including daughter Madeline, 2, working on the house they bought in Kirkwood and playing sports.

Stacey Engleander Turner, MD '96, married Bruce Turner on Sept. 6, 1997, in Philadelphia. They live in New Haven CT.

IN MEMORY

Leon A. Taylor, MD '30, died Aug. 28, 1997 in Jefferson City MO. He had been a general surgeon.

Harold L. Joslyn, MD '33, died Dec. 20, 1997, in Indiana after a long illness. He is survived by his wife, Janice Redman Joslyn, NU '34.

C. Rush McAdam, MD '35, died of heart disease at age 90 on Nov. 13, 1997, in St. Louis. He was in private practice for 50 years.

During World War II he served in the Army Medical Corps. He was one of 28 community leaders who helped to establish the University of Missouri at St. Louis and received
that university's Chancellor Award in 1995. He is survived by a son, Dr. James McAdam of St. Louis, and two daughters.

Patsy M. Fiandaca Jr., MD '38, died in Tucson on Nov. 23, 1997. He served in the Army Reserves and did active duty during World War II and again in 1955. He retired with the rank of colonel in 1966, at which time he was appointed by President Lyndon Johnson as medical member on the Board of Veterans Appeals, a post he held until 1980. He is survived by a son and two daughters.

Mitchell Yanow, MD '41, a prominent St. Louis obstetrician and co-founder and former chairman of the board of the Medicine Shoppe International pharmacy group, died on Jan. 12, 1998, at his apartment in New York City. He was 80 years old and lived in Ladue MO. Born in St. Louis, Yanow was raised in Venice IL. He received his bachelor's and medical degrees from Washington University. He completed an internship at the Jewish Hospital of St. Louis, and, later, a residency in obstetrics and gynecology at Barnes Hospital. He then established a solo practice and co-founded OB-GYN Inc., a group practice. Over the course of his career, Yanow delivered approximately 15,000 babies. He also was known as a pioneer in infertility treatments and was a longtime member of the clinical faculty at the School of Medicine. In 1970, Yanow co-founded Medicine Shoppe International Inc., which now has 1,200 franchise pharmacies in 48 states and several countries. It was acquired by Cardinal Health Inc. in 1995. He was married for 48 years to the former Elaine Levine. She died in 1995. Yanow is survived by three daughters: Barbara Lichtenstein, Cincinnati; Margaret Ouimet and Caryl Yanow (Grueskin), MD, New York City; a sister, Mildred Wallach, St. Louis; and three grandchildren.

Memorial contributions may be sent to: Medical Alumni and Development Programs, Washington University School of Medicine, Campus Box 8509, 4444 Forest Park Avenue, St. Louis, MO 63108-2259.

Margaret Cowgill Ford, ND '43, died on Nov. 11, 1997, in Sun City Center FL. She is survived by her husband, Ralph.

Ernest S. Rogers, MD '43, died Sept. 27, 1997, in San Francisco.

B. Randolph Cockrell Jr., MD '47, died Nov. 19, 1997, in California of a heart ailment.

Boyd C. Hindall, MD '48, died Nov. 9, 1997, in Tampa FL. He had a family practice in Lake Geneva for 30 years. During the Korean War he served in the Army Medical Corps Mobile Army Surgical Hospital units. He also was an avid sportsman, a woodworker and clockmaker. His wife, Judy, survives, along with two daughters.

Dale M. Schulz, MD '49, died Nov. 28, 1997, after a long struggle with Parkinson's disease. He taught at Indiana University School of Medicine for 15 years, and practiced pathology in Indianapolis until retiring in 1985. He was the co-author of a text, Principles of Human Pathology. He is survived by his wife, Dorothy, and two children.

Charles A. Ross, MD, HS '51, died in Johnston IA, on July 16, 1997. He had been a cardiothoracic surgeon.

**FACULTY**

Julio V. Santiago, MD, an internationally renowned diabetes researcher at the School of Medicine, died of a heart attack on Aug. 10, 1997, while on a flight to Germany. He was 55. Santiago was a professor of pediatrics and of medicine and director of the division of pediatric endocrinology and metabolism at the School of Medicine. A staff physician at Barnes-Jewish and St. Louis Children's hospitals, he also directed the medical school's Diabetes Research and Training Center, one of only six in the nation. At the time of his death, he was involved in the Diabetes Prevention Program, the largest national diabetes study to evaluate whether medication or lifestyle changes can prevent or delay adult-onset diabetes. Previously, Santiago was the principal investigator of the St. Louis portion of the national Diabetes Control and Complications Trial (DCCT), considered one of the most important studies conducted in diabetes research. He is survived by his wife of 35 years, Ana Santiago; four children, Teresa Turner, Julio Santiago, Vincent Santiago and Daniel Santiago, all of St. Louis; and one granddaughter.

Harriett L. Steuernagel, LA '32, librarian emeritus of the former Washington University School of Dental Medicine and associate professor emeritus in library science, died of complications following a stroke on Nov. 11, 1997, at Barnes-Jewish Hospital. She was 90. Steuernagel was head librarian of the dental school from 1946 to 1981. After retiring, she served as a consultant in dental education and coordinated the steering committee of the dental school's accreditation report. She developed and directed the dental school's career counseling program. For the past 11 years, she volunteered in the Technical Services and Archives and Rare Books sections of The Bernard Becker Medical Library. In 1988, the dental school's library was renamed the Harriett L. Steuernagel Library. Steuernagel received a bachelor's degree in English from Washington University in 1932. She obtained her library science degree in 1937 at the University of Illinois.
To Complete This List, We're Going To Need Some Help...

We've done a lot. America's medical schools and teaching hospitals have led the way to medical breakthroughs and life-saving treatments. We deliver the health care that makes American medicine the most advanced in the world.

There's still plenty to do. With long-standing support from the National Institutes of Health, we've worked hard to find treatments and cures for cancer, AIDS and Alzheimer's. But in the effort to manage health care costs, we must be careful not to slow important research. Lowering costs is important, but not at any price.

We need your help. To find out more about important research underway at medical schools and teaching hospitals, call: 1-888-994-2MRC or visit our website: www.aamc.org.

An advocacy campaign involving a series of print advertisements aimed at raising opinion leaders' awareness of the missions of teaching hospitals and medical schools was recently produced by the Association of American Medical Colleges (AAMC). The campaign is founded on opinion polls and market research conducted by the AAMC's communications office in concert with a representative panel of hospital executives, medical school deans and AAMC leadership. The ads already have appeared in publications circulated to legislators and legislative staff in Washington DC. AAMC member institutions across the country now have the opportunity to employ components of the advocacy campaign in their own promotional activities.
A storyteller and fourth-year student of medicine, Tim Bhattacharyya, recently had a story accepted for publication in *Amelia*, a highly regarded literary magazine published in Bakersfield CA. His story, titled "Meera's Story," is a moving account of a young Indian woman's experiences in coming to the United States to be reunited with her fiancé. Of Meera's Story, Bhattacharyya says, "...it began as an exercise in voice, and grew because of a need to express the fears and concerns that come with being an Indian in America." The story first appeared in the winter 1997 issue of *Hippocrene*, the School of Medicine's student-run literary magazine.