Higher education Jennifer N. Lynch, center, a graduate student in immunology and pathology in the Division of Biology and Biomedical Sciences, instructs incoming high school seniors Paris Gurin, Clyde C. Miller Career Academy, left, and Cherise Gilmore, Central Visual and Performing Arts High School, in the proper use of a pipette. Gurin and Gilmore were among 12 attendees of Research Boot Camp in June, a three-day course in lab techniques and safety offered by the university's Young Scientist Program as a prelude to its Summer Focus, an eight-week research internship designed to attract students from disadvantaged backgrounds to scientific careers.
Outlook

Front Door

The Farrell Learning and Teaching Center now serves as the School of Medicine’s main venue for medical education.

medicine.wustl.edu/fltc
Farrell Learning and Teaching Center

Located in the heart of the Washington University Medical Center, at the intersection of Euclid and Scott avenues, the Farrell Learning and Teaching Center serves both medical and graduate students with a variety of modern teaching environments.

- With the latest technology throughout the building, every seat in the lecture halls is wired with power and data connections.
- New spaces emphasize small group learning.
- A clinical skills instruction suite allows interactions with standardized patients.

Giving Opportunities

- Prominent naming opportunities are available throughout the building, starting at $25,000.
- Annual Fund gifts, at any level, will support this important addition to medical education.

Contact the Office of Medical Alumni and Development at (314) 935-9690.
The Early Genes
Researchers study the genetics of early-onset breast cancer and offer a clinical program of education and support.

We Wrote the Book
Thirty-two editions' worth of medical expertise has come from the minds and pens of Washington University residents.

The Baby Mummy
Current radiology techniques shed new light on an ancient life.

Before the OR
A preparatory course of surgical training gives graduates a head start on the competition.

COVER
For a scientist like Charles F. Hildebolt, DDS, PhD, ancient specimens can speak volumes about lives long since past. Now Hildebolt, who has participated in several forensic archeological investigations, and a team of scientists have turned their attention to something very unusual — a baby mummy.

PHOTO BY TIM PARKER
Help for epilepsy?
Light-activated compound slows seizures

Brain activity is often represented as a light bulb turning on. School of Medicine scientists have reversed that notion, creating a drug that instead stops brain activity when a light shines on it.

The findings were reported in the April 2007 issue of *Nature Neuroscience*.

"This is daydreaming at this point, but we might one day combine this drug with a small implanted light to stop seizures," says senior author Steven J. Mennerick, PhD, associate professor of psychiatry and of anatomy and neurobiology. "Some experimental epilepsy treatments involve the implanting of an electrode, so why not a light?"

Scientists in the laboratory of Douglas F. Covey, PhD, professor of molecular biology and pharmacology, created the new compound by linking a steroid known to have anesthetic effects with a molecule (NBD) that fluoresces in response to blue light.

The compound activates the same receptor used by many anesthetics and tranquilizers, making it harder for a brain cell to respond to stimulation. Mennerick and colleagues, including lead author Larry N. Eisenman, MD, PhD, assistant professor of neurology, tested the drug on cells in cultures set up to behave as though they were involved in a seizure, with the cells rapidly and repeatedly firing. When they added the new drug and shone a light on the cells, the seizure-like firing pattern calmed.

If the drug is adapted for epilepsy, Mennerick says, it most likely will help in cases in which seizures consistently originate from the same brain region. Theoretically, doctors could keep a patient on regular doses of the new drug and implant a small fiber-optic light in the dysfunctional region. The light would activate the drug only when seizure-like firing patterns started to appear.

Mennerick and colleagues had wanted to use the new compound, which they call the NBD-steroid, to trace the steroid's path in the nervous system. To their initial disappointment, they found that adding the fluorescent tag to the steroid had disabled it.

"Normally, the steroid keeps the cell quiet in the face of stimuli that would otherwise cause it to fire," Mennerick says. "That's why drugs like barbiturates and Valium, which act on the same receptor as the steroid, are sedatives: They quiet the nerve system down."

Then, the researchers exposed the cells to light. "All of a sudden, the response to the steroid was back, and the nerve cells were more reluctant to react to stimuli," Mennerick says. "And we knew we had found something very interesting."
Children's Discovery Institute research gains momentum

Accelerating cures for childhood disease

The Children's Discovery Institute (CDI) has announced a second wave of funding for research initiatives aimed at accelerating cures for childhood disease. Consistent with the CDI's commitment to interdisciplinary research, the awards span academic disciplines from internal medicine and cell biology to genetics and pediatrics.

The four awards to Washington University researchers total $2.15 million, representing the remainder of $5.3 million available for CDI spending in 2007.

An award of $350,000 will enable Steven L. Brody, MD, to facilitate development of a university-wide lung cell tissue culture facility that will permit scientists to dig deeper into the causes of lung diseases as severe as cystic fibrosis and as pervasive as asthma. The Center for Pulmonary Disease is one of the four centers established within the CDI, and it focuses specifically on lung disease.

Understanding the causes and developing treatments for cancer will be the focus of another investigation using gene therapy with an award of $600,000 going to Sheila A. Stewart, PhD, and Elaine R. Mardis, PhD. The McDonnell Pediatric Cancer Center within the CDI is dedicated to research into pediatric cancer, particularly brain tumors.

The third and fourth centers of the CDI are the Congenital Heart Disease Center and the Center for Musculoskeletal Diseases. One of the newly funded initiatives of $1.1 million awarded to Thomas M. Morgan, MD, and colleagues attempts to pinpoint the causes of congenital birth defects affecting the heart and musculoskeletal system by leveraging the vast genetic resources available to the CDI through the university's Division of Genetics and Genomic Medicine, as well as the Genome Sequencing Center.

Rounding out this series of grants will be a novel partnership with the Howard Hughes Medical Institute in undergraduate education that reflects the CDI's focus on the future of medicine. The project, awarded $75,000 under the direction of Kathryn Miller, PhD, will bring four undergraduate students into CDI laboratories to study alongside some of the world's leading scientific researchers.

New leader for alumni, development

Pamela Buell, a 30-year veteran of higher education development, has been named associate vice chancellor and director of medical alumni and development programs. In this capacity, Buell will be chief fund-raising and alumni relations officer for Washington University School of Medicine.

"Pamela has extensive experience in major gifts and has held leadership roles in several capital campaigns," says David T. Blasingame, executive vice chancellor for alumni and development programs. "She worked closely with another of the nation's top medical schools and has an exceptional track record in securing significant support for the missions of academic medicine."

Buell joins Washington University from The Johns Hopkins University in Baltimore, where she had been executive director of the School of Medicine since 1999.

"The School of Medicine is very fortunate that such an accomplished fundraiser and administrator has chosen to join our development team," says Larry J. Shapiro, MD, executive vice chancellor for medical affairs and dean of the School of Medicine. "I am confident that Pamela will enhance the extraordinary alumni relations and development programs serving our medical school."
Shaw named to professorship

Andrey S. Shaw, M.D., has been named the Emil R. Unanue Professor of Immunobiology in the Department of Pathology and Immunology.

"This is a well-earned recognition of Andrey Shaw's status as a national leader in immunology who is especially prominent in the area of how T cells recognize invaders and contribute to the immune response," says Larry J. Shapiro, M.D., executive vice chancellor for medical affairs and dean of the School of Medicine. "The new professorship, created via an anonymous gift to the department, also honors the fundamentally important contributions of former department head Emil Unanue, both as a pioneering immunologist and as the head of the department for more than 21 years. Unanue stepped down as department head last summer but continues his work as the Paul and Ellen Lacy Professor of Pathology.

As the first Unanue professor, Shaw also becomes director of the new Division of Immunobiology within the department.

Ten PhD programs rank among best

Washington University's Division of Biology and Biomedical Sciences (DBBS) has 10 of its 12 programs ranked in the Top 10 among 166 large research universities, according to Academic Analytics' Faculty Scholarly Productivity Index, a new quantitative method for ranking doctoral research programs.

Among the PhD programs in DBBS, ecology and evolutionary biology was ranked first, plant biology third, and molecular biology, microbiology/pathology were each ranked fourth. The programs in biochemistry, bioinformatics, cell biology, developmental biology, genetics and immunology also were ranked in the Top 10.

Organized in 1973, the Division of Biology and Biomedical Sciences is a consortium of university departments from the schools of Medicine, Arts & Sciences and Engineering & Applied Science that provides interdisciplinary training for full-time PhD and MD/PhD students.

School has strong showing in U.S. News Top 10

Several academic areas rose significantly

The School of Medicine holds Top-10 rankings in a variety of academic areas, according to the 2007 U.S. News & World Report rankings of graduate and professional programs.

Several academic areas rose significantly in the rankings from the previous year. Biochemistry moved up from 17th to 10th, genetics/genomics/bioinformatics from sixth to fourth, and microbiology from sixth to third. Neuroscience at Washington University also showed improvement, with neuroscience/neurobiology at No. 9.

Maintaining rankings from 2006 were cell biology (ninth), drug/alcohol abuse (10th), immunology/infectious diseases (fifth) and internal medicine (seventh).

Much of the ranked research involves collaborations with Barnes-Jewish Hospital and St. Louis Children's Hospital, and several of those programs are integral to the School of Medicine's BioMed 21 initiative, which is designed to more quickly integrate research advances into clinical practice.

Biological sciences, which includes biology in Arts & Sciences, biomedical sciences in the School of Medicine and biomedical engineering in the School of Engineering & Applied Science, continued its rise in the rankings. After breaking into the Top 10 last year with a tie for ninth, biological sciences moved into a tie for seventh in 2007.
Advances in radiation therapy for cancer have made it possible to fine-tune radiation beams to match the shape and position of a tumor nearly anywhere in the body. But tumors that move, such as those in the lung, pose a special problem for radiation oncologists.

A School of Medicine group has studied the way lung tissues move during breathing in hopes of improving radiation treatment. While surgical removal of a malignant tumor is the preferred way to treat lung cancer, surgery is not always feasible. In such cases, as long as the cancer has not metastasized, radiation therapy offers a real chance for cure. Studies show that 3-D techniques that deliver high doses of radiation in the precise shape of the tumor are more effective than older techniques.

"Ideally, radiation should be delivered to as small an area as possible so normal tissue near the tumor isn't damaged," says Daniel A. Low, PhD, professor of radiation oncology and director of the department's Medical Physics Division. "But with a lung tumor, you need to irradiate a larger area in order to encompass the tumor as it moves."

Low and his colleagues have found that people regularly change both the speed of their inhalation and exhalation and the volume of their breath. To quantify that, they developed mathematical descriptions of the motions of different parts of the lung.

"I would never have guessed this subtle drift in the breathing cycle would create a significant error for radiation dosage, but it does," says Low.

Now the researchers have developed the 4D Phantom, a machine that can move in the complex patterns specified by the researchers' mathematical model. The 4D Phantom contains an object, or phantom, that represents a tumor and allows researchers to test any part of the radiation therapy process from imaging to treatment.

Parag J. Parikh, MD, instructor in radiation oncology, designed the software for the first dynamic phantom. "Now," says Low, "he is working with a team of engineering undergraduate students to create an even more lung-like phantom that moves in a patient-realistic pattern."
Two faculty join Academy of Sciences

Two School of Medicine scientists are among those recently elected to the National Academy of Sciences (NAS): Wayne M. Yokoyama, MD, the Sam J. Levin and Audrey Loew Levin Professor of Research in Arthritis and professor of medicine and of pathology and immunology, and Aaron Ciechanover, MD, DSc, visiting professor of pediatrics at the School of Medicine and the Research Distinguished Professor of Biochemistry at Technion-Israel Institute of Technology in Haifa, Israel.

Yokoyama is internationally known for his research into a part of the immune system that protects against viruses and tumors. His studies have helped show how various mechanisms license, restrain and unleash natural killer (NK) cells, and his lab first provided the molecular basis for the “missing self” hypothesis.

Ciechanover was a co-recipient of the 2004 Nobel Prize in chemistry for his contributions to the discovery and description of a process cells use to discard unwanted proteins. He has been a visiting professor at the School of Medicine since 1987, spending part of each year in the Department of Pediatrics.

Iron age

An exhibit of 29 sculptures by the Israeli artist Orna Ben-Ami is on display at the School of Medicine through Fall 2007. The highly symbolic pieces, collectively titled “The Softness of Iron,” carry universal, local and deeply personal meanings, conveying thought-provoking themes of war and peace, memory and forgetting, the private and the collective. Crafting each sculpture herself by cutting and welding, Ben-Ami takes simple images from the immediate environment to invoke an emotional and cultural history told from a young girl’s point of view.

New treatments for AIDS and HIV-related diseases sought

Related complications also under study

The School of Medicine’s AIDS Clinical Trials Unit (ACTU) has received a $10 million grant to find new treatments for AIDS and HIV-related complications, such as dementia, neuropathy and cardiovascular disease. The seven-year grant is from the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health (NIH).

“With current drugs, many HIV patients live for 20 or more years in good health,” says David B. Clifford, MD, director of the ACTU and the Melba and Forest Seay Professor of Clinical Neuropharmacology in Neurology. “But standard drugs are not effective in all patients, and many develop complications of their disease. Our focus is on developing better treatments with fewer side effects.”

The grant will fund studies to investigate new therapies for patients recently diagnosed with HIV, as well as treatments for patients who have developed resistance to standard HIV medications.

Researchers also will be assessing new therapies for HIV-related dementia and memory loss. So-called neuroAIDS affects at least one in five people with HIV and has become more common as patients live longer, says Clifford, who also leads the NIH Neurologic AIDS Research Consortium.

Baum honored for national efforts

The 87th annual conference of the American Occupational Therapy Association (AOTA) was held in April at the America’s Center convention complex in downtown St. Louis. Welcoming remarks and a farewell address at the event were offered by the group’s outgoing president, M. Carolyn Baum, PhD, OTR/L, FAOTA, the Elias Michael Director of the School of Medicine’s Program in Occupational Therapy. Baum also is professor of occupational therapy and of neurology. The Program in Occupational Therapy, currently positioned at No. 3 in the nation in the U.S. News and World Report rankings of graduate and professional programs, works to promote health and prevent disability, thereby reducing the economic and social costs of chronic conditions.
Ear prosthesis offers a different kind of makeover

Like any 17-year-old, Emily Gravenhorst follows a routine to get ready for a day of high school. She showers, styles her hair, puts on her make-up and eats breakfast. And just before she leaves the house, she puts on her right ear.

That ear was created in the maxillofacial prosthetics laboratory at the School of Medicine, where a dental specialist and his technician help patients who have been disfigured by accident or disease.

Gravenhorst lost her ear about one year ago when she was thrown through the back window of her car after running into a telephone pole. She also lost most of her blood, suffered bleeding in the brain, and broke numerous bones in her face, back and skull.

Amazingly, Gravenhorst's body healed almost completely. And she's learned to accept her new ear.

"I feel lucky to be alive," says Gravenhorst, who will be a senior at Reitz High School in Evansville IN this fall. She's also grateful to the laboratory that gave her a new ear.

W. Donald Gay, DDS, associate professor of otolaryngology, and maxillofacial prosthetics technician Ann Vitale work as a team to rebuild faces. In addition to ears, they craft artificial noses, eyes and dental devices for patients with birth defects or those who have lost part of their faces due to injury or cancer surgery.

"You really do help to give people their lives back," says Vitale. "After all surgical avenues have been explored, we do what we can to preserve both their appearance and their social acceptance."

Gay, a maxillofacial prostodontist, used a reverse image of Gravenhorst's intact ear to measure for the prosthetic ear. Then, in a painstaking process, Vitale constructed the new ear from silicone, with the goal of making it unnoticeable to the casual observer.

The new ear is affixed each day with medical adhesive. "When I first put it on Emily, it may have been one of her low points," Vitale says. "I think she thought people were going to notice the prosthesis more than not having an ear."

But Gravenhorst called Vitale just a few weeks later to tell her how much she liked the ear. So much, in fact, that she's had the lab make her a second ear — to wear in the summer to match her tan.
Imagine a waiting room in a gynecologist's office. Two women idly thumbing through the back issues of *Newsweek* and *Elle* are about to be told they have breast cancer. One woman is in her seventies; the other is 29. Does their age matter?

Yes, says Jennifer Ivanovich, a genetic counselor with the Siteman Cancer Center. These women would likely face different emotional, social and medical challenges.

To help address the special needs of breast cancer patients under age 40, Ivanovich directs the Young Women's Breast Cancer Program (YWBCP), which offers support and education — and now conducts research as well. Two years ago, the YWBCP began a genetic research project, led by Ivanovich and Paul Goodfellow, PhD, co-director of Siteman's Hereditary Cancer Core, to look for breast cancer risk factors in the DNA of young women with breast cancer.
Detailed generational studies reveal the unexpectedness of early-onset breast cancer: The woman on the left has a family history of cancer; the woman on the far right has no such background, indicating a more complex genetic risk.

Out of the more than 200,000 women diagnosed with breast cancer in 2006, only about 11,000 were under age 40. Although that's not unexpected — after all, older age is one of the greatest risk factors for developing breast cancer — it does mean that less attention and fewer research dollars are devoted specifically to breast cancer in younger women.

In response to this gap, Ivanovich started the YWBCP in 2001 with Virginia Herrmann, MD, a former faculty member at the School of Medicine. The support and education services offered by the program are sponsored by the St. Louis affiliate of the Susan G. Komen For the Cure Foundation. The Barnes-Jewish Hospital Foundation currently funds the research program.

“Younger women diagnosed with breast cancer deal with a different set of issues than older women,” says Ivanovich, who is also a research instructor in surgery. “They may be in the early or middle stages of their careers. They may have young children or are planning to start a family. And they usually have almost no experience in making complex medical decisions.”

Suddenly these young women find themselves with a breast surgeon, plastic surgeon, medical oncologist and radiation oncologist. In short order, they need to learn about chemotherapy and radiation, about lumpectomies and mastectomies, about metastases and mutations — all while juggling the demands of work and family.
Blood samples are taken from the patient and her parents, when available.

Blood samples are taken from young women with breast cancer.

Blood samples are taken from around the nation, sent by people eager to contribute to research efforts. Thousands of DNA sequences from young women with cancer are compared to thousands of control subjects. A pattern begins to emerge...

A DNA sequence change voids a protein that would otherwise be expressed in a healthy individual. This genetic abnormality could underlie the mechanism that triggers the cancer. Left: Researchers Jennifer Ivanovich and Paul Goodfellow, PhD, review genetic data.

Granted, breast cancer treatment isn’t easy for anyone. But younger women are more often diagnosed at a later stage of the disease and often have tumors that are not responsive to hormonal therapies, limiting their treatment options. They have more aggressive tumors and can require stronger treatments, including surgery, pre- or postoperative chemotherapy and radiation therapy. Like most women with breast cancer, young women face unpleasant side effects such as hair loss, fatigue, disfiguring surgery and an especially sensitive issue — potential infertility. In contrast to older women, young women often go through treatment while caring for their young children and maintaining their jobs.

"The YWBCP offers these young women a comprehensive program," Ivanovich says. "We have monthly programs to promote good health that include exercise like yoga, hiking or biking. Each month we bring in professionals chosen by the women to present on various health-related topics. Our Peer Network pairs young women with mentors who have been through the experience. And an annual symposium helps educate young survivors about therapies, psychological issues, health, nutrition and a lot more."

The program also prepares and distributes a news magazine and a personal journal that guides women through every stage of treatment and recovery. According to Ivanovich, very few materials like these exist in the country.

But Ivanovich hoped the program could also have an impact on breast cancer outcome, so she became involved in researching breast cancer genetics. The research program that she and Goodfellow direct collects DNA samples from young women with breast cancer, ultimately aiming to invite 5,000 women to participate.

These women are important research subjects because early onset of cancer is a sign that the disease has a large inherited component — that is, it could stem from a mutation passed on from parent to child. So studying young patients could make it easier to identify genes associated with breast cancer.

"In general, cancer is a disease of later life," says Goodfellow, professor of surgery, genetics and of obstetrics and gynecology. "Over the course of a lifetime, you acquire genetic damage, but it takes a long time for one cell to get those five or
six mutations that would make it malignant. However, if you have a predisposing mutation at birth, you're already on a path that could lead to early onset."

A small number of inherited mutations — such as the well-known mutations in the BRCA1 and BRCA2 genes — have already been linked to breast cancer in other studies. Although these mutations greatly increase the risk of developing breast cancer, they are very rare in the overall population and account for only five percent of all women diagnosed with breast cancers in the United States.

The researchers designed their study to compare the genetic makeup of young breast cancer survivors with that of women over 65 who don't have breast cancer and also have no mother, sister or daughter with the disease. The scientists are convinced that when they set the genetic sequences of these very high and very low risk groups side by side, genes associated with breast cancer will come to light.

In a second stage of the analysis, they will ask for genetic samples from the parents of young breast cancer survivors. The researchers can then look for genetic variants present more often in young women with breast cancer than would be expected by chance alone. That process will strengthen the researchers' analysis.

If these studies identify genes that raise the risk of breast cancer, young women could be screened to quantify their risk. "I believe in the importance of studying naturally occurring genetic variations," says Goodfellow, who helped uncover the gene variant linked to multiple endocrine neoplasia, which can lead to tumors of the thyroid, parathyroid, pancreas and pituitary glands. "The genetic variants we find in this study will be low-risk modifiers for breast cancer. That means the more of these variants you have, the higher your risk. That information would allow us to focus on those with highest risk."

The discovery of new genes linked to breast cancer risk could also lead to new therapies, as did the finding of the HER2/neu gene, which is amplified in some breast tumors. That breakthrough resulted in the drug Herceptin (Trastuzumab), an antibody that counteracts the HER2 protein, a cell division promoter.

Ivanovich foresees the YWBCP continuing to expand and the researchers delving into other studies that would increase knowledge about breast cancer in young women.

"For one thing, there are very little data on survivorship in young women with breast cancer," she says. "So we would like to create a national registry of breast cancer survivors — that would be invaluable to the future of breast cancer research."

For more information on the Young Women's Breast Cancer Program, visit ywbcp.wustl.edu.
we wrote the book
ON MEDICINE

Celebrating the latest edition of the world’s best-selling medical textbook.

What’s in your pocket?

BY BETSY ROGERS
The editors of the best seller proudly display their accomplishment: Hilary E.L. Reno, MD, PhD; Daniel H. Cooper, MD; Andrew J. Krainik, MD; Sam J. Lubner, MD.

The Washington Manual of Medical Therapeutics began more than six decades ago as a mimeographed collection of typewritten lectures held together by brass fasteners. Today, it is the best-selling medical textbook in the world: More than 200,000 copies appear in break rooms, locker and white coat pockets on every continent, helping medical students, interns and residents care for their patients with the most current information available.

"The manual is in some ways the ‘peripheral brain’ for medical students and residents when they’re on call," says Sam J. Lubner, MD, instructor in medicine, one of the editors of the manual’s 32nd edition, published in March. "It’s a transition from the theoretical to the practical, bringing knowledge to the bedside. It presents the information that experienced practitioners typically have committed to memory and serves as a guidebook for navigating patient care."

Wayland MacFarlane, MD, chief of medicine in 1942, originated the manual. Observing the chief residents’ rounds, he concluded that the material presented in the lectures was worth sharing. Hospital house staff and medical students received copies of what was, Lubner says, "basically a reference guide to inpatient medicine."

The manual followed its homegrown format through 15 editions. Then, in the mid-1960s, Robert Packman, MD, oversaw the book’s first mass production. His mother typed the manuscript for a 4,000-copy printing of the 16th edition, which went to medical schools nationally. It scored an immediate success, and the 17th edition grew to 25,000 copies.

Since then, the manual has found its way into medical schools and hospitals worldwide. It appears in Spanish, Portuguese, Greek, German, and French.
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Hungarian, Romanian, Turkish, Korean, Japanese, and both simplified and complex Chinese, according to Kimberly Schonberger, marketing manager at Lippincott Williams & Wilkins, the manual's publisher. When Washington University doctors talk with colleagues from other countries, they hear about the manual.

"When an Italian colleague found out that I was to be one of the editors of the Washington Manual," says editor Hilary E.L. Reno, MD, PhD, "he was very excited. He enjoys impressing physician friends in Italy with his personal connection to this renowned text."

Reno believes the manual's success lies with its depth and breadth.

"It's important because it's not basic," she observes. "It takes medical problems and diseases and covers them very thoroughly. As an infectious disease specialist, I can reference this book for diagnosis and treatment of a certain disease, but I can also make sure that I am managing a patient with an acute heart attack appropriately."

The manual's thoroughness poses one of its major production challenges: packing a lot of content into a minimum of paper. That challenge is key, because the book's convenient size — it fits handily into a white coat pocket — is essential to its usefulness.

Another challenge lies in the nature of medical science itself. Keeping up with medical knowledge is a daunting task.

"All it takes is the next issue of the New England Journal of Medicine to find some piece of groundbreaking material that needs to be included," says Lubner.

Reno agrees.

"During publication, a whole different class of medicines to treat fungal diseases was approved," she recalls. "We actually changed the page proofs to include it."

Occasionally, entirely new sections appear. Not too long ago, for instance, there was little need for concern about bioterrorism. Today the need is all too real, and the 31st edition added a bioterrorism section to the infectious diseases chapter.

The need to make this vast amount of information easily findable prompted the manual's publishers and editors to move from the outline format of previous editions to a bulleted design.

The bioterrorism section, for instance, now has headings for various infectious agents, subheads for general principles, diagnosis and treatment, and bulleted items under the subheads.

The change accomplished its purpose, according to Barnes-Jewish Hospital intern James L. Smith, MD, a frequent user of the manual. "The information is very accessible and at the same time very thorough," Smith says. "I use it most often when I'm presented with a patient with a disease process I'm unfamiliar with; it's a real boon to my medical training."

Across its 32 editions, the Washington Manual provides an intriguing on-the-ground history of medicine. Successive manuals' chapters about ischemic heart disease, for instance, record a remarkable evolution in cardiology.

The editors believe that the manual and its 19 companion volumes, available in two specialty series, testify not just to medicine's advances but also to the strength of the School of Medicine.

"The Washington Manual really reflects the fine education offered at this institution," Reno says, "as well as the huge impact Washington University has on the medical community, both nationally and worldwide."
THE BABY MUMMY

(VIRTUALLY) UNWRAPPED
ONE DAY LAST SPRING, Washington University scientist Charles F. Hildebolt got an intriguing phone call. A mummy had turned up in the storage facility of the Saint Louis Science Center (SLSC), but no one knew much about it. Could he and his colleagues do some detective work to learn more?

“When you hear the word ‘mummy,’ you think big box or large tomb,” says Hildebolt, DDS, PhD, a dentist and anthropologist in the Department of Radiology. “It was a surprise when we got over there and found that this was a small child, partly unwrapped and in a little pine box. We said, ‘Wow! This is really interesting.’ But we didn’t know exactly what we’d be able to find out.”

Hildebolt and other volunteer investigators from the School of Medicine, helped by experts from around the world, began a yearlong quest to uncover the mummy’s past. Assisted by the latest technology — sophisticated CT scanning, DNA analysis and radiocarbon dating — they pieced together a likely story of love and loss, of ancient Egypt and European conquerors, of theft and recovery, that has attracted international attention.

Charles F. Hildebolt, DDS, PhD, enlisted the help of Li Cao, MD, center, and Anne M. Bowcock, PhD, to retrieve and analyze the baby mummy’s DNA.

Once Washington University agreed to help, Mallinckrodt Institute of Radiology was the first stop. Hildebolt, a veteran of other forensic detection efforts, recruited Kirk Smith, a senior research engineer with CT expertise. Smith did the full-body scanning, and Hildebolt and pediatric radiologist Steven Don, MD, studied the results in scientific history. Although the record hopes of determining the child’s age and cause of death.

At the same time, they made a bit of scientific history. Although the record of child mummies in existence is still incomplete, they are “exceedingly rare,” says Hildebolt. The extensive research they have done to understand this one may well rank, he says, “as the most extensive work ever done on a child mummy.”

What information they had when they began came from SLSC records. Around the turn of the last century, a dentist from Hermann MO was traveling in the Middle East when he acquired the mummy as a keepsake. Back home, a niece eventually inherited it, and she brought it out for display on Halloween. Her family donated it to the SLSC in 1985.

For two decades, the small mummy remained in the SLSC storage facility until new vice president Al Wiman noticed it in 2006. “The first thing I asked was ‘What do you know about it?’ Well, they knew it was a boy,” he says today. “‘Do you know anything else?’ No, they didn’t.”

They captured some 1,000 CT slices, which Smith integrated for an overall look and segmented for close-ups. From the teeth and cranial sutures, Hildebolt and Don established the child’s age: 7 to 8 months. They hypothesized that, in the tradition of Egyptian mummification, his organs had been removed through a hole in his left side and his brain through his left nostril. Within the mummy, they could see amulets at a tantalizing distance, but couldn’t make out any inscriptions that might pinpoint the child’s identity.
Above: Thin membranes remain inside the skull. Below: A cross section of the body cavity reveals absence of organ tissue. Images such as these show the dynamic capability to digitally inspect the body inside and out without compromising the mummy.
unwrapping & analysis

MUMMIFICATION
Science and ritual

Ancient Egyptians preserved the dead through mummification so that their souls would be able to reanimate the body in the hereafter. Various types of mummification practiced from 3000 BC to the 6th century AD traditionally took a total of 70 days. Anyone who could afford to be mummified underwent the procedure, regardless of his or her age, although it is unusual for babies below 2 months of age to be found mummified unless they were royal.

In mummification’s “classic” phase (c. 1400-1100 BC), the best quality work was done as follows: First, the brain was pulverized and removed through a nostril, and melted resin was poured into the cranial cavity to disinfect, deodorize and harden the skull. Next, the internal organs were removed through a small cut in the left side. The body and organs were then packed with powdered natron, a natural dessicant, for 40 days.

Once dry, the body was removed from the natron and dusted before being anointed with sacred oils and unguents. Painting it with resin stopped microbial growth and also gave the flesh a golden hue, since Egyptians believed that after death one was transformed into a semi-divine being, and the flesh of the gods was gold. As strips of linen were wound around the body, interspersed with amulets that protected the deceased and eased his/her path to the afterworld, priests chanted prayers and burned incense. The wrappings created a protective physical cocoon; prayers and amulets created a metaphysical one.

The now-dried organs were wrapped separately and placed in four containers called canopic jars. After the wrapping was completed, body and viscera were taken in a funerary cortège to the tomb.

During the last rites, the priest recited special spells that revivified the deceased and reactivated the five senses. A funerary feast involved all the mourners, priests and priestesses. After this, the mummy was placed in a coffin and interred in the tomb with grave goods. Then the tomb was sealed, leaving the decorated tomb chapel open for people to celebrate the cult of the dead.

CONCLUSIONS
Despite the many interesting details revealed by these scans and DNA testing, researchers could not pinpoint evidence to resolve the overarching question: Why did this child die? Given all possible causes of infant mortality in that age, that aspect may remain unknown, while the legacy of this baby mummy — in due respect to its ancient traditions — lives on.

The apparently misshapen skull suspected to indicate possible hydrocephaly, but researchers found it to be within normal parameters.

A hole in the left nostril goes through the ethmoid bone and into the cranial cavity. The brain, which the Egyptians regarded as rather purposeless, would have been removed and discarded through this opening.

Tooth crowns and root formation indicate an age of about 7 to 8 months.

The heart, which researchers could not locate in the scans, was typically left within the body, since it was believed to be the locus of the soul and intelligence.

During a 30-day ritual, priests would have prayed over the body, inserting spiritual amulets (metaphysical protection for the soul) while carefully wrapping the mummy (physical protection for the body) in preparation for the afterlife.

Through an incision in the abdomen, internal organs would have been removed, dried and then placed in individual funerary vessels called canopic jars. (Whereabouts of this mummy’s jars are unknown.)

One characteristic is obvious: The infant was male.

The state of closure of the cranial sutures and the ossification centers in the hands corroborate the dental indications as to the child's age.

Skeletal deformities (curved spine, misshapen feet) are attributed to the mummification process.

Rod on back side adds rigidity to the mummy.
So far, everything indicated an Egyptian place of origin, but how to prove it? Other cultures also mum­
mified the dead. With the help of paleoneuroanatomist Dean Falk, PhD, from Florida State University, who con­
ﬁrmed the brain removal, they contacted Salima Ikram, PhD, an Egyptologist at the American University in Cairo. Snipping a postage-stamp-sized piece of the wrapping material, they sent it to Ikram, who passed it on to Emilia Cortès, a textile conservator at the Metropolitan Museum of Art. She determined it was Egyptian wrapping material from the Roman period in Egypt, around 2,000 years ago.

Ikram unraveled other pieces of the mystery. True to Roman-period mummification custom, this mummy had a wooden rod placed at its back for support. The dark brown color of the body and the linen wrapping — turned gentle shades of beige in the CT scans — was the product of resins and oils used in the 70-day mummification process. As to the mummy’s origin, Ikram says, it “definitely” came from a grave that was plundered by robbers, “but several sites are possible, so I shall not speculate.”

Sadly, its very existence may point to sorrow that resonates through the centuries. The parents of this child were wealthy, since they could afford to mummify their child, and they were likely heartbroken at their loss.

“This was certainly a loved child,” says Hildebolt, “for the family to go to the cost, trouble and time to have him mummified.”

But the investigation also left some questions unanswered. Since the bones showed no injury, the team still does not know the cause of death. At ﬁrst the skull seemed a bit enlarged, possibly due to hydro­cephaly, but Don’s measurements proved it was within the normal range. And who were the parents? Would further testing corroborate the mummy’s time period?

With funding from the SLSC, university researchers sent another swatch of wrapping to a laboratory for radiocarbon dating; with 95 percent certainty, the results showed a close match. This baby lived sometime between 40 BC and 130 AD, at the end of the Macedonian-Egyptian period of control and the beginning of Roman rule under Caesar Augustus.

“So this child could easily have been alive at the same time as Cleopatra, Marc Antony, Julius Caesar and Octavian,” says Hildebolt.

To trace the baby’s roots, they contacted Washington University geneticist Anne M. Bowcock, PhD, who enlisted researcher Li Cao, MD, to help retrieve and analyze DNA. This process was fraught with problems. For one thing, they needed to ﬁnd uncontaminated DNA, deep inside the body. For another, the mummy was rock hard, yet they didn’t want to damage it. Using instruments designed for spinal punctures, they bored into its bone through existing holes in the skin, extracting samples from several sites.

Targeting the mitochondrial DNA, they ampliﬁed and sequenced their samples, checking the results with Douglas C. Wallace, PhD, of the University of California-Irvine, a mitochondrial expert. Next came a major surprise: This kind of DNA, provided by the maternal side, showed that this child’s mother came of European lineage — perhaps a Roman or Greek living in Egypt. So far, the researchers have not been able to amplify the child’s nuclear DNA, which would show the father’s lineage.

More questions linger, but the “Child Mummy,” as the SLSC calls it, has generated an excited response from visitors, who have flocked to the new permanent exhibit.

The respectful treatment given this long­ago child also pleases Ikram. “I am delighted with the results,” she says, “and feel that the ancient Egyptians would have been, too.”
Fourth-year medical students learn critical skills prior to entering the operating room.

BY BETH MILLER
Students discuss common problems they might face while on call — good preparation that will come in handy on their first day of residency.

It’s the first day of your surgical internship.

A physician asks you to scrub in on a surgical case and suture the incisions when the procedure is complete, then leaves the operating room. Will your sutures be neat and straight? Will your knots be tied correctly?

Most surgical interns face scenarios like this. But surgical interns who have earned their medical degrees from Washington University School of Medicine get a head start on such skills through the Accelerated Skills Preparation for Surgical Internship course, which just completed its second year. Open to 20 students planning to enter a surgical subspecialty, the course is designed to help them develop their technical skills before they begin their internships.

“We want to get students to the point where they can hit the ground running when they start their internships and their hours and workload increase and there are many things to focus on,” Brunt says. “This way they have an opportunity to learn in a low-key, nonpressurized environment with time to practice skills, and refine and develop them further in order to become better surgical residents.”

Mary E. Klingensmith, MD, associate professor of surgery and residency training director, also teaches in the course. She says it accelerates the students so that during their first year of surgical residency, they have mastered skills students from other medical schools may not have experienced.

One session led by Valerie J. Halpin, MD, assistant professor of surgery, is titled ‘On-call Management Problems,’ in which students are encouraged to take additional overnight call from Barnes-Jewish Hospital, says Klingensmith. “It forces them to use what they’ve learned in the first four years of medical training and to make independent decisions about how they will manage acute patient care problems. “This course puts our students ahead of the game,” Klingensmith adds, “They are in a big transition in life. If we can help them with this aspect, they’ll have the chance to be more successful surgeons than they otherwise might be.”

Julie Margenthaler, MD, assistant professor of surgery, agrees that the course provides students with a focused approach to the types of procedures, clinical issues and surgeries that they will encounter during their internships.

“These are the types of learning experiences that most surgical interns gain on the job by trial and error,” says Margenthaler. “Our students understand that learning the techniques in a classroom offers them an advantage.”

Basic procedures
- Suturing
- Knot tying
- Use of surgical instruments
- Insertion of intravenous lines, central lines and chest tubes
- Intubation
- Laparoscopic camera navigation
- Use of thermal energy devices

Advanced procedures
- Laparoscopic suturing
- Use of surgical staplers
- Intestinal resection and anastomosis

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A meaningful dress rehearsal for students

"I like how this course targeted each student to progress at his or her own pace and provided instruction in several formats, including lectures, small group cases and hands-on skills labs."

Gita N. Mody, MD 07 surgical resident, Brigham and Women’s Hospital

"You need to have a handle on patient management on the floor on your first day as an intern. We learned to address common postoperative management issues, such as a patient with shortness of breath, chest pain or other common symptoms. It is important to know how to work up these cases and when to call someone for help."

Amber L. Traugott, MD 06 surgical intern, Barnes-Jewish Hospital

Faculty see ways to integrate critical skills

"This is a terrific course for the students because it is specifically designed for those fourth-year students who are committed to a surgical residency and a career in surgery. It provides them with a focused approach to the types of procedures, patient problems and basic surgical procedures that they will encounter during their internships. The program addresses these common surgical issues in a setting that is relaxed and without the stressors of everyday intern life. I find it very rewarding to teach during this course because the students are so energetic and eager to excel in the curriculum."

Julie A. Margenthaler, MD assistant professor of surgery

"Some students did not know how to tie a knot one-handed when they started this course. By the end, several students were able to pass the laparoscopic skills exam used to test graduating surgical residents and practicing surgeons."

L. Michael Brunt, MD professor of surgery, coursemaster

"This course is a capstone to the fourth year, allowing students going into surgery to integrate what they've learned. The students are appreciative that this resource is available; it makes them feel more comfortable than some of their peers with this aspect of their job."

Mary E. Klingensmith, MD associate professor of surgery, residency training director

Students appreciate not only the extra practice they get before starting their internships but Brunt’s efforts as well. "Dr. Brunt’s dedication and the collaboration of the other surgeons who assist him are a testament to the commitment of the Department of Surgery to furthering undergraduate and graduate medical education," says Lola M. Fayanju, MD 07, who began a residency in general surgery at Barnes-Jewish Hospital this summer. "Although one can never feel completely ready for internship, I do feel a little less panicked now that I’ve completed these sessions."

Gita N. Mody, MD 07, who also took the course this past spring, says it helped her become more aware of both her strengths and her weaknesses. "That will help me better use my skills and improve my focus on specific aspects of training during internship," she says. Mody began her residency in general surgery at Boston’s Brigham and Women’s Hospital in July.

Amber Traugott, MD 06, is a surgical intern at Barnes-Jewish Hospital. She took the course last year and says it definitely helped her to feel less anxious before starting her internship.

"One of the best things about the course is that it helps alleviate some of the anxiety you feel as a fourth-year medical student about to become an intern in surgery," Traugott says. "On your first day as an intern, no one is looking at your orders to co-sign on them, no one is going to check behind you. There is a fear that you’re going to order the wrong thing or don’t have the experience to judge when something is serious or not. The management aspects of the course are helpful in preparing you for that."

Brunt says that assessment measures he has built into the course make it unique. Students are tested on various skills throughout the course, which allows the faculty to see improvement over time. In addition, he gives the students a survey at both the beginning and end of the course, asking them questions about their confidence levels and how prepared they feel for their internships.

Across the board, students report that they feel more prepared to enter residency and that their ability to perform critical surgery skills has improved. "To have had this opportunity as students was a unique privilege and allowed us to develop confidence that will be evident as we start our future residencies," says Mody.
Match Day was held March 15, 2007, and 125 of the 127 graduating medical students took part in the National Resident Matching Program. During the annual ceremony, senior medical students in the United States learn which residency programs they will enter. School of Medicine graduates are highly successful in obtaining competitive training programs. In 2007, 36 percent of the graduating class selected a primary care field and 22 percent matched into highly competitive fields (neurosurgery, ophthalmology, urology, orthopedic surgery, plastic surgery, otolaryngology, dermatology, and radiation oncology).

Rejoining the fold: Four-month-old Amalyah celebrates with her father, Roderick McCoy, MD/PhD ’98, who worked as a research scientist for nearly a decade before deciding to return to clinical medicine.

Don't hold back: Jennifer E. Sprague, MD ’07, and Joseph E. Ippolito, MD ’07, are ecstatic as they learn their match results.
Children's Hospital
PEDIATRICS
Kao-Ping Chua
Mackenzie Anna Ford

Harvard University-
Massachusetts General Hospital
NEUROLOGICAL SURGERY
Anna Ruth Terry

Massachusetts General Hospital
DIAGNOSTIC RADIOLOGY
Baiju Kirtikumar Shah
GENERAL SURGERY
Smrita Sihag
INTERNAL MEDICINE
David Stanley Grenda
PATHOLOGY
Bernard Khor
PSYCHIATRY
Justin Taylor Baker

MICHIGAN
Ann Arbor
University of Michigan
OPHTHALMOLOGY
Benjamin Charles Kramer

MISSOURI
Columbia
University Hospitals
INTERNAL MEDICINE
Andrew Joseph Zimolzak

St. Louis
Barnes Jewish Hospital
DERMATOLOGY
Brendan Matthew Lloyd
DIAGNOSTIC RADIOLOGY
Lauren Marie Kim
Jessica Mary Lee
Nicholas Gallagher Rhodes
DIAGNOSTIC RADIOLOGY/RESEARCH
Joseph Edward Ippolito
EMERGENCY MEDICINE
Rebecca Ann Bavolek
Jonathan William McMullen
GENERAL SURGERY
Oluwadamilola Motunrayo Fayanju
INTERNAL MEDICINE
Jennifer Marie Alexander-Bret
Courtney Darcey Christers
Monica Ghei
Yekaterina Gincherman
Gina Nicole Laroza
Elna Mieko Nagasako
Justin Samuel Sadhs
NEUROLOGICAL SURGERY
James Riley Sagar

NEUROLOGY
Munir Ushe
OBSTetrics AND GYNECOLOGY
Malika Anand
Sahar Lucy Masoudi
ORTHOPEDIC SURGERY
Jeffrey Jerome Nepple
Edward Scott Paxton
OTOLOGY/RESEARCH
Osarehoma Uhanweuruw Olomu
PATHOLOGY
Jeffery Michael Klotz
Stephen M. Olson
PSYCHIATRY
Kimberly Chik
Juliet Teniflola Glover
Natasha Monique Viquez
RADIATION ONCOLOGY
Jeffrey Robert Olsen
St. Louis Children's Hospital
PEDIATRICS
Jesse Aaron Alba
Denise Debra Dawald
Angela Marie Dietrich-Kusch
Katherine Elizabeth Fleming
Katherine Grovendrier
McMullin
Douglas Matthew Meckel
Lishaun M. Palemar
Sapata Pramol Prahubu
Leon Robert Scott
Jennifer Eryan Sprague
Saint Louis University Medical Center
FAMILY MEDICINE
Luke Tyler Hall
Washington University School of Medicine
OPHTHALMOLOGY
Amy Min-chi Fang

NEW JERSEY
Newark
UMDNJ-New Jersey Medical School Program
PLASTIC SURGERY
Cindy Hsiungwei Wei

NEW YORK
New York
Mount Sinai Hospital
DERMATOLOGY
Caroline Patricia Halberstam
EMERGENCY MEDICINE
Lisa Leang

New York Presbyterian Hospital-Columbia
GENERAL SURGERY
Megan Amanda Denzel
PEDIATRICS
Joshua Craig Langhorne
New York Presbyterian Hospital-Weill Cornell Medical Center
ANESTHESIOLOGY
Christopher Yasuyuki Tanaka

Rochester
University of Rochester - Strong Memorial Hospital
INTERNAL MEDICINE
John Edward Reuter
ORTHOPEDIC SURGERY
Jennifer Y Chu
PEDIATRICS
Inna Hughes

St. Louis Children's Hospital
PEDIATRICS
Jesse Aaron Alba
Denise Debra Dawald
Angela Marie Dietrich-Kusch
Katherine Elizabeth Fleming
Katherine Grovendrier
McMullin
Douglas Matthew Meckel
Lishaun M. Palemar
Sapata Pramol Prahubu
Leon Robert Scott
Jennifer Eryan Sprague
Saint Louis University Medical Center
FAMILY MEDICINE
Luke Tyler Hall
Washington University School of Medicine
OPHTHALMOLOGY
Amy Min-chi Fang

OHIO
Akron
Summa Health System
EMERGENCY MEDICINE
Sarah Renee Adams

Cleveland
Case Western Reserve University
EMERGENCY MEDICINE
Alvin Curtis James
Cleveland Clinic Foundation
INTERNAL MEDICINE
Hongba Thi Vu

Columbus
Ohio State University
OPHTHALMOLOGY
Yishal Verma

Rhode Island
Providence
Rhode Island Hospital-Brown University
DIAGNOSTIC RADIOLOGY
Jason Alan Pietryga

TENNESSEE
Nashville
Vanderbilt University Medical Center
DIAGNOSTIC RADIOLOGY
Lauren Ashley Gonzalez
OPHTHALMOLOGY
Michael Jason Deckerhaus

TEXAS
Dallas
University of Texas-Southwestern Medical School
GENERAL SURGERY
Derek Edwin Williams
INTERNAL MEDICINE
Lorraine Cheryl Pekosof

Houston
Baylor College of Medicine
ORTHOPEDIC SURGERY
Courtney Joseph Amar
University of Texas
DERMATOLOGY
Karrie Tamisha Amar

VIRGINIA
Charlottesville
University of Virginia
OTOLARYNGOLOGY
Menchern Mensel Stuart

WASHINGTON
Seattle
University of Washington
DERMATOLOGY
Edward Manuel Esparrza
Junko Takeshita
INTERNAL MEDICINE
Xiaoxue Huang
John Christian Huetsch
PATHOLOGY
Staci Bryson
Elaine Soling Chan

WISCONSIN
Madison
University of Wisconsin Hospitals and Clinics
PEDIATRICS
Laura Marie Housler

OTHER
Deferring Residency Training
RHODES SCHOLARSHIP
Leana Sheryle Wen

Congratulatory kiss: Jennifer Y Chu, MD 07, and John E. Reuter, MD 07, are both heading to the University of Rochester.
Veronica Atkins strongly believed in her late husband's mission while he was alive. Today, she is determined to continue his work to find the best way to fight the obesity epidemic in the United States.

Robert C. Atkins, MD, a cardiologist and practitioner of complementary medicine, popularized an innovative diet low in carbohydrates and high in protein. He authored several books in his lifetime. His first book, *Dr. Atkins' Diet Revolution*, sold more than 10 million copies worldwide, and his diet became increasingly popular after the 1992 publication of his second book, *Dr. Atkins' New Diet Revolution*.

Robert Atkins believed that the tremendous increase in refined carbohydrates, such as sugar, flour and high-fructose corn syrups, was responsible for the rise in obesity and type 2 diabetes during the last quarter of the 20th century. He thought if people ate fewer carbohydrates and more protein and fat, they would lose weight by burning stored fat more efficiently.

In April 2003, Atkins died at the age of 72. Veronica Atkins now chairs the Robert C. and Veronica Atkins Foundation, which was initially established in 1999 by Dr. Atkins, to ensure that his focus on the role of nutrition in health would continue.
The Atkins Foundation has made two major contributions to Washington University. In 2003, Veronica Atkins established the Dr. Robert C. Atkins Professor of Medicine and Obesity Research, the first professorship in the United States specifically devoted to supporting the study of obesity, held by Nada A. Abumrad, PhD.

Abumrad studies fatty acid transport and its role in diabetes, atherosclerosis and obesity. She is exploring the role of a cell membrane protein as a facilitator of fatty acid uptake and in fat utilization, energy balance and predisposition to metabolic diseases. Her work will help determine the fundamental cellular mechanism that can explain why obesity causes metabolic diseases such as diabetes.

In 2005, the foundation established the Veronica and Robert C. Atkins Center for Excellence in Obesity Medicine at Barnes-Jewish Hospital and Washington University School of Medicine. It is directed by Samuel Klein, MD, who also is the William H. Danforth Professor of Medicine and Nutritional Science and director of the Center for Human Nutrition at the School of Medicine.

The Atkins Center supports basic research in nutrition and metabolism, applies the science to clinical studies and then translates the findings into community outreach. For example, the grant supports a community-based program that treats childhood obesity at the West County Family YMCA in Chesterfield MO. For one year, overweight children and their parents learn about beneficial diet and lifestyle changes by meeting weekly with physicians, physical therapists, psychologists, cooking experts and other specialists.

The Atkins Foundation also provides support to Klein and colleagues from other medical centers as part of a coalition of investigators.

“Washington University School of Medicine's researchers have a long-standing reputation for progressive and innovative approaches to disease prevention, so we're a perfect fit in that sense,” says Atkins. “Sam Klein saw the advantages of a partnership with our foundation before other universities and medical schools were comfortable partnering with us.”

Klein emphasizes that philanthropy is especially important in addressing obesity in the United States because medical centers and federal agencies do not have all the resources needed to manage this medical crisis.

“We are extremely grateful to Veronica Atkins and the Atkins Foundation for their generous support,” he says. “Veronica Atkins has taken on the challenge of obesity and is making a real difference in our ability to prevent, treat and understand the mechanisms responsible for this complicated disease.”

Born in Russia, Veronica Atkins was just 3 years old when World War II began. Her father was killed during the fighting, and her mother fled the war-torn country with Atkins and her sister, settling in Vienna. Atkins has lived in seven countries and gained extensive knowledge of international cuisine. She is a gourmet cook and the author of two low-carbohydrate cookbooks. Feature articles she has written on a variety of nutrition-related public health issues have appeared in newspapers nationwide.

Music also has played an important role in Veronica Atkins' life. "I started singing before I could talk," she says. An opera singer for 13 years, she performed with the Dusseldorf Opera House and participated in concerts and recitals in France and the United States.

Atkins now lives in West Palm Beach FL, and travels often on behalf of the Atkins Foundation.

"Washington University School of Medicine's researchers have a long-standing reputation for progressive and innovative approaches to disease prevention."

—VERONICA ATKINS
The 2007 MD Reunion, held May 10-12, brought more than 230 MD alumni back to St. Louis to celebrate anywhere from 10 years to 65 years post-graduation. Including the many guests, students and faculty members who attended reunion events, more than 550 people participated in the continuing medical education sessions, social events and walking tours that took place over three days of activities at both Washington University Medical Center and the Renaissance Grand and Suites Hotel. The 25th reunion class and the 65th reunion class both attracted so many classmates that they each broke attendance records!
David J. Edwards, MD 57, right, with Margot Bellando, enjoyed reminiscing about his student days.

Reunion alumni gathered at the Farrell Learning and Teaching Center, where today's medical students meet and learn.

understated elegance

Class of 1987 alum Patrick Sandiford, MD, with wife Erika, celebrated his 20th reunion at the Class Dinner.

picture this

W. Edward Lansche, MD 52, gathers some classmates for a memorable photo.

Bernard Shore, MD 77, and Bea Shore welcomed friends back to St. Louis.

Judy Cho Lieu, MD 92, with her spouse, Charles Lieu.
Washington University Medical Center Alumni Association President Jeffrey L. Thomasson, MD '82, chaired Reunion 2007 events.

Kenneth R. Smith Jr., MD '57, recollected memories of the 50th reunion class during the Awards Banquet.

Celebrating the 55th reunion are Charles Miller, MD '52, Florence Miller, W. Edward Lansche, MD '52, Molly Parker, Dee Lansche, Brent Parker, MD '52, and Editha Rowell, widow of Peter P. Rowell, MD '52.

Executive Vice Chancellor and Dean Larry J. Shapiro, MD '71, catches up with medical students touting their production of "Damn Yankees."

Honolulu resident James A. Nishi, MD '57, center, joins the fun at his 50th reunion. With him, from left, are his son-in-law John Yamano, daughter Sharon Nishi, George Sato, MD '47, and Nishi's spouse, Lillian Nishi.

Class of 1997 social chair David Lotsoff, MD, enjoys the Class Dinner with Jennifer Lotsoff, Brooke Shadel, MD, PhD, and Steve Lawrence, MD '97.

Associate Professor and Archivist Paul Anderson guides medical alumni on a historical tour of the medical center.

Susan Gudeman Laenger, MD '92, and her husband, Dietmar Laenger, traveled from Florida to reunite with classmates.
An esteemed assemblage of awardees

The School of Medicine honored seven exceptional alumni and faculty at the MD Reunion 2007 Awards Banquet. Their accomplishments were applauded by alumni, faculty, family and friends who gathered to commemorate these physicians for their outstanding contributions.

Alumni Achievement

Michael Adams, MD 67, is assistant clinical professor of medicine at the University of California, San Francisco.

David D. Chaplin, MD 80, PhD 80, is the Charles H. McCauley Professor and chair of the Department of Microbiology at the University of Alabama at Birmingham.

Guido Guidotti, MD 57, PhD, is a professor of biochemistry in the Department of Molecular and Cellular Biology at Harvard.

John H. Stone III, MD 62, is professor emeritus of medicine at Emory University School of Medicine.

Alumni/Faculty

Laura J. Bierut, MD 87, HS 91, is an associate professor of psychiatry at Washington University School of Medicine.

Mark J. Manary, MD 82, is professor of pediatrics at Washington University School of Medicine.

Distinguished Service

Steven L. Teitelbaum, MD 64, HS 68, is the Wilma and Roswell Messing Professor of Pathology and Immunology at Washington University School of Medicine.

The medical student a cappella group Histones performed for alumni at the Dean’s Luncheon.

Celebrating their 25th reunion, clockwise from back left: Irwin Feurstein, MD 82, Lynne Taylor, MD 82, John Bellatti, MD 82, and Karen Rice, MD 82.

Nancy Newlin, MD 62, and Henry Newlin, JD, smile for the camera.

William P. Wiesmann, MD 72, presented a continuing medical education session.
Perennial reunion volunteer John D. Davidson, MD 52, gathered his classmates from near and far.

45th reunion classmates Gerald Wool, MD 62, Sheldon Schlaff, MD 62, and Gerald Medoff, MD 62, catch up.

Members of the Class of 2007 spent a delightful evening meeting alumni at the Reunion Awards Banquet.

Celebrating their 65th reunion, back row, from left: C. Barber Mueller, MD 42, Asa Jones, MD 42, Bill Anderson, MD 42, Glenn Turner, MD 42, Robert Royce, MD 42. Front row, from left: Jack Martz, MD 42, and Walter Graul, MD 42.

Derek Williams, MD 07, spoke to alumni as president of the Class of 2007.

Class of 2007 members Kari Wanat and Steven Sperry chat with 50th reunion participant Ralph H. Harder, MD 57.

David J. Edwards, MD 57, stands as the 50th reunion class is recognized at the Reunion Awards Banquet.
1940s

Maria Wienden Keller Smith, NU 47
Smith, who is retired, recalls many fond memories of wonderful friends and times spent in the nursing dorm. "We either studied hard or were playing a bridge game that hastened many days," she reports. She continues to stay in regular touch with several of her classmates.

1950s

Ansel R. Marks, LA 49, MD 53
Marks, executive secretary for the New York State Board for Professional Medical Conduct, was awarded the John H. Clark, MD, Leadership Award by the Federation of State Medical Boards at its annual meeting in San Francisco in May 2007. The award recognizes outstanding service to the field of medical regulation.

Roger J. Meyer, MD 55
Meyer's 156th published work will be a military history of Kitsap County WA. Previous books Symphony Notes-60th year of the Bremerton Symphony and Poulsbo Past Times were notably successful. He continues to serve as clinical professor of pediatrics and public health at the University of Washington. He was recently appointed historian for the Military Officers Association of America, Kitsap Chapter.

Godofredo M. Herzog, MD 57
Herzog is a health care consultant in medical systems optimization and a surveyor of pediatrics and public health at the University of Utah and director of pediatric otolaryngology and chairman of surgery at the Primary Children's Medical Center in Salt Lake City. He travels twice a year to India to develop a cleft lip/palate team at the Mission of Mercy Hospital in Kolkata. He has become a grandfather in the past few years and enjoys spending his free time hiking, skiing, kayaking, winemaking and road biking.

1960s

Joel Brian Kirkpatrick, MD 62
Kirkpatrick is a visiting assistant professor of neurology at University of Texas Southwestern Medical School in Dallas. He teaches selected sessions in the university's neuroscience course for freshmen. His pastimes include exercising, singing in choir and reading literature, philosophy, religion, fiction, mysteries and poetry. He is also a master gardener in Ellis County TX.

John H. Stone III, MD 62
Stone was inducted into the Georgia Writers Hall of Fame in April and honored with an Alumni Achievement Award at this year's MD Reunion Awards Banquet in May.

Martin B. Harthcock, MD, HS 65
Harthcock, a retired plastic and reconstructive surgeon, turned 89 in February.

1970s

Neil S. Alex, MD 70
Alex was recently selected as one of San Diego's Top Doctors.

Irene Louise Chennell, MD 77
Chennell is now working part-time doing medical ophthalmology in a three-doctor office. She enjoys gardening, rubber stamping, skiing and volunteering at the local senior center doing glaucoma screenings, something she has done for the past 22 years.

Harlan Ray Muntz, MD 77
Muntz is a professor of otolaryngology head and neck surgery at the University of Utah and director of pediatric otolaryngology and chairman of surgery at the Primary Children's Medical Center in Salt Lake City. He travels twice a year to India to develop a cleft lip/palate team at the Mission of Mercy Hospital in Kolkata. He has become a grandfather in the past few years and enjoys spending his free time hiking, skiing, kayaking, winemaking and road biking.

C. James Holliman, MD 79
Holliman, after 18 years on the faculty at Pennsylvania State University, has taken a new position with the Center for Disaster and Humanitarian Assistance Medicine at the Uniformed Services University of the Health Sciences at the National Naval Medical Center in Bethesda MD. He is the new program manager of the Afghanistan Health Care Sector Reconstruction Project. He led a team with a number of senior military officers on a two-week survey study visit to Afghanistan in March 2007 and is preparing a plan for U.S. Central Command to carry out health care system reconstruction in Afghanistan over the next decade.

1980s

Debra Ann Beeson, MD 82
Beeson is starting a new job at the New Mexico Department of Health. She enjoys gourmet vegetarian cooking, reading, traveling, being outdoors, volunteering for environmental projects and animal rescue. She is active in the Animal Humane Association, Greyhound Companions, Earthwatch, Continental Divide Trail Association, Forest Guardians and Placitas Recycling Center.

Matthew Mauro, MD, HS 82
Mauro was recently appointed head of the Department of Radiology at the University of North Carolina, Chapel Hill. He succeeds Joseph K.T. Lee, MD 73, HS 77.

James A. Junker, MD, HS 83
Junker has been named the new president and CEO of Scott Radiological Group, an organization that provides state-of-the-art medical imaging, including a comprehensive range of diagnostic, interventional services and radiation therapy to patients in the St. Louis metropolitan area.

Denise L. Faustman, MD 85, PhD 85
Faustman is the director of immunobiology for Massachusetts General Hospital and associate professor of medicine at Harvard Medical School. She is celebrated by the NIH and National Library of Congress as one of 500 female physicians in the history of the United States to contribute in a significant way to medicine. She has made significant research discoveries in Type 1 diabetes and has raised $11 million in research funding to launch a generic drug to possibly halt or reverse type 1 diabetes.

1990s

Madison Sample Jr., MD 92
Sample recently left his position as chairman and president of Talcott Anesthesiologists. Throughout the year, he volunteers his time giving lectures.

Zachary R. Chandler, HA 97
Chandler became president of Methodist Charlton Medical Center in May 2007. He previously served as administrator and CEO of Baptist Memorial Hospital-North Mississippi. He was recognized as one of the “Top 40 Under 40” by the Memphis Business Journal in 2002.

2000s

Robert Harris Baloh, MD 01, PhD 01
Balah, an instructor in the Department of Neurology and the Division of Neuromuscular Disorders, was awarded the 2007 S. Weir Mitchel Award by the American Academy of Neurology for his research in Charcot-Marie-Tooth disease, a hereditary peripheral nerve disorder. The award recognizes an individual for basic research in neuroscience by physicians in clinical neurology training programs.

Walter Wai-Yip Chan, EN 00, EN 00, MD 04
Chan, after 11 years and three diplomas, is excited to be leaving St. Louis. He has matched into the GI fellowship program at the Brigham and Women’s Hospital in Boston MA and moved there in June after finishing his medicine residency at Barnes-Jewish Hospital.

Vernetta Lee Harris, MD 04
Harris is doing well in Atlanta GA and is starting her first job as an emergency physician for Dekalb Emergency Physicians, a subsidiary of a regional physician group.

Gregory Dee Byrd, MD 05, MA 05
Byrd, a second-year orthopedic resident at Oregon Health and Science University, sends word of his engagement to Vicky Urankar. The couple plans to be married in Cleveland OH on Sept. 15, 2007.

In Memory

Judith B. Galt, NU 40
Galt, of St. Louis MO, died on March 17, 2007. She served as an Army nurse during World War II. She later spent much of her career working at St. Luke’s and Deaconess Hospitals in the St. Louis area. She was a lifelong member of First Presbyterian Church in Ferguson, where she was also a member of the Women’s Association and the Women’s Circle. After retiring, she made dressing for cancer patients through a church program while continuing to volunteer at St. Luke’s.

Gene H. Grabau, MD 42
Grabau, 91, died Feb. 28, 2007. He served in the U.S. Army during World War II as a battlefield surgeon, reaching the rank of captain. After his Army service, he was a pediatrician at St. Louis Children’s Hospital and the old City Hospital. He taught at the former Homer G. Philips Hospital. He opened a private practice in the Baden area of St. Louis in 1948 and practiced there until his retirement in 1995. He is survived by one son, three daughters, four grandchildren and one great-grandson.

Jerry H. Allen Jr., MD 43 (December)
Allen died on Jan. 31, 2007, at the age of 94. He is survived by his wife of 62 years, Frances Fisher Allen, of Springfield MO.

Dale D. Doherty, MD 44
Doherty died on Feb. 3, 2007, at the age of 89. He served in the Army during World War II prior to completing his residency in dermatology. He practiced dermatology in the state of Washington for 36 years until his retirement in 1988. Active in his community, he was a member of rotary, a longtime choir member at Little Church on the Prairie in Lakewood WA, and a volunteer at the local Fish Food Bank and Cancer Society.

Albert P. Rauber, MD 46
Rauber died on March 7, 2007, from complications of abdominal cancer. He completed his internship and residency at St. Louis Children’s Hospital. He was one of the first four physicians hired on the faculty of Emory University Clinic’s pediatric program in 1959. When the program closed in 1968, he became director of Ambulatory Pediatrics at Grady Memorial Hospital. He established the Grady Poison Control Center in 1970, which grew under his guidance into the Georgia Poison Control Center. He also was a full professor at Emory for many years. Following retirement from medicine in 1987, he worked as a volunteer at Scitrek and tutored adults in English as a second language. Last year, he served as a class social co-chair for his 60th School of Medicine Reunion. He is survived by his wife, Shirley Rauber, a daughter, two sons, eight grandchildren and one great-grandson.

Ernest H. Schaper, MD 51
Schaper died on Feb. 11, 2007, at the age of 84. After serving in the U.S. Army, he received a medical degree from Washington University and went on to serve on the staffs of Deaconess Hospital, Missouri Baptist Medical Center, Christian Hospital and DePaul Hospital. He was also a partner at the Macon Medical Center and a doctor for McDonnell-Douglas Aircraft before retiring in 1989. He is survived by his wife, Myrtie Schaper, one daughter, three sons, eight grandchildren and seven great-grandchildren.

Joseph H. Lesser, MD, HS 52
Lesser died on Jan. 10, 2007, with his wife and children by his side.

Pat Zook Bicknell, NU 53, MSN 61
Bicknell died on Feb. 24, 2007. She was 76 and a resident of Olathe KS. She is survived by two daughters, two sons, seven grandchildren, one great-granddaughter, a sister and a brother.

John M. Cary, MD, HS 61
Cary died on March 15, 2007, at the age of 74. He specialized in hematology and oncology for more than 40 years before retiring in 2004. He was a Washington University School of Medicine faculty member and president of the staff association of St. Luke’s Hospital in Chesterfield, where he also served on the ethics committee and other committees. He is survived by his wife of 52 years, Barbara A. Cary, two children and five grandchildren.

Eione Joyce Reese, NU 62
Reese died on Feb. 14, 2007. She lived in St. Louis MO.

Jan Z. Winkelman, MD 68
Winkelman died on March 8, 2007. He was a neuro-ophthalmologist in Ann Arbor MI. Following residency, he served in the U.S. Navy before moving to Ann Arbor in 1975. One of his most rewarding volunteer experiences was performing cataract surgeries for 12 hours a day during a medical mission
trip to the Marshall Islands in the South Pacific. A doctor and artist, he enjoyed gardening, photography and playing jazz trumpet, an interest that began as a child and a skill that was cultivated throughout his life. He is survived by his wife, Sarajane, three sons, two stepchildren, six grandchildren, his mother and siblings.

Audrey Colleen Traub, MD 75
Traub died on Jan. 31, 2007, at the age of 58. She worked as a surgeon for more than 20 years at Unity Hospital in Fridley MN and experienced many highlights during her career there. She was selected chief of staff at Unity in 1992 and also served on the hospital's Board of Governors from 1991 to 1992. Additional appointments included serving as medical director of Mercy and Unity's High Risk Breast Diagnostic Treatment Program and chair of the hospital's breast cancer board. In 2002, in recognition of her dedication and service to Unity Hospital, organized medicine and the community, Unity presented Traub with the hospital’s highest physician honor, the William J. Carr Award. She is survived by her brother and other relatives.

FACULTY

Harvey R. Colten, MD
Colten, who was chair of the Department of Pediatrics from 1986 to 1997, died May 24, 2007, at New York Presbyterian Hospital of complications from colon cancer. He was 68. The Harriet B. Speegher Professor of Pediatrics, he was pediatrician-in-chief at Barnes-Jewish and St. Louis Children's hospitals. During his tenure, he led a team of researchers who found a genetic link to a form of respiratory failure in newborns and played a major role in creating one of the most prestigious pediatrics departments nationwide. His efforts as a scientist, clinician, educator and administrator helped the university assume a leadership role in American medicine. His research made significant and wide-reaching contributions to our understanding of the basic functioning of the immune system and of the body’s inflammatory responses, and ultimately played a role in advancing the care and treatment of cystic fibrosis and other respiratory diseases in children. In 1997, Colten became dean and vice president for medical affairs at Northwestern University, and in 2002 he joined Columbia University Medical Center as vice president and senior associate dean for academic affairs. He was a member of the Institute of Medicine of the National Academy of Sciences and a Fellow of the Royal Society of Medicine (London) and of the American Association for the Advancement of Science, and received a MERIT award from the National Institutes of Health. He is survived by his wife, Susan; three children: Jennifer Colten Schmidt of St. Louis, Lora Colten of Homer AK and Charles Colten of Petrolia CA; six grandchildren; his father; a brother, and a sister. Memorial contributions may be made to St. Louis Children’s Hospital, Department of Pediatrics, One Children’s Place, St. Louis, MO 63110.

STAFF

William C. “Billy” Kaufmann
Kaufmann, a multimedia specialist in Medical Computing Services at the School of Medicine, died May 14, 2007, in a motorcycle accident in south St. Louis. He was 26. Kaufmann worked for the School of Medicine for nearly seven years. As a multimedia specialist, he produced original videos for medical school departments and groups and filmed surgical procedures, public events and promotional pieces. He worked closely with faculty to create educational materials and was one of the key staff members in the Medical Computing Services' offering of videoconferencing at the medical school. He is survived by his parents, Lucy and Richard Kaufmann; half siblings; aunts; uncles, and cousins.
A legacy of dedication and service to others will live on through the David English Smith Professorship. "I wanted a lasting memorial to my father," says daughter Mary Ann Smith. Two unitrusts she established provide her with tax benefits and an annual income. Eventually, her gifts will fund the professorship, which will bear her late father's name.

David English Smith, MD 14, above, served in World War I, then practiced as a physician. His sons are David E. Smith Jr., MD 44, and Albert G. Smith, MD 47.

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Graduation grandeur
Washington University School of Medicine awarded medical degrees to 128 students on May 18, 2007: Ninety-seven students received the MD degree, 21 received the MD/PhD degree, and 10 received the MD/MA degree. Liza Leung, Elaine Chan and Xiaoxue Huang (left to right) were among those honored at the Commencement ceremony, which was held at the America's Center convention complex in downtown St. Louis.
Rubber hits the road  Ride for World Health 2007, a cross-country bike ride and global health education series, rolled through St. Louis in early May. Twenty riders visited nine medical centers across the nation to raise funds and lead discussions on four key issues: poverty and health, access to health care, women’s health, and HIV and infectious disease. Employees Joan Cross, internal medicine, left, and Mary Akin, human genetics, sign up to support the event.