

ONLINE EXTRA

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A new class embraces the study of medicine

The 99 members of the Class of 2013 donned white coats in August as they began their medical careers.

Promoting health and saving the rain forest in Borneo

In 2007 Kinari Webb opened a clinic in a remote corner of Borneo. Now she's building a hospital there.

Downs fellows report on research around the globe

This year's Downs fellows visited four continents to study leishmaniasis and drug use, among other topics.

How cells stay in shape

Yale scientists discover how cells keep their shape despite pressure from water and salt, and what that means for disease.

yalemedicine.yale.edu

On our website, readers can submit class notes or a change of address, check the alumni events calendar, arrange for a lifelong Yale e-mail alias through the virtual Yale Station, and search our electronic archive.

vale medicine

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The new Smilow Cancer Hospital at Yale-New Haven is built around a new philosophy of patient care. *By Colleen Shaddox*

From Cedar Street to Capitol Hill

Some med school alumni effect change not one-on-one, but through health policy, and on a grand scale. *By Jenny Blair,* M.D. '*o*4

Doctors for America

A campaign by Yale alumni has amplified doctors' voices in the health care debate. *By Kohar Jones,* M.D. '05

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ON THE COVER Structural biologist Thomas Steitz (left) shared the 2009 Nobel Prize in Chemistry for his work in elucidating the structure of the large subunit of the ribosome. In December he accepted his award from His Majesty King Carl XVI Gustaf of Sweden at the Stockholm Concert Hall.

Jonas Ekstromer/AFP/Getty Images



HOW TO REACH US

Yale Medicine welcomes news and commentary. Please send letters (350 words or fewer) and news items to Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to ymm@yale.edu, and include a telephone number. Submissions may be edited for length, style, and content.

VISIT US ON THE WEB yalemedicine.yale.edu

Readers rate top docs, scientists, and teachers

Early last year, in anticipation of the School of Medicine's bicentennial in 2010, we asked for your thoughts on the most significant events and personalities of the school's first two centuries [See "200 Years of Medicine at Yale," Spring 2009].

Dozens of readers responded to our survey and offered their opinions, starting with who or what had the greatest impact in shaping the school. The winner hands down was the creation of the Yale system in the 1920s, which garnered the votes of 84.6 percent of our respondents. Runners-up were the school's founding in 1810 (10.8 percent) and the admission of women in 1916 (4.6 percent). Several of you named the admission of African-Americans, the thesis requirement, and the involvement of students in providing health care to uninsured families in the New Haven community. One alumnus wrote, "The Yale system treats medical education like a serious field, not just a trade, and treats students like serious adults who have something to contribute."

The greatest scientific advance? The finding by the late

Dorothy Horstmann, M.D., FW '43, the John Rodman Paul Professor Emerita of Epidemiology and Pediatrics, that the polio virus enters the central nervous system through the bloodstream. That finding, which paved the way for the Salk vaccine, won the votes of 50.8 percent. John P. Peters' transformation of clinical chemistry into a discipline of precise quantitative indicators of disease received 40.7 percent of the vote. And 8.5 percent chose the first antiviral drug, developed by William Prusoff, PH.D., in the 1950s.

In the clinical realm, 65.6 percent said the first successful use of penicillin in the United States was the school's greatest clinical advance. The discovery of nitrogen mustard as a treatment for cancer won the votes of 23.4 percent; and 10.9 percent chose the introduction of fetal heart monitoring in the 1950s.

Among faculty, 41.7 percent of you said John Fulton possessed the most extraordinary scientific mind; 35.4 percent chose Dorothy Horstmann; and 22.9 percent chose George Palade.

Among basic science classes, you were most impressed with anatomy, although many of you also named physiology, pharmacology, and pathology. Your most memorable clinical experiences ranged widely from physical diagnosis to being a chief resident, from caring for victims of a 1950s New Haven fire to treating patients during World War II.

Your favorite extracurricular activities and favorite memories spanned the gamut from attending and participating in sports, plays, and musical productions to the meals you shared with classmates and colleagues; from trips to sanitariums to going to chapel; and from meeting and dating your future spouses to spending time in the outdoors. Many of you fondly remember New Haven pizza. And one of you wrote, "Do you really think we had time for extracurricular activities?" —*Charles Gershman*

Yale Medicine receives award of excellence

In the fall of 2007 we asked freelance writer Jill Max to look into the status of the physical exam in medical education and practice. We'd been hearing physicians lament the decline of the physical exam as advanced technology appeared to be replacing their ability to glean insights into health by touching, feeling, and listening. Jill worked on the article for several months, interviewing attendings, residents, medical students, and national experts on medical education. In January of this year we learned that the Association of American Medical College's (AAMC) Group on Institutional Advancement had honored her with a Robert G. Fenley Writing Award of Excellence for her article, "The Lost Art of the Physical Exam" [Yale Medicine, Winter 2009]. The award is the highest bestowed by the AAMC to recognize outstanding writing. Congratulations, Jill.

in this issue of *Yale Medicine* is available online at iTunesU, or by pointing your browser to yalemedicine.yale.edu.

starting Point

Yale med alums and their chosen career paths

As the alumni reunion in June approached last year, our colleagues in the development and alumni offices noted that graduates of the School of Medicine had excelled not only in medicine but in other pursuits. Many are outstanding clinicians and scientists, and many have gone on to serve as deans of medical schools. But they have also become venture capitalists, politicians, writers, soldiers, and entrepreneurs. To kick off what will become an occasional series in *Yale Medicine*, we include in this issue an article about medical school alumni who have sought to improve health not one patient at a time, but on a grand scale by pursuing changes in government policy. Over the years alumni have been involved in the creation of Medicare, launched anti-smoking campaigns, or worked as aides to politicians including Hillary Rodham Clinton and the late Edward M. Kennedy. In future issues we will explore other unusual career paths taken by med school graduates.

This series is also a response to what many of you asked for in our recent reader survey more news of alumni. We hope this series will help you keep in touch with classmates or perhaps rekindle old friendships. In any case, we hope you enjoy hearing about what other med school alumni are doing.

John Curtis Managing Editor

SECOND OPINION BY SIDNEY HARRIS



"ALL I WANT FROM THEM IS A SIMPLE MAJORITY ON THINGS."

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A Nobel for deciphering the ribosome's subunit

Thomas Steitz is honored for solving the structure of a machine that makes proteins essential to life.

A few minutes before noon on October 7, Thomas A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry and professor of chemistry, walked into the President's Room at Woolsey Hall to sustained applause. Amid the cheering crowd were his colleagues on the Yale faculty, students and postdocs in his lab, the staff of his biotech company, Rib-X Pharmaceuticals, and news reporters and photographers.

A few minutes later Yale President Richard C. Levin warmly greeted



Structural biologist Thomas Steitz shared the 2009 Nobel Prize for Chemistry in October for elucidating the structure of the large subunit of the ribosome, which helps translate DNA information into the proteins that make life possible. Steitz and his wife, Joan A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry. Then Levin took his place at a lectern in front of a Yale-blue backdrop to say, "It is with the greatest pride and enthusiasm that I am here to introduce you to Tom Steitz, the winner of the 2009 Nobel Prize in Chemistry." The news had arrived at 5:30 that morning in a phone call to Steitz from Stockholm.

Steitz, a Howard Hughes Medical Institute (HHMI) investigator, was one of three scientists recognized by the Royal Swedish Academy of Sciences for their work on the ribosome, a complex of RNA and protein found in all cells. The Academy noted in its statement that this year's chemistry prize honors "studies of one of life's core processes: the ribosome's translation of DNA information into life."

"It is an amazing piece of work," Levin said. "It is fundamental, sweat-itout, figure-it-out science. It is like solving a gigantic jigsaw puzzle. This is the factory that makes the proteins that are the source of life."

The other scientists honored were Venkatraman Ramakrishnan, PH.D., FW '82, of the Medical Research Council (MRC) Laboratory of Molecular Biology in England, and Ada E. Yonath, PH.D., of the Weizmann Institute of Science in Israel. Ramakrishnan studied the smaller of the ribosome's two subunits. while Yonath began making crystals of the ribosome in 1980, and Steitz concentrated on the ribosome's larger subunit starting in 1995. Although the three teams tackled parallel problems related to the ribosome, Steitz said, they worked separately. "We communicated via papers and meetings."

Steitz offered thanks for the supportive environment at Yale and in particular to Peter B. Moore, PH.D., Sterling Professor of Chemistry and professor of molecular biophysics and biochemistry, who worked with him on the ribosome project. "He has been a friend and colleague and co-worker and collaborator for many years. I very much appreciate his company and his work and his participation," Steitz said. (Ramakrishnan was a postdoctoral fellow with Moore and Donald M. Engelman, PH.D., Eugene Higgins Professor of Molecular Biophysics and Biochemistry, from 1978 to 1982.)

The Steitzes came to Yale in 1970 after three years as fellows at the MRC, where Francis Crick and James Watson had elucidated the double-helix structure of DNA in 1953. As Levin noted, "Tom Steitz has a rare family. His wife Joan is one of the leading scientists at Yale as well. She is someone we hope will some day get the same recognition Tom received today." (Their son, Jonathan G. Steitz, J.D. '07, was drafted from Yale in 2001 by the Milwaukee Brewers as a right-handed pitcher, but tendonitis in his right shoulder ended his baseball career. He is now a consultant in San Francisco.)

Since the late 1970s Steitz has been exploring how DNA is copied into DNA and then into RNA at the molecular level and how RNA makes proteins. In those early days, however, the National Institutes of Health offered little support for structural biology, he said. Then HHMI stepped in during the 1980s. "HHMI funded five or six structural biology labs in the country. That helped the whole field because they set the agenda," Steitz said.

By 1995 Steitz had turned to what Levin called "one of the most challenging and difficult problems in molecular science," namely the structure of the ribosome's large subunit. Steitz's tool was X-ray crystallography, but in the early stages of the research, it was hard to form a high-quality crystal of the ribosome. Once a suitable crystal was achieved, the next step was to beam X-rays through it to plot a diffraction pattern that would reveal the ribosome's atomic structure. In 2000 Steitz and his team used a 2.5 billion electron volt X-ray beam at Brookhaven National Laboratory's National Synchrotron Light Source.

"It was the most exhilarating moment I have had in science, to peer into the inner workings of the ribosome and think about how it works," Steitz said. "It was like trying to climb Mount Everest. We knew it was doable in principle but we didn't know if we would ever get there."

Although the prizewinning research began as a quest to find out how a complex molecular structure works, it has since yielded clinical applications. By blocking ribosomal activity in bacteria, many antibiotics cure diseases caused by bacterial infection. No organism can live, Steitz said, "without a machine that makes proteins."

The company that Steitz co-founded in 2001, Rib-X Pharmaceuticals, has applied the insights obtained from the ribosome-antibiotic structures to develop new antibiotics that can be used to treat such multi-antibiotic resistant infections as MRSA. The company is developing both oral and intravenous drugs for treating skin infections, pneumonia, bronchitis, and soft tissue infections. One compound developed by the company has successfully completed phase 2 clinical trials.

—John Curtis

Culling, Vala Nat

Online: Yale Netcasts

- Thomas Steitz: Mapping the Ribosome
- Nobel lecture and awards ceremony

et cetera ...

COLLINS NAMED TO LEAD NIH

Francis S. Collins, M.D., PH.D. '72, FW '84, was appointed head of the National Institutes of Health (NIH) in August, and in October was named one of nine recipients of the National Medal of Science.

Collins is best known for leading the Human Genome Project and for his discoveries of disease genes. In June 2000 a draft of the human genome was announced and an initial analysis was published in 2001.

The National Medal of Science was created in 1959 and is administered for the White House by the National Science Foundation. Awarded annually, the medal recognizes individuals who have made outstanding contributions to science and engineering. The medal, along with the Medal of Technology, is among the highest federal government honor given to scientists, engineers, and inventors. Collins and the other honorees received their awards from President Barack Obama at a White House ceremony in October.

-John Curtis

YALE IN GLOBAL HEALTH CONSORTIUM

Yale has joined five universities and the Association of University Technology Managers (AUTM) to spur the dissemination of technology and medicines to the developing world.

In a statement released in November, Harvard, Yale, Brown, Boston University, the University of Pennsylvania, Oregon Health & Science University, and AUTM said they will try to ensure that their intellectual property rights do not block access to drugs, vaccines, devices, and medical technologies in developing countries. They also agreed to try to develop licensing strategies that promote global access to health technologies, to control patent rights so as to make lifesaving products available in the developing world, and to support the development of health-related technologies aimed at diseases prevalent in the developing world.

"We believe the principles and strategies enunciated in this document will further our shared goal of providing access to the benefits of our medical inventions for the most needy global citizens," said Yale President Richard C. Levin.

—Ј.С.





TOP Annie Le, a promising graduate student in pharmacology and the child of Vietnamese immigrants, was murdered in a laboratory on the medical campus in September.

ABOVE On September 14, the day after police found Annie Le's body hidden inside a wall at 10 Amistad Street, members of the Yale community gathered for a vigil at Cross Campus.

Yale mourns the loss of a gifted student and compassionate friend

Annie Le was a talented scientist, a caring friend, a helpful lab mate, and a fashionista whose click-clacking high heels signaled her arrival from afar. Her friends, classmates, and teachers remembered what her advisor called "Annieisms"—her fondness for fried chicken, her perfectly accessorized wardrobe, and her insistence on wearing a skirt even while doing messy lab experiments.

Scores of people touched by her full and all-too-short life gathered in Battell Chapel in October to honor Le, a 24-yearold graduate student in pharmacology who had been killed in a Yale laboratory a month earlier. A laboratory technician had been charged with murder in the case and is being held on \$3 million bail.

President Richard C. Levin described Le as "so emblematic of the kind of student Yale wishes to educate and send out into the world, a model student for the Yale of the 21st century." The child of Vietnamese immigrants, Le grew up in central California, was a standout high school student who garnered \$160,000 in college scholarships, won a prestigious NIH fellowship while an undergraduate at the University of Rochester, and at Yale won a fellowship from the National Science Foundation.

Working in the laboratory of Anton M. Bennett, PH.D., associate professor of pharmacology, Le studied how some fatty acids regulate an enzyme believed to be involved in cellular metabolism. She wanted to find out whether the enzyme is linked to metabolic disease. "She was happy with her life, happy with herself, and happy with her dreams," Bennett said. "That's why Annie was always smiling." Her work contributed to a research paper that will soon be published in the *Journal of Clinical of Investigation* and will be dedicated to her memory.

"Annie valued science precisely because she saw in it a moral purpose," said Jon Butler, PH.D., dean of the Graduate School of Arts and Sciences. "She hoped that her research would stem the onset of metabolic disease."

Friends also recalled Le's lighter side. "I don't know anyone else who could wear five-inch heels while doing laborious mouse surgery, eat fried chicken and not gain an ounce, and use smiley faces in her presentations and not lose the respect of her audience," said fellow graduate student Tara Bancroft.

Le's roommate reported her missing on the night of September 8. Five days later, the day she was to have been married to her college sweetheart, police found her body in a crawl space behind a wall in the basement of a building at 10 Amistad Street, where Le had gone to check on her research mice. Police arrested Raymond Clark III, a lab technician who worked in the building, on September 17. Clark had not entered a plea at press time.

—John Curtis

For the first time, DNA sequencing leads to diagnosis and treatment

A Turkish boy suffering from dehydration and failure to thrive became the first patient to receive an accurate diagnosis and successful treatment based on the complete sequencing of his protein-coding genes, thanks to the work of Yale researchers.

A team led by Richard P. Lifton, M.D., PH.D., chair and Sterling Professor of Genetics and professor of internal medicine, used emerging genomics technologies to identify an unexpected and rare genetic mutation in the infant, who had previously defied diagnosis. That information allowed the baby's doctors to embark on a successful treatment program.

The milestone achievement resulted from a new approach to DNA sequencing known as whole-exome sequencing. This approach zooms in on the 1 to 2 percent of the genome that carries protein coding information, where diseasecausing mutations are most likely to occur. Lifton and colleagues at the Yale Center for Genome Analysis-including Murim Choi, PH.D., a postdoctoral fellow, and Shrikant M. Mane, PH.D., director of the genome analysis center at West Campus-worked out a method that combines gene chip technology to purify the target DNA along with the latest high-throughput sequencing techniques to decode it. Their approach yields a comprehensive view of an individual's protein-coding genes for a few thousand dollars—10 to 20 times less costly than sequencing the entire genome.

At the request of a Turkish doctor, the Yale group deployed the technology to investigate the five-month-old baby, who was suspected of having a rare genetic kidney disease known as Bartter syndrome, marked by excessive urination. The baby's DNA arrived at Yale, and in just ten days, the researchers had their answer. The kidney gene was fine; however, the baby turned out to have an unsuspected mutation in a protein responsible for water and salt absorption in the intestines. That defect led to chronic chloride diarrhea, which in turn caused the child's dehydration. Armed with that information, Lifton and colleagues then went back to other infants with similar symptoms attributed to Bartter syndrome, and identified five more with mutations in the intestinal transporter.

The results, reported in the *Proceedings of the National Academy of Sciences* in October, show that the new technology can quickly generate clinically useful results, bringing doctors and patients closer to the day when comprehensive sequencing information will be a routine part of medical care.

"We believe this heralds the dawn of a new era in genetics and personalized medicine," said Lifton, who is also an investigator for the Howard Hughes Medical Institute. "As the cost of DNA sequencing continues to plummet, it seems clear that this technology will be useful for clinical diagnosis in a number of settings."

-Pat McCaffrey



Online: Yale Netcasts Richard Lifton: Genes: You Are What You Inherit

et cetera ...

NEW STRATEGY FOR SWINE FLU

A Yale researcher has proposed a swine flu vaccination strategy that would minimize cases and mortality and reduce costs. The strategy gives priority for vaccinations to those most likely to transmit swine flu rather than to those most vulnerable to the disease.

The Centers for Disease Control and Prevention and the Advisory Committee on Immunization Practices (ACIP) currently recommend targeting such high-risk groups as children under five; adults 65 or older; and pregnant women. In a paper published online in the August 20 issue of the journal *Science*, Alison P. Galvani, PH.D., associate professor of epidemiology (microbial diseases), and Jan Medlock, PH.D., an assistant professor of mathematical sciences at Clemson University, said that vaccinating schoolchildren and their parents would be more effective.

ACIP's vaccination policies, the study found, would result in 1.3 million infections, 2,600 deaths, and \$2.8 billion in economic impact. Galvani's model, however, projected 113,000 infections, 242 deaths, and a cost of \$1.6 billion.

—J.C.

HOW HUNGER BLOCKS FERTILITY

A molecule that may play a key role in obesity, drug addiction, and depression also turns off the reproductive system in times of severe hunger, according to Yale scientists. In a report in September in the *Proceedings of the National Academy of Sciences*, the researchers identified the molecule as melanin-concentrating hormone (MCH), a peptide that is made by the hypothalamus.

"Brain neurons that make MCH are quiet most of the time, but when the body is in negative energy balance, MCH neurons become active and can shut down brain neurons that control reproduction," said Meenakshi Alreja, PH.D., senior author of the paper and associate professor of psychiatry and neurobiology. —J.C.

Every Patient Tells a Story: Medical Mysteries and the Art of Diagnosis

In her new book, Lisa Sanders examines the state of diagnostic skills.

The chances are good that you already know the work of Lisa Sanders, M.D. '97, HS '00, assistant clinical professor of medicine: she writes the monthly "Diagnosis" column in the *New York Times Magazine*. Or maybe you've seen *House*, the Emmy-winning, oddly addictive, not-quite-believable hospital



Every Patient Tells a Story: Medical Mysteries and the Art of Diagnosis by Lisa Sanders, M.D. '97, Hs '00, assistant clinical

by Lisa Sanders, M.D. '97, Hs '00, assistant clinical professor of medicine (Broadway Books)

melodrama for which Sanders is a consultant. Now Sanders has written a book that combines the medical sleuthing of "Diagnosis" and House with an examination of the state of diagnostic skills among contemporary physicians. The book also provides "insider" pleasures for those familiar with the School of Medicine or Yale-New Haven Hospital: Many of the names of the physicians who unravel these medical mysteries are familiar, from Nancy Angoff to Majid Sadigh, from Eric Holmboe to Frank Bia.

With each story of a difficult diagnosis, Sanders expands on the issues that made it so.

Recurrent chest pain and weakness in a young man. A heart attack? It turns out to be pernicious anemia. A woman with long-term weakness and joint pain. "Chronic" Lyme disease? No—polymyalgia rheumatica.

Sanders argues that physical examination is poorly taught, both in medical school and during residency. "See one, do one, teach one" doesn't suffice for the complex skills of hands-on examination.

She ends with a moving story of the search for the cause of her own sister's death at 42.

—Cathy Shufro

CHARLES CONTRACTOR CONTRACTO

Comparative Studies and the Politics of Modern Medical Care

edited by Theodore R. Marmor, PH.D., professor emeritus of public policy and political science at Yale; Richard Freeman, PH.D.; and Kieke G.H. Okma, PH.D. (Yale University Press) The editors of this volume have compiled essays covering health care policy debates and reforms in Canada, Germany, the Netherlands, the United Kingdom, and the United States. The book explores such issues as primary care, hospital care, long-term care, pharmaceutical policy, and private health insurance.

Handbook of Pediatric Chronic Pain: Current Science and Integrative Practice

by Brenda C. McClain, M.D., associate professor of anesthesiology; and Santhanam Suresh, м.D. (Springer) The book addresses concerns unique to pediatric pain management, including the history of pediatric chronic pain; the advancement of pediatric pain management as a clinical subspecialty; the characterization of common pain syndromes; and the assessment of specific pediatric and adolescent pain syndromes. It also discusses such interventional techniques as therapeutic blocks, implantable systems, physical therapy, and complementary therapies.

Plastic Surgery: Indications and Practice

by John A. Persing, M.D., professor of surgery (plastic) and neurosurgery; Bahman Guyuron, M.D.; Elof Eriksson, M.D., PH.D.; Kevin C. Chung, M.D.; Joseph Disa, M.D.; Arun Gosain, M.D.; Brian M. Kinney, M.D.; and J. Peter Rubin, M.D. (Saunders) This two-volume reference work covers all aspects of aesthetic and reconstructive plastic surgery practice, with an emphasis on today's techniques. The book's content and format follow the core curriculum designed by the academic chairs of plastic surgery, making it a practical resource for residents and an ideal review for the plastic surgery board examination. A bonus DVD is included with the book.

Transplant

by John A. Elefteriades, M.D. '76, HS '83, the William W.L. Glenn Professor of Surgery (cardiac) (Robot Binaries & Press) This medical thriller has cutting-edge technology, seduction, and coercion as well as questions about the ethics of modern medicine.

Mother's Milk

by Charles Atkins, M.D., lecturer in psychiatry (Severn House Publishers) A forensic psychiatrist tries to solve the mystery of two dead teenagers and a missing homeless schizophrenic while under pressure from her boss.

Genetics and Medicine in Great Britain 1600 to 1939

by Alan R. Rushton, M.D., PH.D., HS '80 (Trafford Publishing) This historical study examines the close professional relationship between British scientists studying the nature of heredity and the practicing physicians of the day. It shows the close collaboration between scientists and physicians during the decades before World War II that has defined the present understanding of the scope of modern "medical" genetics.

Anesthesiology Keywords Review

by Raj K. Modak, M.D., assistant professor of anesthesiology (Lippincott Williams & Wilkins) This review book is based on the keyword list distributed to

on campus





residency program directors each year. Each entry begins with a keyword followed by a list of key points and a one- or two-page discussion. Entries cover all areas of anesthesiology.

Preoperative Medical Consultation, An Issue of Medical Clinics

by Lee A. Fleisher, M.D.; and Stanley H. Rosenbaum, м.D., professor of anesthesiology, medicine, and surgery (trauma) (Saunders) This volume provides recommendations on ways to handle preoperative consultation and preparation as well as perioperative management of surgical patients. It covers the following situations: emergency and urgent surgery; perioperative management of the ambulatory surgery patient; perioperative anticoagulation management; hematological problems in the preoperative patient; obesity, the metabolic syndrome, and the surgical patient; and noncardiac surgery in the patient with heart disease.

Pediatric Bioethics

by Geoffrey Miller, M.B.CH.B., professor of pediatrics (neurology) and neurology (Cambridge University Press) This volume offers a theoretical and practical overview of the ethics of pediatric medicine. It serves as a handbook and resource for pediatricians, nurses, residents in training, graduate students, and practitioners of ethics and health care policy. Written by a team of experts, this book addresses the difficult ethical questions concerning the clinical and academic practice of pediatrics.

DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology, 8th ed. by Vincent T. DeVita Jr., M.D., Amy and Joseph Perella Professor of Medicine and professor of epidemiology; Theodore S. Lawrence, M.D., PH.D.; Steven A. Rosenberg, M.D., PH.D.; Ronald A. DePinho, M.D.; and Robert A. Weinberg, PH.D. (Lippincott Williams & Wilkins) The text provides information on the science of oncology and multimodality treatments of every cancer type. To ensure a balanced multidisciplinary approach, each major treatment chapter is co-authored by a surgeon, a medical oncologist, and a radiation oncologist. Treatment of each cancer type is discussed by stage, with coordinated guidelines on the role of each treatment modality at each stage. Consideration is also given to cancer prevention, screening, palliative care, supportive oncology, and quality-of-life issues.

MIF: Most Interesting Factor

by Richard Bucala, M.D., PH.D., professor of medicine (rheumatology), pathology, and epidemiology (microbial diseases) (World Scientific Publishing Company) This book describes the biology of the MIF (migration inhibitory factor) gene. Human genetic studies have identified allelic forms of the MIF gene, and high-expression alleles have been associated with rheumatoid arthritis, asthma severity, sarcoidosis, atopy, inflammatory bowel disease, and other inflammatory and infectious maladies. The book also discusses the role of the MIF factor itself as a therapeutic target.

The descriptions above are based on information from the publishers.

SEND NOTICES OF NEW BOOKS TO Cheryl Violante, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to cheryl.violante@yale.edu



JOSHUA FREEDMAN When pizza and a starlet compete for attention

When both food and a sexy starlet appear in a television commercial, pizza stirs up more brain activity, but increased stimulation from either doesn't necessarily boost sales.

Ads trigger a battle within the brain, said Joshua Freedman, M.D. '88, associate clinical professor at the UCLA Jane & Terry Semel Institute for Neuroscience and Human Behavior. He conducted fMRI studies on subjects watching Pizza Hut commercials and found that shots of food "dominate" despite scenes of the scantily clad Jessica Simpson.

"Food tends to produce lots of activity in different parts of the brain," Freedman told an audience at the Rudd Center for Food Policy and Obesity in October. The orbitofrontal portion of the prefrontal cortex typically associated with emotional connection may light up; however, the insula, which produces the sensation of disgust (perhaps at the idea that pizza is fattening), is also activated. "The battle is drawn, but it is unclear which region of the brain will win out," Freedman said.

Advertisers know how to get attention, but there is bad attention as well as good, he said. "At the very least, if they saw these results they'd probably stop paying for expensive models."

—John Dillon



SARALYN MARK Accounting for sex differences in medicine

The key to healing men often lies in studying women first, according to a Yale expert who said that females respond differently not only to many diseases but also to therapies designed with males in mind.

"Go to the more challenging environment," Saralyn Mark, M.D., associate professor (adjunct) of medicine and of obstetrics, gynecology, and reproductive sciences, urged at a talk in October sponsored by Women's Health Research at Yale. "It's kind of the reverse of what happened in the past, when men were the gold standard."

Sexual differences in disease and therapy go beyond disparities in reproductive systems and size, said Mark. Most autoimmune diseases, for example, are more prevalent in females. Women may be more resistant to infection from swine flu but are harder hit when infected, especially while pregnant. Stem cells graft differently-female cells match best with female recipients, while male recipients of male cells fare the worst. Recognizing these differences could improve development of novel therapeutics.

"There have been significant advancements in the field of sexand gender-based research, but it will require the development of public/private partnerships to translate research findings into improved clinical care for both men and women," Mark said.

—J.D.

10

The colonies' first medical degree

A London surgeon and physician sought a Yale degree as part of his quest for upward mobility.

By Kerry Falvey

In 1723 Yale granted the first medical degree issued in the American colonies to Daniel Turner (1667–1741), a London surgeon-turned-physician who had neither attended Yale College nor even set foot in North America. Moreover, Yale would not have a medical school for nearly another century.

The story has been extensively documented by Philip K. Wilson, PH.D., of the Penn State University College of Medicine, and much of this account is based on his work. It begins with a parcel of 25 books that Turner shipped across the Atlantic in September 1722 as a gift to Yale. He was not the typical gentleman benefactor. In truth, Turner was not even a gentleman by the standards of 18th-century Britain. Born a tradesman's son. Turner was a surgeon-an occupation then considered akin to manual labor. Medicine, known as "physic," was the domain of university-educated gentlemen.

Turner had been admitted into the Barber-Surgeons Company in 1700 after a seven-year apprenticeship. Seeking upward mobility, he expressed his ambition by becoming an author. Four of his case histories were published in the *Philosophical Transactions* of the Royal Society of London—an unusual feat for a surgeon. He produced other works, including Apologia Chyrurgica: A Vindication of the Noble Art of Surgery. In 1711, Turner paid a fine of £50 to be released from the Barber–Surgeons' Company and was licensed to practice physic by the Royal College of Physicians. Although he hoped to become a fellow of the Royal Society, Britain's elite club of natural philosophers, scientists, and physicians, Turner lacked the personal connections, social status, university education, or recognition as a scholar that might have gained him entry. Instead of buying a medical degree from a Scottish university a common practice at the time—he politely asked Yale to send him one.

In a letter written in Latin and addressed to the "Most Erudite Lords" of "Yale Academy," Turner conveyed his desire to supplement the "infantile state" of Yale's library by donating 25 books from his personal collection. He saved his request for a postscript: "If Your Lordships judge me worthy of the Degree of Doctor of the Yale Academy, and care to transmit to me a Diploma, I shall accept it not only as a token of Your Gratitude, but shall consider it an honor as great as if it had been conferred by another, even more renowned University."

Despite the backhanded compliment, Yale awarded the honorary M.D. in absentia in 1723. It remains unclear why the august members of the Yale Corporation bestowed the degree on Turner, although he had been recommended to them by Jeremiah Dummer, the Connecticut Colony's agent in London.

Yale had been seeking donations of books for its nascent library since its early years, and most of those donations came through Dummer. By 1718 Yale's library consisted of more than 1,300 volumes, many donated by such leading intellects as Sir Isaac Newton.

Turner's efforts to have his honorary degree recognized by the Royal College of Physicians were in vain. But he accepted the doctorate as a symbol of his erudition and medical knowledge, his recognition as an accomplished author, and his ability to contribute to an institution of learning. Thereafter, according to Wilson, he signed himself "Daniel Turner, M.D., of the College of Physicians in London."

Yale was no diploma mill and Turner was no quack, yet the incident underscores how far medicine—especially medicine at Yale—has come in nearly 300 years. What in the 18th century was a largely unscientific occupation has become a profession requiring rigorous training and exacting standards for licensure. What was once the "Collegiate School" in Connecticut has become one of the world's leaders in medical education, patient care, and research.

This article has been excerpted and adapted from a forthcoming book by Kerry Falvey celebrating the bicentennial of the Yale School of Medicine (yalebooks.com/ysm200).



BELOW Yale University owes its name to the donor of a collection of books for the fledgling school in 1701, and it has accepted such donations ever since. Turner's offer of 25 books arrived in 1722, but the medical school library was not formalized until 1941 when three faculty members contributed their own extensive collections of medical literature.



ABOVE The letter sent by Daniel Turner in September 1722 seeking a medical degree. The letter was translated from Latin by C. Nockel Fabbri and first published in *A History of Yale's School of Medicine* by Gerard N. Burrow.

LEFT A portrait of Daniel Turner by Johann Faber the Younger, 1734. This mezzotint depicts Turner as a learned scholar: all the trappings of gentility are apparent, including Turner's lavish apparel, luxurious wig, and his extensive collection of books. winter 2010

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CLOCKWISE FROM TOP:

Visitors entering from Park Street come in through an atrium that includes a player piano and a waterfall.

A detail from a mural in the atrium.

A rooftop garden on the seventh floor, which includes plantings and a stream, is designed as a meditative space for patients.

A waiting room at Smilow lacks a television but features an aquarium with exotic fish. A television, the hospital's planners believe, sends a message that patients are in for a long wait.

A detail from a mural in the atrium.

The hospital from Park Street.

Operating rooms were designed with all equipment hanging from the ceiling, making it easier for physicians, nurses, and technicians to move around and easier to clean. "What do I have to do to practice here?" ask new surgery recruits.











Making cancer personal



The Smilow Cancer Hospital at Yale-New Haven is built around a new philosophy of patient care.

By Colleen Shaddox Photographs by Michael Marsland

Ask to see the televisions in waiting rooms at the new Smilow Cancer Hospital at Yale-New Haven if you want to delight Abe Lopman, M.B.A., its executive director. He'll smile triumphantly and proclaim that there aren't any. "It always sends a message that you're going to be waiting for a while," he explained. Other cancer centers have found tropical fish to be much more popular with patients, so several patient waiting areas in the new hospital feature saltwater tanks the size of loveseats. Exotic fish create serpentine ribbons of color—a markedly different sensory experience from those of Judge Judy or Rachael Ray as people wait to be called for an appointment.

"You feel cared for and nurtured here," said Thomas J. Lynch Jr., M.D. '86, director of Yale Cancer Center (YCC) and Smilow's physician in chief. That feeling is engendered by everything from the artwork in the lobby to the trees and a stream in a rooftop garden.

It's a small thing, this preference for fish over televisions. But it's indicative of a larger principle: cancer care should focus on what the patient needs and wants. It should be personal. At 14 stories and 500,000 square feet, Yale-New Haven's new cancer hospital cost an estimated \$467 million. Every floor boasts an arsenal of leading-edge technology. Yet that simple core principle of patient care is the new facility's true cornerstone. The ideal of personal cancer care shows in amenities intended to bring comfort to patients as well as in the building's very structure, designed to change the way medicine is practiced. RIGHT Benefactor Joel Smilow.

FAR RIGHT Maria Menocal was the hospital's first outpatient in October.

Bringing cancer teams together

Cancer care is by nature interdisciplinary; however, the physical distance between departments often made consultation a challenge. The traditional arrangement had physicians grouped by specialty, and patients traveled from the surgeon to the radiologist to the oncologist and hoped that their medical charts arrived ahead of them. Clinicians recognized that they needed to work collaboratively but often resorted to faxes and e-mails to do so. "It's always more difficult when the team members are not in one place and living and breathing these cases together," said Edward Chu, M.D., professor of medicine (medical oncology), and of pharmacology, and deputy director of vcc.

Now the patient will literally be at the center of care, with various disciplines housed together in suites that facilitate collaboration. The suites will be organized by the type of cancer treated there, and a multispecialty team is now mobilized to treat each patient. Before Smilow, cancer patients at Yale needed to visit as many as six different buildings to get their care, recalled Chu. It was inconvenient for patients—doubly so for the elderly or those exhausted from their treatments, he said.

The new building is designed to foster collaboration in New Haven and beyond, said Robert Udelsman, M.D., M.B.A., chair and the William H. Carmalt Professor of Surgery. Teams will have access to conference rooms where they can look at diagnostic-quality images on large screens and interact with specialists at distant sites. Prognoses are more favorable for patients whose treatment is overseen by physicians with specific expertise and access to the best scientific data, said Udelsman.

Smilow is also designed to accommodate patients who must travel to get their cancer care at the medical center. Nearby 2 Howe Street, also constructed as part of the project, will feature residential units for patients and their families. "We want to be a destination hospital," said Udelsman.

Waterfalls, fish, music, and coffee

The building had its grand opening on October 21, when donor Joel Smilow, a Yale College alumnus and the building's namesake, and his wife, Joan, were honored. The first therapeutic radiology patient was seen a few days later. Other operations will be moving into the building in carefully choreographed stages through the spring.

Patients typically enter for their first visit through the front door into a bright soaring space with a two-story





waterfall, a café, a piano, and a large reception desk with staff who can look up a patient's schedule for the day and offer directions. Patients can also enter through 55 Park Street, which is connected to the Air Rights Garage. The building has a walkway that leads directly to Smilow's fourth floor. Yale-New Haven Hospital's laboratories will be housed in 55 Park, constructed as part of the project.

Reserved parking is available by the front door for patients in therapeutic radiology who must visit daily during treatment. They'll get treatment in the basement, but they will still enjoy the natural light that illuminates much of Smilow. A large skylight opening into the ground floor atrium brightens the reception area. Glass transoms above doors throughout the building add to the airy feel. Waiting areas have open spaces as well as private nooks to accommodate patient preferences. The cabinetry's light wood tones create a less institutional look.

This décor is a change from the existing Hunter Radiation Therapy Center, said Peter M. Glazer, M.D. '87, PH.D. '87, HS '9I, department chair and the Robert E. Hunter Professor of Therapeutic Radiology. The ambiance of Hunter is not bad, Glazer said, but Smilow is a definite upgrade aesthetically and practically. "We have very good equipment now and will have even better equipment at Smilow," he said. For example, a Novalis BrainLAB system will be installed, allowing stereotactic treatment—minimally invasive techniques guided by a three-dimensional coordinate system—for tumors of the spine and other locations. The move also offers the therapeutic radiology staff housed there the benefits of being on a single floor. As the department doubles the number of exam rooms, Glazer expects better patient flow.

The ground floor is home to the Women's Cancer Center for treatment of breast and gynecologic cancers. The center will also be the site of regular screening mammography. It is located across from a boutique selling wigs and other items for patients in treatment. The store will have a "Saks Fifth Avenue" feel to it, said Lopman.

New space for patients, more space for physicians

Smilow will increase imaging capacity for the Department of Diagnostic Radiology from five magnetic scanners to eight, including dedicated MRI machines in the Breast Center and in the operating room for MRI-guided surgery. Diagnostic radiology, like many departments involved in Smilow, however, will not move all its faculty and staff to the new building. "The



Dean Robert Alpern was among the speakers at the hospital's dedication in October.

logistics are challenging, but Smilow Cancer Hospital represents a wonderful growth opportunity for our department," said department Chair James A. Brink, M.D. But he noted that the radiologists had been practicing at varied locations already. The improvements offered at Smilow and the additional capacity in a department that sees more patients every year make the move "something we're very excited about," he said.

Smilow's operating rooms are unusually large. All equipment is ceiling-mounted and slides into place wherever the surgical team wants it. This mobility includes drop-down high-definition screens that allow a surgeon to refer to an imaging study. The ceiling-based system makes it easier for the team to move and allows the room to be rapidly cleaned, explained Lopman. According to Udelsman, when physicians being recruited to the Department of Surgery tour the new facility, they ask: "What do I have to do to practice here?"

Children will continue to receive inpatient care at Yale-New Haven Children's Hospital. A connecting walkway will give them access to a pediatric floor in Smilow for treatment.

A new hospital and a chance to make great strides against cancer

For Thomas J. Lynch Jr., M.D. '86, director of Yale Cancer Center and physician-in-chief at Smilow Cancer Hospital at Yale-New Haven, the new building makes cancer personal on three levels. It provides "a warm and comfortable environment for patients." The location of specialists in team suites allows for multidisciplinary, patient-centered care. But the biggest innovation may be microscopic. Physicians will be able to do molecular profiling rapidly—a rarity even in the most sophisticated cancer centers. This technology will allow them to plan treatment suited to the genetic signature of each patient's cancer. Combine that with information about a patient's general health and history, and the result is personalized medicine—a treatment plan for one specific patient.

These therapies hold the promise of greater effectiveness

in killing cancer cells while reducing the side effects of treatment. Lynch's enthusiasm for personalized medicine springs from 25 years as an oncologist specializing in lung cancer and his dissatisfaction with the range of therapies available to his patients. He deems the past few decades' advances in cancer treatment only "modest." The chance to make major strides against the disease through the combination of top-flight research and clinical programs is what drew the native Bostonian back to Yale.

Lynch returned to New Haven in April 2009 with the goal of making Yale a leader in personalized medicine in both research and clinical care. Lynch formerly worked and taught at Harvard, where he was a professor of medicine and chief of hematology/oncology at Massachusetts General Hospital (MGH) Cancer Center. He also directed the Center for Thoracic Cancers at MGH and was director of medical oncology at the MGH For adults, the hospital offers inpatient rooms, all private. And yes, these rooms have televisions. Private rooms are better for infection control and make it easier for nurses to practice, said Lopman. Clinicians will be able to enter information on a bedside computer. The information will be available to every member of the team immediately. Each room has a sleeper sofa so that family members can stay overnight, and visiting hours never end at Smilow. "I've always been shocked by how we divorce the family from the patient at a time when they need their families more than anyone," said Lynch.

On the rooftop garden, water features filter out the noise of the city and make the spot a destination for quiet walks. The building is equipped with high-speed elevators, but many stairwells have glass exterior walls to make them an inviting alternative. "We're trying to encourage walking," said Lopman. It's an untraditional goal for a cancer center. But then Smilow doesn't intend to be a traditional cancer center. "It's built," he said, "to change the patient's experience." **YM**

Colleen Shaddox is a freelance writer in Hamden, Conn.

Thoracic Oncology Center. Lynch led teams that made discoveries in targeted therapies in lung cancer and has published widely. He also maintained a clinical practice and hopes to continue doing so in New Haven.

He is one of the founders of the Boston-based Kenneth B. Schwartz Center and now serves as chair of its board of directors. Lynch pioneered the Schwartz Center Rounds, in which multidisciplinary teams discuss the social and emotional issues that arise in patient care.

His plans for personalized medicine at Yale are linked to the new West Campus research facility on the Orange-West Haven border. The complex, purchased from Bayer in 2007, gave the university 400,000 square feet of research space that will include a cancer biology institute. "It's Smilow and West Campus," said Lynch. "You can't do one without the other."

Lynch foresees a rigorous program of research to match a growing list of specific genetic signatures with treatments tailored to be effective against them. This is the best hope, he believes, for improving outcomes in solid tumors, the cancers in which medicine currently has the least success. The marriage of Smilow and West Campus promises to take discoveries from the bench to the bedside more quickly. The hospital will have a team devoted to phase 1 clinical trials so that patients get the most comprehensive support possible and so that data collection is enhanced.

"If what we do in 25 years is practice the same oncology we're practicing now, we haven't achieved the promise of Smilow," said Lynch.

-Colleen Shaddox

Online: Yale Netcasts Thomas Lynch: The Next Frontier in Cancer Treatment





From Cedar Street to Capitol Hill

Some med school alumni effect change not one-on-one, but through health policy, and on a grand scale.

By Jenny Blair

Brenda M. Ritson, M.D. '06, was only a few weeks into her fellowship in Washington, D.C., in the early spring of 2005 when Sen. Hillary Rodham Clinton invited her into her office.

"Come up with a progressive alternative to hard-cap tort reform," the New York Democrat told her. "Here's my Rolodex. You have three months."

"I started sweating," Ritson recalled. "I called my mom. And then I got down to business."

Ritson was working in Clinton's office as a fellow of the Women's Research and Education Institute, an independent nonprofit organization, after her third year in medical school. After Clinton's challenge, Ritson spent weeks educating herself at the Library of Congress and on the Internet. Eventually she chanced upon an article about a hospital in Michigan that had decided to apologize to patients who had been harmed by medical errors. By avoiding lawsuits the hospital was able to save millions of dollars, and used the money to hire more physicians and invest in innovative patient safety systems. Intrigued, Ritson met the hospital's CEO and shaped the idea into a national proposal. Clinton, along with then-Sen. Barack Obama, introduced the idea as part of a bill in Congress in September 2005, calling it MEDIC, for National Medical Error Disclosure and Compensation. Though the bill "died in committee," Ritson said, the concept continues to pop up in new bills; a New England Journal of Medicine article; and the Sorry Works! Coalition, an advocacy group that urges full disclosure, apologies (when appropriate), and compensation (when necessary) following adverse medical events. And the concept of apologizing for medical errors is catching on among hospitals, including Yale-New Haven Hospital, which began a similar program last year. "It makes me proud to know that my ideas

have somehow contributed to or influenced a discussion of a very challenging problem, and it excites me to watch the ideas grow and evolve," says Ritson, now a practicing pediatrician.

Making a career in health policy

Ritson's turn at working with lawmakers is something of a tradition among Yale physicians, many of whom have applied their medical training and experience to public policy. For some it is a sideline. But others hang up their stethoscopes and make policy a full-time career. A doctor's journey into government often starts with an epiphany. One saw the light in the Amazon rain forest, another took up a challenge to go to Washington, and a third grew frustrated by the prevalence of preventable ailments. But what they all have in common is an interest in helping many people at once and a willingness to pursue their goals over years, if not decades. They often work behind the scenes, rarely getting credit for their achievements. Some work in government, others in advocacy groups, and some in academia. But all moved from treating people one on one to treating the public at large. They are among many alumni who choose careers beyond the clinic or the laboratory and find innovative and sometimes unusual ways to promote health.

William L. Kissick, M.D. '57, M.P.H. '59, DR.PH. '61, developed an interest in public health during medical school while accompanying his wife, Priscilla, a nurse with the Visiting Nurse Association, on home visits. "There was a certain clash of cultures," he said, recalling that her patients would often refuse to go to the hospital because they viewed it as a place to die. Later, as one of the first residents in a unique social medicine program at Montefiore Hospital in the Bronx, he decided that he wanted to rebuild the American

The policy makers

Scott A. Berkowitz, M.D. '03, M.B.A. '03 Fellow on the Senate Finance Committee

Larry C. Horowitz, M.D. '69 Chief of staff and personal physician to the late Sen. Edward M. Kennedy

William L. Kissick, M.D. '57, M.P.H. '59, DR.PH. '61 Member of the 11-person task force that developed Medicare

Howard K. Koh, M.D. '77, M.P.H.

Assistant secretary for health in the U.S. Department of Health and Human Services

Donald O. Lyman, M.D. '68

Chief of California's Division of Chronic Disease and Injury Control and architect of statewide anti-tobacco campaign

Brenda M. Ritson, M.D. '06

Fellow in the office of then-Sen. Hillary Rodham Clinton and the Women's Research and Education Institute, 2005



Are you working in health care policy or another of the fields we'll be profiling in our "Alumni Career Paths" series? Do you know medical school alumni, former Yale house staff, or fellows who are? Send us the names and then check the Web edition of *Yale Medicine* to view an expanding list of alumni with similar interests. You can write to us at ymm@yale.edu and view the list at yalemedicine.yale.edu.

"Alumni Career Paths" future articles:

- International health and research
- The front lines of clinical practice
- Military medicine
- Biotech, pharma, and business
- Academic medicine
- Physician/writers

medical system from the ground up. William H. Stewart, M.D., who would serve as surgeon general from 1965 to 1969, heard Kissick express his ambition at a public health conference in Detroit in 1963, and asked, "Why don't you come to Washington and learn something first?" Kissick was soon assigned to the 11-person task force that developed Medicare. He spent seven years in Washington, contributing to some 13 legislative efforts in health policy including Medicare, which became law in 1965.

Working with the underserved during medical school helped turn Larry C. Horowitz, M.D. '69, toward policy-making, a career that later brought him national prominence as chief of staff and personal physician to the late Sen. Edward M. Kennedy, the Massachusetts Democrat. In medical school Horowitz was inspired by such mentors as then-Dean Fritz Redlich, M.D., and Yale's charismatic President Kingman Brewster Jr. to join the Student Health Project, which assessed the health needs of the underserved populations in New Haven and New London, and migrant communities in Riverhead, Long Island. During Horowitz's residency the Vietnam War nudged him into a two-year commitment to the public health sector as an alternative to the draft. He worked in Washington at the Health Services and Mental Health Administration, an umbrella organization that oversaw a number of national health programs. It was then that he caught the eye of Kennedy, whom he had invited to give a talk to his co-workers. Horowitz began that practice in Harkness Dormitory, inviting such luminaries as author William Styron and Walter and Eugene Rostow, brothers who held posts in Democratic administrations in the 1960s. After joining Kennedy's team Horowitz finished his residency while traveling between Palo Alto, Calif., and Washington as a Robert Wood Johnson fellow handling the Senate's oversight of the pharmaceutical industry. He decided to continue in government, he said, because he loved working on Capitol Hill. He served as Kennedy's chief of staff from 1981 until 1986.

"It's not like I decided, 'That's it for clinical medicine,' " said Horowitz, who is now a consultant to pharmaceutical companies and runs an investment and entertainment company of his own. "It's just that each step was so exciting and fulfilling and gave you a sense that you were contributing to something larger than yourself in a meaningful way. ... Working for Sen. Kennedy was great fun. You had the opportunity to meet all the best minds that existed in the United States and elsewhere on the issues you cared about."

A passion for prevention

Scott A. Berkowitz, M.D. '03, M.B.A. '03, is taking time off from a cardiology fellowship at Johns Hopkins to spend a year as a fellow on the Senate Finance Committee. His fellowship is part of an NIH training grant in geriatrics investigating Medicare policy. "It's been fascinating to see the political dynamics, and to realize that this is the center of the next generation of health care. To do whatever I can, however small, to help in



that process has been very rewarding," he says of his front-row seat on health care reform. "There are definitely times when the physician background helps." During the summer between his fourth and fifth years of graduate school, he too worked for Kennedy, and between his first and second years of internal medicine residency at Johns Hopkins, he worked in the office of former Illinois Gov. Rod Blagojevich.

Indeed, it is the big picture that pushes many doctors into policy. It happened to Donald O. Lyman, M.D. '68, in the Brazilian Amazon, where he spent a summer as a medical student working with the Yale Arbovirus Research Unit. He arrived to find villagers waiting to see "the doctor." Nervous at the prospect of treating rare tropical diseases, he nonetheless agreed to see them. The terrible banality of what he saw changed his career. "After about the 12th patient, I said to myself, 'The things I am seeing are no-brainers. Malaria, malnutrition, things like that. You can go into prevention and you could do a lot more good, both in places like this and at home, instead of treating people who are sick one-on-one.' " Before long, Lyman had signed on with the Epidemic Intelligence Service at the Centers for Disease Control. That led him to full-time public health work in California, where he is chief of the state's Division of Chronic Disease and Injury Control and where he oversaw a statewide anti-tobacco campaign that is credited with saving tens of thousands of lives.

A passion for prevention also drives Howard K. Koh, M.D. '77, M.P.H., who in June became the assistant secretary for health in the U.S. Department of Health and Human Services. In that position Koh serves as senior public health advisor to the secretary and oversees the Office of Public Health and Science, the Commissioned Corps of the U.S. Public Health Service, and the Office of the Surgeon General. (His brother, Harold H. Koh, J.D., former dean of the Yale Law School, is legal advisor to the U.S. Department of State.) "I've seen too many patients suffer preventable suffering and die preventable deaths. The only answer to that challenge is promoting prevention through public health." After finishing residency, Koh taught cancer prevention and got his first taste of satisfying policy work in 1992 while heading a coalition that successfully advocated a tobacco tax in Massachusetts. Later, as that state's public health commissioner, he guided his state from 10th- to third-healthiest in the nation, in part because of a high quitting rate among smokers. Like Horowitz and Kissick, Koh also honed an interest in the needy while at Yale. Though he said his parents impressed upon their children the importance of both education and service to others, he names the Reverend William Sloane Coffin Jr., the civil rights leader and Yale chaplain between 1958 and 1975, as a strong influence. "He always preached about the broader perspective on life and serving

the underserved—caring for those in society who are counted least and put last," said Koh of Coffin Jr., who died in 2006. "I think of him often and miss him tremendously."

How to make policy work

"Fresh-faced shiny kids" in their late 20s and early 30s—which might describe the speaker herself—are the people doing much of the work in Washington, D.C., said Ritson. Many arrive with little or no experience in the jobs they're about to undertake. No one taught Ritson how to research a policy proposal; she was expected to figure it out herself. The system seeks the self-motivated and the adaptable.

For example, after a surgical internship and a lab research year, Michael D. Miller, M.D. '86, wound up dissecting the federal budget. Seeking to work in health care at the "ultimate macro level" after leaving an orthopaedics residency, he entered the policy arena as a fellow with the American Association for the Advancement of Science (AAAS). He worked on funding for biomedical research at the Office of Management and Budget—a plum location where no AAAS fellows had landed before. There, he says, he got a bird's-eye view of the entire federal government by studying the flow of funds. "It's crucial to understand how money flows," he said. "I was—and still am astounded by the number of people at senior levels who don't understand the budget process."

The relationship between money and policy is complex and not always healthy. Policy, Lyman believes, should drive funding. "You start with the policy; you start with the social justice, and the dollars follow." But sometimes money appears to lead. "There were a number of legislative hearings when the advocates thought they had the votes," Lyman said. "In comes the Assembly speaker and he walks around the room and he talks to each and every member of the legislative committee individually, and they either turn red with rage or they walk out. Then they vote down the bill. The advocates lament that they could just hear tobacco money passing hands."

For Lyman, the words he uses are as important as money. He credits the Hollywood advertising industry for the success of the phrase "secondhand smoke" during his antitobacco campaign. And he is careful to make his public health messages culturally appropriate. But the fading prominence of the phrase "social justice," a concept that underlies everything he does, saddens him.

"It is just astounding that the vocabulary, the metaphors, the mindset are very geared to money," he said. "What happened to social justice? What happened to the quality of care? What happened to outcomes?"

Keeping a hand in medicine

In 1969, Kissick left Washington for the Wharton School of the University of Pennsylvania, where he taught for decades and helped found several combined-degree programs. He is now adjunct professor of political science at Yale, and teaches undergraduates about the evolution of American health care policy. He is decidedly skeptical about current health care proposals. "I've been in the racket for a half-century," he said, "and I've learned just about everything that won't work."

Despite those years spent crafting and teaching policy, Kissick's heart has always remained in medicine. His last clinical experience was in 1963, when he was called to a home delivery at 3 a.m. during a snowstorm. But his identity as a physician is tenacious. Although a great many lawyers who pass the bar never practice law, said Kissick, "when you go to medical school, you're hooked. You can't get out."

Berkowitz, who plans to pursue clinical cardiology alongside a policy career, believes that medicine opens more doors to more career paths than it did in the past. "I think it's really important for people going in and starting medical school to recognize that the opportunities with a medical degree, both in terms of taking care of patients and impacting policy on a broader level, are really great and really exciting," he said.

Koh, who is board-certified in four specialties, practiced clinical medicine for more than 30 years until his Washington post began. But he is thrilled to be on the front lines of policy, and relishes the interdisciplinary nature of his job. "I really enjoy it when the worlds of medicine and law and business and community and advocacy all interconnect in the form of public health," he said.

Ritson is building up clinical pediatric experience and plans to return to Washington within a few years. Miller did volunteer clinical work but spent the bulk of his time outside the hospital. After working with the NIH on HIV/AIDS policy, he joined the team of Rep. Sander M. Levin of Michigan, where he worked on Medicare a generation after Kissick. He also worked with then-First Lady Hillary Rodham Clinton's health care task force in its first incarnation in the 1990s. Miller now blogs and runs a consulting company. And Horowitz, though he later played a prominent role in Sen. Kennedy's health care plan, remembers that he "looked up one day and I hadn't practiced in many, many years." He hadn't made a conscious decision about it, he said. "My interests had changed. What I wanted to do in life had evolved."

Lyman cautions that giving up one's patients and the one-on-one relationship is not for everyone. "There is never a person—not a soul—that will ever see me on the street and say, 'Oh, thank you that I never got lung cancer!' You have to have that same satisfaction from looking at a graph with a line going down."

After decades in government, Lyman has seen governors and legislators come and go while he and his team maintain stability behind the scenes. That continuity, the ability to continue to contribute, is part of the satisfaction. "You don't see us; we are very quiet. We can't stick our heads out very far. But we are the ones who stay." **YM**

Jenny Blair, M.D. '04, is a writer and physician in New Haven.



Doctors for America

A campaign by Yale alumni has amplified doctors' voices in the health care debate.

By Kohar Jones, M.D. '05

In 2007, when Vivek Murthy, M.D., '03, M.B.A. '03, an internist at Brigham and Women's Hospital in Boston, was working on then-candidate Barack Obama's New England steering committee, he noted how few physicians were involved. "It was especially striking since health reform was part of the campaign," he said. When Obama won the Democratic Party nomination, Murthy and fellow physicians founded the national group Doctors for Obama.

After the election, the group changed its name to Doctors for America (DFA) and its focus. With a private grant sponsored by the Center for American Progress, DFA promotes health care reform and encourages physicians to speak out on the process.

"It's never been more important for doctors to be engaged," said Mandy Krauthamer Cohen, м.д. '05, м.р.н., the group's executive director.

More than 15,000 physicians have signed on in support of legislation that brings affordable insurance to all American families, ensures high-quality care, expands access to care, and creates practice environments that allow physicians to focus on patient care. DFA also encourages physicians to share their stories and their ideas for change.

"Real stories speak clearly across the spectrum," said Murthy, president of the group. DFA leaders shared hundreds of online comments and stories at a physician stakeholders' meeting sponsored by the White House Office of Health Reform in June. In October, DFA physicians were among doctors from all 50 states invited by President Obama to a Rose Garden address, where the physicians shared their stories with the press.

Comments have focused on certain themes, Cohen said: primary care is undervalued and under-reimbursed; the health care system focuses on sick patients rather than on prevention and wellness; reimbursements should reflect time spent with patients, rather than the number of procedures completed; and the need for malpractice reform. And 90 percent of the DFA respondents supported a public option to provide health insurance for the uninsured.

Following are responses from physicians affiliated with the School of Medicine, including students, alumni, residents, and faculty. **YM**



Since April 2009, DFA has been collecting the responses of physicians and medical students around the country to two questions:

"In the current system, what frustrates me the most is ..."

"I want health reform that ..."

The goal is to share physicians' perspectives with legislators as they create a health care bill. (voicesofphysicians.org)

We'd like to hear your thoughts on health care reform. Please send us your ideas at ymm@yale.edu.



What frustrates me the most is that patients need to pay a copay for appointments, including screening colonoscopy, which can be as high as \$500; the high cost of prescription medication; and the lack of a reasonable, user-friendly electronic medical record (EMR).

I want health reform that offers all patients a choice of physician care and prescription coverage; offers and encourages preventive medical care; and brings together the many very intelligent computer programmers in this country in a Manhattan Project-style effort to solve the problem of the EMR.

Deborah D. Proctor, M.D. Professor of Medicine (Digestive Diseases) Yale School of Medicine

In the current system, what frustrates me most is the crushing cost of medical care at the end of life. A significant number of Americans die in the intensive care unit, often after overly aggressive procedures and management.

I want health reform that provides evidence-based guidelines that strictly define futile medical care.

Curtis Weiss, M.D. '05 Pulmonary/Critical Care Fellow, Northwestern Memorial Hospital, Chicago, III.



What frustrates me most is ... (I can't pick just one): gross inequality in access to health care; the [mistaken] idea that all Americans have access to health care ("After all, you just go to an emergency room," as former President George W. Bush famously stated); the de facto rationing that occurs among the insured and underinsured so insurance companies can maintain steep profits; "cost-cutting measures" that are not based on sound biomedical evidence: defensive medicine fueled by unchecked litigation; the complete lack of attention to preventive health care; and the fact that a primary care doctor working her tail off to provide quality, costsaving care earns the smallest salary in medicine. I want health reform that

doesn't placate big pharma and the insurance industry, that is singlepayer, universal, equitable, and focuses on health over health care.

Michael Herce, M.D. '05, M.P.H. Staff Physician, Abwenzi Pa Za Umoyo/Partners in Health, Malawi Hospitalist, Brigham & Women's Hospital, Boston Instructor in Medicine, Harvard Medical School, Boston

In the current system, what frustrates me the most is that health care is a privilege, not a right. I want health reform that pro-

vides care for everyone. Auguste H. Fortin VI, M.D., M.P.H.

Auguste H. Fortin VI, M.D., M.P.H. Associate Professor of Medicine Yale School of Medicine



I want health reform that provides preventive and comprehensive services, including mental health, to everyone in the country, with limited bureaucracy. I also want reform that solicits the input of patients and physicians about what should be covered and how much reimbursement should be.

Carla Marienfeld, M.D. Department of Psychiatry Yale School of Medicine

In the current system, what frustrates me the most is that primary care medicine has become untenable for so many physicians; the lack of universal access to primary care; and all the wastefulness in our current system.

I want health reform that provides outstanding and accessible primary care and specialty care to all Americans. I want health reform that makes the practice of primary care medicine appealing, manageable, and meaningful. I want health reform that eliminates the wastefulness in our current medical system.

Anna B. Reisman, M.D. Associate Professor of Medicine Yale School of Medicine



In the current system, what frustrates me most is that we spend more than any country in the world on health care and still have embarrassingly poor population health indicators.

I want health reform that invests in primary care to build a health system that focuses on prevention and population health.

Mandy Krauthamer Cohen, M.D. '05, M.P.H.

Executive Director, Doctors for America Washington, D.C.

In the current system, what frustrates me the most is the system design that interferes with the doctor-patient relationship and places physicians' administrative responsibilities as a greater obligation than time spent with patients.

I want health reform that prioritizes patients and streamlines the paperwork done by doctors to give us more time to dedicate to our patients.

Youssra Marjoua Class of 2011 Yale School of Medicine



24





Mary Tinetti

Richard Prum

Margaret Bia and Lawrence Cohen

Two faculty get "genius" grants

MARY E. TINETTI, M.D., the **Gladys Phillips Crofoot Professor** of Medicine and professor of epidemiology and of investigative medicine, and Richard O. Prum, PH.D., the William Robertson Coe Professor of Ornithology, Ecology, and Evolutionary Biology, will each receive a five-year, \$500,000 "genius" grant from the MacArthur Foundation.

Tinetti, director of the Yale Program on Aging, has devoted much of her research to fall prevention for the elderly. She was the first investigator to show that older adults at risk for falling and injury could be identified, that falls and injuries are associated with a range of serious adverse outcomes, and that multifaceted risk-reduction strategies are both effective and cost-effective. She is working to translate these findings into clinical and public health practice.

Tinetti has also investigated and published extensively on functional disability and mobility impairment. Her most recent research focus is on clinical decision making in the face of multiple health conditions, particularly trade-offs among health conditions; the harms and benefits of commonly recommended treatments; and the need for universal health outcomes that transcend individual diseases.

Prum, chair of the Department of **Ecology and Evolutionary Biology** and curator of ornithology at the Yale Peabody Museum of Natural History, has diverse research interests that cross many academic boundaries. He is best known for his studies of the development and evolution of feathers and for research that supports the theory that dinosaurs were ancestors of contemporary birds.

A cardiologist's last lesson in heart sounds

LAWRENCE S. COHEN, M.D., HS '65, taught his last class on September 15 in "Learning Heart Sounds," a module he has taught for 39 years. "When I got here 30 years ago, Larry was known in the community as the King of Hearts," said Margaret J. Bia, M.D., professor of medicine and director of the Clinical Skills Training Program, who was present at the class. She then presented a gift to Cohen—a singing teddy bear inscribed with the words "Larry Cohen, M.D., King of Hearts."

Cohen, the Ebenezer K. Hunt Professor of Medicine, led the early Yale trials of thrombolyticsclot-busting medications used to combat coronary disease, strokes, and heart attacks. Since the mid-1970s, Cohen has overseen some two dozen trials of heart disease treatments. His expertise is in cardiology, but members of the medical community have long sought Cohen's advice on a range of topics.

In 1991, then-Dean Leon E. Rosenberg, M.D., HS '63, asked Cohen to serve as deputy dean, a role he continued to fill under deans Robert M. Donaldson Jr., M.D., and Gerard N. Burrow, м. D. '58, HS '66. Cohen has also been a special advisor to three deans, including current Dean Robert J. Alpern, M.D., Ensign Professor of Medicine.

Beginning in 1996, Cohen worked with the school's ombudsperson, Merle Waxman, M.A., to train more than 1,000 postdoctoral fellows, graduate students, and faculty in ethical issues related to the conduct of research.

Cohen continues to serve as a faculty member and practicing cardiologist. He will remain a member of the admissions and progress committees and will continue in mentorship roles.

Daniel L. Jacoby, M.D. '00, assistant professor of medicine (cardiology), succeeds Cohen as instructor of "Learning Heart Sounds." "It is remarkable that Larry Cohen has left such an imprint. He comports, with his composure and his way of communicating, the most professional demeanor you could possibly have as a physician," said Jacoby, who attended "Learning Heart Sounds" as a medical student at Yale in the 1990s.





Ronald Adelman

Annette Beautrais

Ronald A. Adelman, M.D., M.P.H., associate professor of ophthalmology and visual science, was proclaimed a Knight of the Blind in June by the Connecticut Lions Eve Research Foundation. This is the foundation's highest award bestowed at the state level. It was presented in recognition of Adelman's work in ophthalmology.

Annette Beautrais, PH.D., senior research scientist in emergency medicine, and Gregory L. Larkin, M.D., professor of surgery (emergency medicine) and vice chair for global health and faculty development, addressed a conference at the United Nations in New York to launch World Suicide Prevention Day (WSPD) on September 10. The International Association for Suicide Prevention (IASP), in conjunction with the World Health Organization, sponsors WSPD annually to highlight suicide prevention. Beautrais organized WSPD 2009 activities around the world in her role as general secretary of the IASP. WSPD 2009 was launched at the UN with a press conference and a public conference whose theme was suicide prevention in different cultures.

Henry J. Binder, M.D., professor of medicine (digestive diseases) and of cellular and molecular physiology, has received a \$1.8 million grant from the Gates Foundation to study the use of oral rehydration solutions to improve diarrhea control worldwide. Diarrheal disease claims the lives of between 1.5 million and 2 million children every year. Oral rehydration solution (ORS) reduces mortality but is not widely used in developing communities for many reasons. The 18-month planning grant will be used to examine the supply

NOTES





Gregory Larkin

utilization.

Henry Binder

and demand for a reformulated

ORS intervention and to develop

program to address the existing

the framework for a four-year

problems facing broader ORS

Irwin M. Braverman, M.D. '55,

ogy, was the keynote speaker at

the Third International Medical

by Chung Shan Medical Univer-

sity in Taichung City, Taiwan,

in July. He spoke on the use of

"Fine Art to Enhance Observa-

tional Skills." Braverman also

conducted a hands-on workshop

using reproductions of paintings

Art. During his visit to Taiwan he

lectured as a visiting professor in

the departments of dermatology

at Kaohsiung Medical University

and National Taiwan University

ing of the Taiwan Dermatology

Peter Cresswell, PH.D., a Howard

Hughes Medical Institute inves-

tigator who has spent most of

his career unraveling some of the

mysteries of the human immune

system, has been named the

Eugene Higgins Professor of

Immunobiology. Cresswell's re-

search focuses on the molecular

mechanisms of antigen process-

ing, in which fragments of pro-

teins from viruses, bacteria, and

other disease-causing organisms

bind to the major histocompat-

human cells during an infection.

Myron Genel, M.D., professor

emeritus of pediatrics, recently

completed a three-year term on

the Health and Human Services

(HHS) Secretary's Advisory Com-

mittee on Human Research

ibility complex molecules on

Association.

School of Medicine and at a meet-

from the Yale Center for British

Education Conference sponsored

HS '56, professor of dermatol-

Irwin Braverman

Ami Klin Irman

Protections, which advises the secretary on the responsible conduct of research involving human subjects. Genel received a certificate of appreciation from Howard K. Koh, M.D. '77, HHS assistant secretary of health.

Ami Klin, PH.D., FW '92, a developmental psychologist and a world-renowned expert on severe developmental disorders, was named the Harris Professor of Child Psychology and Psychiatry in July. Klin is the director of the Yale Child Study Center's Autism Program, which is dedicated to providing comprehensive clinical services to children with autism spectrum disorders and their families. The Yale psychologist has created new methods for studying social understanding in young children and in individuals with developmental disorders. His current research focuses on mechanisms of socialization and their disruption in the autism spectrum disorders.

Marvin Moser, M.D., clinical professor of medicine (cardiology), recently retired as editor in chief of *The Journal of Clinical Hypertension* and has become editor in chief of *The Medical Roundtable*, *Cardiovascular Edition*. The new journal will highlight expert panels on controversial topics in cardiology. Other faculty members who will serve as editors include **Lawrence S. Cohen**, M.D., HS '65, the Ebenezer K. Hunt Professor of Medicine (cardiology) Emeritus; **John F. Setaro**, M.D., HS '86,



Sara Rockwell

FW '92, associate professor of medicine (cardiology); and **John A. Elefteriades**, M.D. '76, HS '83, the William W.L. Glenn Professor

of Surgery (cardiothoracic).

Gerald

Shulman

Sara C. Rockwell, PH.D., professor of therapeutic radiology and pharmacology and associate dean for scientific affairs, has been named one of 11 ASTRO fellows for 2009 by the American Society for Radiation Oncology, the leading organization in radiation oncology, biology, and physics. Members of ASTRO are eligible to become a fellow if they have been part of the society for at least 20 years and have shown excellence in research, patient care, education, leadership, and service. Rockwell, who joined the Yale faculty in 1974, was one of the first researchers to study the effects of hypoxia on the response of malignant cells in culture and solid tumors in vivo to radiation, anticancer drugs, and combined modality therapy.

James E. Rothman, PH.D. '71, chair of the Department of Cell Biology and the Fergus F. Wallace Professor of Biomedical Sciences, has received a two-year \$969,272 Recovery Act grant from the National Institute of General Medical Sciences (NIGMS). The grant is part of the National Institutes of Health Challenge Grant initiative to jump-start a range of research projects that will address critical gaps in the basic biomedical and behavioral sciences by overcoming specific scientific and technological challenges. Rothman's award is one of 19 NIGMS Challenge Grants given to researchers in 12 states. Rothman will investigate the dynamics of membrane structure and function in cells.



Stephen Waxman

Gerald I. Shulman, M.D., PH.D., an internationally known diabetes researcher and a Howard Hughes Medical Institute investigator, has been named the first George R. Cowgill Professor of Physiological Chemistry. Shulman's research is aimed at understanding the cellular mechanisms of insulin resistance, the role of the liver and muscle in the pathogenesis of type 2 diabetes, and the benefits of exercise in the management of the disease.

Stephen G. Waxman, M.D., PH.D., the Bridget Marie Flaherty Professor of Neurology, Neurobiology, and Pharmacology and director of the Yale Center for Neuroscience and Regeneration Research at the VA Connecticut Healthcare System, received the Annual Review Prize, the premier award of the British Physiological Society, in July. Waxman is being honored for his research on sodium channels and their roles in multiple sclerosis, spinal cord injury, and neuropathic pain. Waxman delivered the Annual Review Prize Lecture, titled "Fire, Fantoms and Fugu: Sodium Channels From Squid to Clinic," at the annual meeting of the Physiological Society in Dublin, in July.

SEND FACULTY NEWS TO

Claire M. Bessinger, *Yale Medicine*, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to claire.bessinger@yale.edu **BELOW, TOP** Thomas Lynch, the head of Yale Cancer Center, urged the class to value their connections to classmates, faculty, and patients.

BELOW, BOTTOM In their new white coats, the students left Sterling Hall of Medicine to pose for a group photo on the steps of the building.





First-year class embraces study of medicine

Ninety-nine new students don white coats in a ceremony marking the beginning of their medical careers.

Harkness Auditorium was aflutter with nervous excitement on August 25 as the Class of 2013—or "2014 or somewhere in that vicinity," joked Dean Robert J. Alpern, M.D.—gathered for this year's White Coat Ceremony. The 99 students in the class include 46 women and 53 men, 25 graduates of Harvard and Yale, 19 members of ethnic or racial groups underrepresented in medicine, and 18 persons born outside the United States. The group's average MCAT score was 11.9 per section, the highest in the school's history. The average GPA was 3.78. "It's an exceptionally talented and accomplished group," said Richard A. Silverman, director of admissions.

Thomas J. Lynch Jr., м.р. '86, who came to Yale from Harvard last year to head Yale Cancer Center and Smilow Cancer Hospital at Yale-New Haven, spoke to the new students on the theme of connection-connection among classmates, connection with faculty, and—"since today is your White Coat Ceremony,"-connection with patients. "Remember how profound and wonderful the career you've chosen is," Lynch said. "I'm someone who feels incredibly privileged and lucky to be a doctor. And I think all of you will come to that, regardless of what type of medicine you end up practicing."

—Charles Gershman



ABOVE Caroline Ong smiled as she left the stage in her white coat.

RIGHT Laura Wang outside Sterling Hall of Medicine after posing for a group photo.

FAR RIGHT Michael Alpert received his coat from Laura Ment.



Student loses long struggle with leukemia despite search for bone marrow match

Natasha Collins, a member of the Class of 2012 whose classmates rallied to find her a bone marrow donor, died on August 12 at the age of 26.

Collins had been diagnosed with acute myelogenous leukemia about five years earlier and had received chemotherapy and a cord blood transplant. When the cancer returned in February, her classmates launched an international search for a bone marrow donor an effort complicated because Collins was biracial.

"Great efforts were made to get a match," said Mark D. Siegel, M.D., FW '95, associate professor of medicine (pulmonary), who oversaw her care in her final days. Siegel spoke at a meeting in August to inform the medical school community of the circumstances of Collins's passing. "Unfortunately, they could never get a perfect match. The leukemia got to the point where her only chance for survival was to go with a transplant with a slight mismatch."

After the transplant Collins developed a severe form of a liver syndrome, which led to multiple organ failure and her death.

Her friends, family, classmates, and teachers gathered in Battell Chapel on September 22 to remember and honor her. They recalled a young woman of promise as well as sensitivity, honesty, compassion, joy, and warmth. They shared memories of her playing violin in the medical school orchestra; a homemade kale and bean soup that went awry; and her open and honest approach to her own cancer.



"I do not believe," said one of her teachers, John E. Fenn, M.D., clinical professor of surgery, "that her illness enhanced the kindness that was already there. ... Her compassion existed irrespective of her illness."

"It was one of my favorite moments of each day, walking in, sitting next to her, and seeing her smile," said classmate Whitney Sheen, recalling attending lectures with Collins. Sheen accompanied herself on the guitar and sang a Kate Wolf song, "Across the Great Divide," in Collins' honor.

"What a great doctor she would have been," said Nancy R. Angoff, м.р.н. '81, м.р. '90, нз '93, associate dean for student affairs. "What better doctors we can each be because of her. She will shine on in us and make us better people and better doctors."

—John Curtis

Natasha Collins, who died in August after a bone marrow transplant, as a first-year student in anatomy class with one of her teachers, Cheryl Walters, and classmate Jordan Sloshower.

Mental illness at the molecular level

Eric Nestler's molecular approach to psychiatric disorders set off a firestorm in his department.

When Eric J. Nestler, PH.D. '82, M.D. '83, HS '87, joined Yale's Department of Psychiatry in 1987, he ordered a sign for his research space that read "Laboratory of Molecular Psychiatry."

"It was like a lightning rod," he recalled. "A lot of people in psychiatry were offended because they believed that you can't understand psychiatric phenomena at a molecular level."



But Nestler relished his status as a contrarian whose research countered existing beliefs.

During his 13 years on the psychiatry faculty, where he was the Elizabeth Mears and House Jameson Professor of Psychiatry, Pharmacology, and Neurobiology and director of both the Abraham Ribicoff Research Facilities and the Division of Molecular Psychiatry, Nestler explored the molecular mechanisms of drug addiction and depression in animal models. His focus was on how drugs and stress alter brain pathways in ways that lead to long-lasting behavioral changes. "The main contribution that I've made is demonstrating a convergence among the fields of molecular biology, neuroscience, and psychiatry," said Nestler. "A molecular understanding of certain psychiatric phenomena is possible, as we've demonstrated specifically for addiction and depression."

Psychiatry, said Nestler, who is now at the Mount Sinai School of Medicine in New York, has often lagged behind other medical areas in understanding the molecular underpinnings of disease. This is due in large part to the extraordinary complexity of the brain. His work has helped to counteract this trend by using state-of-the-art molecular biology tools to define disease pathogenesis, thereby helping to reintegrate psychiatry into mainstream biomedical science. In recognition of his accomplishments, Nestler was elected to the

Eric Nestler created a stir when he joined the faculty in 1987 and put a sign on his door that read "Laboratory of Molecular Psychiatry." Many in psychiatry, he said, took offense at the notion that psychiatry could be understood at the molecular level. Institute of Medicine in 1998 and the American Academy of Arts and Sciences in 2005. He was also awarded the Goldman-Rakic Prize by the National Alliance for Research on Schizophrenia and Depression in 2008.

Nestler arrived at Yale as an undergraduate in 1972, and he jokes that his long history at Yale made him one of the most Yale-degreed people around, "but not necessarily the wisest." He came to Yale College from Long Island, eager to study chemistry and biology. Little did he know that this move would mark the beginning of a 27-year stretch at the university. While a junior at Yale College, a plucky Nestler convinced Paul Greengard, PH.D., who taught psychiatry and pharmacology at Yale from 1968 to 1983, to let him undertake research in Greengard's laboratory for his senior thesis. "The opportunity to work in the Greengard lab was one of the most important milestones of my career," Nestler said. He so enjoyed his research with Greengard, who studied cell signaling mechanisms in the nervous system, that he continued his graduate work there.

For his doctoral thesis, Nestler studied the role of protein phosphorylation in the nervous system. "It was very hard work with a lot of frustrations but, in the end, a lot of successes. We had some nice papers and I felt I learned a lot and contributed something to the lab and the field." Indeed, Nestler was involved in early work supporting the argument that phosphorylation is an important event in regulating cell function-a discovery that garnered Greengard the 2000 Nobel Prize in Physiology or Medicine. "My claim to fame is that my work was the first to show that this process could be regulated by nerve impulses-electrical activity in the brain-and neurotransmitters," Nestler said. When it came time for Nestler to set up his own lab, he applied his study of these signaling mechanisms to clinical psychiatry, specifically focusing on addiction in wellestablished animal models.

In 2000 Nestler left Yale to become chair of psychiatry at the University of Texas Southwestern Medical Center at Dallas. During his tenure there, Nestler helped develop the psychiatry department's basic and clinical research programs, increasing funding from the National Institutes of Health from \$5 million to \$20 million and recruiting many new faculty. At the same time, Nestler managed to maintain his own research program.

A year ago Nestler joined Mount Sinai, where, as the director of the Mount Sinai Brain Institute, chair of the Department of Neuroscience, and the Nash Family Professor of Neuroscience, he plans to help build a novel translational neuroscience research program. The return to the Northeast has also allowed Nestler and his wife, Susan De Renzo, M.P.H. '79, to be closer to their three children, ages 19, 21, and 23, who had come back to Connecticut to attend college near where they grew up. (Nestler and De Renzo met during Friday afternoon happy hours at the medical school, and the two have been married for what Nestler describes as "28 wonderful years.") De Renzo is a consultant for Hunter College and the City University of New York School of Public Health.

Looking back over his life's accomplishments and his heterodox academic career, Nestler said, "I consider myself to be an extremely lucky person, both professionally and personally."

—Kara A. Nyberg

A surgeon's journey from the early days of chemotherapy and heart surgery

During his 40 years as a practicing surgeon, Andrew J. Graham, м.D., FW '65, HS '66, witnessed the early use of chemotherapy and experienced the profession's evolution from a generalist practice to an increasingly specialized one. When he started out, surgeons were expected to cover a wide array of procedures and patients. "We were true general surgeons," Graham said. "We did all the emergencies, the gunshot wounds, whatever came in." Today, as surgery becomes more specialized and general surgeons become rarer, Graham predicts difficulty for small towns and cities that lack major medical centers and the attendant specialist surgeons. Through his work as an associate clinical professor of surgery and as president of the Yale Surgical Society from its inception in 1994 until this year, Graham has encouraged a generalist's comprehensive view of surgery's mission and its capacity to care for patients.

His introduction to medicine began with the inspiration of his future brotherin-law, a general practitioner and former MASH doctor in the European Theater during World War II, who pursued a solo practice in Lexington, Mass. They met when Graham was an officer in the U.S. Navy. In 1956, upon entering Tufts School of Medicine, Graham lived with his wife and infant son in an apartment above the practice. He occasionally accompanied his brother-in-law on house calls to nearby farms and helped perform circumcisions in the office on Saturdays.

Graham was still a fourth-year medical student when he came to New Haven for the surgical rotation that would determine the course of his career. It was 1959, and Gustaf E. Lindskog, M.D., was the chief of surgery at Grace-New Haven Hospital. Working with Lindskog affirmed Graham's decision to become a surgeon. "On the surgical rotation, if you had a problem, you solved it if you could," he said. "The medical rotations were endless rounds of people trying to show how smart they were." Lindskog invited Graham to stay for a subinternship and later, for residency. Training was rigorous, with many interns working under a few chiefs. By the time he was chief resident himself, the attending physicians "would come by once a week, just to see what we were doing." Otherwise, the residents carried their own caseloads.

In 1965, Graham was the oncologic fellow for section chief Mark Hayes, M.D., and helped administer chemotherapy, then still an experimental treatment, under the direction of Paul Calabresi, M.D. '55, "We made people sick because we didn't know what we were doing," he said. Because oncologic medicine was part of general surgery at that time, it fell to surgeons to administer chemotherapy. And because there was no hospice, dying surgical cancer patients would find care on general surgical floors. Graham said, "We would take care of them all the way."

After his residency, Graham went into solo private practice as a general surgeon in New Haven. A year later fellow surgeons and house staff alumni Richard A. Selzer, M.D., HS '61, and Bernie S. Siegel, м.D., нs '61, invited him to join their practice. Although he no longer performs surgeries, Graham remains on staff as a consulting physician. He also invites third-year Yale medical students to visit his practice for a 12-week mentorship program that exposes them to aspects of medicine often missing from a hospital rotation. "They find out there are a lot of little things that never come into the hospital, like a thrombosed hemorrhoid," Graham

Alumni FACES

When Andrew Graham became a surgeon in the 1960s, he was expected to do everything— "whatever came in." As a professor of surgery and as president of the Yale Surgical Society for 15 years, he encouraged a generalist's view.



said. "Most of the residents don't know what to do with that problem, since they've never seen it." Showing the students "the big picture of medicine" about caring for the whole patient in a surgical context—is Graham's way of explaining why it is important to be a general surgeon. He feels that the mentorship program run by the Department of Surgery is a wonderful way to bring "young sponges" into the field.

As president of the Yale Surgical Society, Graham has led the society's efforts both to honor the surgical faculty and residents and to appeal to medical students considering surgery. This year, Graham stepped down from his 15-year post. (The Surgical Society's new bylaws specify that officers' posts will be changed every two years.) Graham will remain involved with the society but hopes to devote more time to his wife of 54 years, traveling, gardening, visiting grandchildren, and mentoring students in his office and at the anatomy lab. "If someone is thinking about surgery," Graham said, he tells them, "You have to see if you love it. ... It's a tough taskmaster, and you have to be strong mentally and physically, because operating and caring for patients requires a total unconditional commitment. ... But I've been very lucky."

—Ayelet Amittay

Familiar Faces

Do you have a colleague who is making a difference in medicine or has followed an unusual path since leaving Yale? We'd like to hear about alumni of the School of Medicine; Physician Associate Program; and the medical school's doctoral, fellowship, and residency programs. Drop us a line at ymm@yale.edu or write to Faces, *Yale Medicine*, 300 George Street, Suite 773, New Haven, CT 06511.

SPRING YALE SERVICE TOUR TO MEXICO

Yale Service Tours provide a vehicle for Yale alumni, students, and their families to join in global service. Service Tours allow alumni to apply their diverse skills to projects in medical clinics, clinical home/community assessment and support, education, consulting, sustainability programs, public works, arts enrichment, athletics, and more. The Association of Yale Alumni collaborates with local partners and alumni leaders to utilize the skills of alumni volunteers in meeting each community's needs. Yale Service Tours programs also provide unparalleled opportunities to connect with people in the local community, learn in depth about the populations we serve, and form close bonds with fellow alumni who share a passion for service.

SAVE THE DATE

2010 Yale Service Tour to Monterrey, Mexico March 13–21, 2010 In collaboration with Tecnológico de Monterrey, a private Mexican educational institution founded in 1943.

FOR MORE INFORMATION

www.YaleServiceTours.org Contact: Remy Shaber Service Tour Coordinator Association of Yale Alumni 203-432-1955 remy.shaber@yale.edu

NOTES



Elizabeth Blackburn

Former Yale postdoc shares 2009 Nobel for research on telomeres

ELIZABETH H. BLACKBURN, PH.D., FW '77, SC.D.H. '91, the Morris Herzstein Professor of Biology and Physiology at the University of California, San Francisco, was one of three American scientists to share the 2009 Nobel Prize in Physiology or Medicine "for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase."

Blackburn began her research on telomerase while she was a postdoctoral fellow at Yale. She shares the Nobel award with Carol W. Greider, PH.D., of Johns Hopkins, and Jack W. Szostak, PH.D., of Harvard, both of whom shared the Albert Lasker Basic Medical Research Award with her in 2006

The citation from the Nobel Foundation stated, "This year's Nobel Prize in Physiology or Medicine is awarded to three scientists who have solved a major problem in biology: how the chromosomes can be copied in a complete way during cell divisions and how they are protected against degradation. The Nobel Laureates have shown that the solution is to be found in the ends of the chromosomesthe telomeres—and in an enzyme that forms them-telomerase."

Blackburn earned her doctorate from the University of Cambridge in England in 1975 and did her postdoctoral work at Yale from 1975 to 1977 in molecular and cellular biology in the laboratory of another 2006 Lasker honoree, Joseph G. Gall, PH.D. '52.



1**9**50s

Eliot Sorel

Robert J.T. Joy, M.D. '54, received

an honorary doctor of military

medicine degree from the Uni-

of the Health Sciences at their

30th Commencement in May.

formed Services University (USU)

Joy was honored for his contribu-

tions to the academic discipline

lives in Chevy Chase, Md., served

in the U.S. Army from 1954 to 1981

of the Army Research Institute of

Environmental Medicine. He held

research in the office of the Army

Surgeon General and in the Office

of the Secretary of Defense.

In 1981 he founded the Depart-

ment of Medical History at USU

and became professor emeritus

James S. Dalsimer, M.D. '63, and

writer in Cambridge, Mass., were

married on August 18 on Mount

Desert Island, Maine. Dalsimer is

a psychiatrist and psychoanalyst

in private practice in Cambridge

psychiatry at Harvard Medical

School. Steinbaum has written

two books of poetry and until

recently wrote a literary column

Howard Koh, M.D. '77, M.P.H., has

been named assistant secretary

serves as the Secretary of Health

and Human Services' primary advisor on matters involving public health. Koh was previously the

for health at the U.S. Depart-

ment of Health and Human Services. The assistant secretary

and a clinical instructor in

for the Boston Globe.

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Ellen Steinbaum, a poet and

in 1996.

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senior staff positions in medical

and was founding commander

of military medicine. Joy, who

Brian Nahed and Vanessa Kerry

Harvey V. Fineberg Professor of the Practice of Public Health and associate dean for public health practice at the Harvard School of Public Health. He also served as the Massachusetts Commissioner of Public Health from 1997 to 2003.

Eliot Sorel, M.D., FW '75, was appointed a council member of the Woodrow Wilson International Center for Scholars in Washington, D.C., in June. And in October he was awarded an honorary degree by the Carol Davila University of Medicine and Pharmacy at the Romanian Athenaeum in Bucharest, Romania. Sorel is clinical professor of global health, health services management and leadership, and psychiatry and behavioral sciences at the George Washington University in Washington, D.C.

1990s

Samuel S. Myers, M.D. '92, M.P.H., an instructor of medicine at Harvard Medical School and research associate at the Harvard University Center for the Environment, is the author of Global Environmental Change: The Threat to Human Health, a report published in November by the Worldwatch Institute and the United Nations Foundation. The report outlines a series of public health threats caused by climate change-food and water scarcity, altered distribution of infectious diseases, increased air pollution,

natural disasters, and population displacement—that threaten large segments of the human population. The report outlines the need for national-level risk assessments to identify the greatest threats in different regions, as well as unprecedented technical and financial assistance from the international community to help developing countries adapt to the health impacts of accelerating environmental change.

2000s

Brian V. Nahed, M.D. '05, was married in October to Vanessa B. Kerry, M.D., in Boston. Both are residents at Massachusetts General Hospital, where they met in 2005. He is in his fifth year of a residency in neurosurgery. Kerry, who is in her third year of a residency in internal medicine, is a daughter of Sen. John Kerry, a Democrat from Massachusetts.

Arvind Venkat, M.D. '00, was promoted to associate professor of emergency medicine at the Drexel University College of Medicine in Philadelphia, effective July 1, 2009. Venkat is the director of research in the Department of Emergency Medicine and an ethics consultant at Allegheny General Hospital in Pittsburgh, Penn. The hospital is a regional campus of Drexel.

SEND ALUMNI NEWS TO

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Lane Ameen, M.D., associate clinical professor of psychiatry, died at his home in New Haven on June 13 after a brief illness. He was 85. Ameen was also a fellow of Jonathan Edwards College at Yale and medical director and CEO of a private psychiatric hospital. He came to Yale in the 1950s and remained for his entire career. His early research focused on schizophrenia, psychosomatic disorders, and traditional psychotherapeutic methods of the Freudian era. He was later influenced by emerging psychopharmacological studies and contemporary treatments.

Ronald W. Cooke, M.D. '43, HS '49, died on August 16 in Castine, Maine. He was 90. After a pediatrics residency at Strong Memorial Hospital in Rochester, N.Y., Cooke entered the Army and served at Walter Reed Hospital and on a hospital ship. He practiced pediatric surgery for 30 years at Hartford Hospital, Newington Children's Hospital, and the University of Connecticut Health Center.

Lloyd M. Felmly, M.D. '50, died on September 3 in Carrollton, Ga. He was 89. Felmly began medical school at Yale in 1941 but enlisted in the U.S. Navy in January 1942. Following World War II, Felmly returned to medical school. He practiced briefly in New Jersey before moving to upstate New York, where he practiced for more than 40 years.

Angela R. Holder, J.D., LL.M. '75, former clinical professor of pediatrics (law) at the School of Medicine, the Institution for Social and Policy Studies at Yale, and Yale Law School, died on April 22 at her home in Durham, N.C. She was 71. Holder's

research and teaching focused on ethical and legal issues in human subjects research, pediatrics, adolescent medicine, and human reproduction. Among her publications is The Meaning of the Constitution, a text for undergraduates currently in its sixth edition. Holder spent her first year of law school as an exchange student at King's College, London, and received her law degree from Tulane Law School. From 1975 to 1977, she was executive director of the Program in Law, Science, and Medicine at Yale Law School. From 2001 until her retirement in 2007, she was professor of the practice of medical ethics and humanities in the Trent Center for **Bioethics, Humanities, and History** of Medicine at Duke University Medical Center. She authored four books and numerous published articles. One of the most meaningful honors she received, according to her son, John, was being selected by the medical school Class of 1988 as their Commencement speaker. She also enjoyed impersonations of her in the annual second-year show.

Ruth S. Kempe, M.D. '46, HS '49, a former professor of psychiatry and pediatrics at the University of Colorado School of Medicine and an advocate for abused children, died on July 24 in Denver. She was 87. With her husband, the late C. Henry Kempe, M.D., HS '49, she worked at the Kempe Center for the Prevention and Treatment of Child Abuse and Neglect. Kempe and her husband were co-authors of several books, including *Healthy Babies; Happy Parents*. Raymond Mark, M.D. '59, died on September 16 of natural causes at his home in Royersford, Penn. He was 78. After medical school, Mark completed a fellowship in pathology and immunology at Duke University Medical School and a residency in pathology at the University of Pittsburgh School of Medicine. As an immunologist he was involved in the university's early heart transplant program.

C.P. Noel McCarthy, M.D., M.P.H. '70, former associate clinical professor of obstetrics and gynecology, died on July 22 in New Haven. He was 73. McCarthy was an integral part of the Department of Obstetrics, Gynecology, and Reproductive Sciences since 1967. He performed his medical internship and residency in obstetrics and gynecology at the Hospital of St. Raphael in New Haven and was a fellow in infertility and gynecologic infertility at Yale-New Haven Hospital. In 1968 he became a clinical instructor. He later became an associate clinical professor, a position he held until his retirement in 2004. During that period, McCarthy also served as assistant chair of the Department of Obstetrics and Gynecology at the Hospital of St. Raphael.

Warwick Potter, M.D. '53, died on August 5 of complications of emphysema in Wellesley, Mass. He was 82. After a residency at Children's Hospital in Boston, Potter was a pediatrician in Ipswich, Mass., and an emergency room physician at Parkland Medical Center in Derry, N.H., and Marlborough Hospital in Massachusetts. Marcus E. Sanford, M.D. '43, died on September 3 in Somerville, N.J. He was 91. During World War II Sanford was a captain in the Army Medical Corps. He was a prominent physician in Somerville for 45 years. He retired in 1991.

Julie K. Staley-Gottschalk, PH.D., associate professor of psychiatry and director of the Department of Psychiatry's SPECT Imaging program, died on July 25 of cancer in New Haven. She was 44. Staley-Gottschalk came to Yale in 1997 to complete a two-year postdoctoral fellowship in neurochemical brain imaging in the Department of Psychiatry at the VA Connecticut Healthcare System in West Haven. Her research focused on the use of neuroimaging to understand the molecular causes and consequences of nicotine dependence, alcoholism, depression, and other psychiatric disorders. Her contributions were recognized by the Society of Biological Psychiatry and the Dana Clinical Hypothesis Program in Brain and Immuno-Imaging Award.

SEND OBITUARY NOTICES TO Claire M. Bessinger, Yale Medicine, 300 George Street, Suite 773, New Haven, CT 06511, or via e-mail to claire.bessinger@yale.edu

ON THE EVE OF CLASS, A GAME OF CHANCE

On the last Wednesday in August, dozens of new medical students tried their luck against their classmates, second-year colleagues, and teachers on Casino Night, held at Marigold's. The students took their chances in blackjack, Texas hold 'em, and roulette—with faculty members as dealers and croupiers.

As it happens—and all concerned say it is a coincidence the new students attend their first anatomy class on the day following their night of gambling. That first day with a cadaver can be emotionally trying for students, according to anatomy faculty, who say it helps to meet the students beforehand in a casual setting.

"We meet them in a friendlier, more relaxed atmosphere," said Lawrence J. Rizzolo, who leads the anatomy course with William B. Stewart.

The Medical Student Council has organized the Casino Night event for more than a decade. Those wishing to wager pay \$5 for a stack of funny money that features the faces of faculty, including Dean Robert J. Alpern, on the bills. Faculty members like to check out who appears on the bills—it's a reflection of their standing with the students, Rizzolo joked.

Adam Sang, a second-year student and one of the organizers of the event, said the evening is a welcome break from the "training and talking" of the orientation period. "Last year it was one of the most fun events for first-years."

Among the dealers and croupiers at this year's Casino Night were Alpern, as well as anatomy teachers Shanta E. Kapadia and Michael K. O'Brien, Auguste H. Fortin, Karen Jubanyik, and, of course, Stewart and Rizzolo.

—John Curtis



Vivek Kulkarni, Jovana Pavisic, Vladimir Glinskii, and Michelle Chen played blackjack at Casino Night in August. The annual student-run event serves as an icebreaker for students and faculty, particularly in anatomy. By coincidence, firstyear students have their first class in anatomy on the following day.