

Yale Medicine

Yale and pharma join
in cancer research

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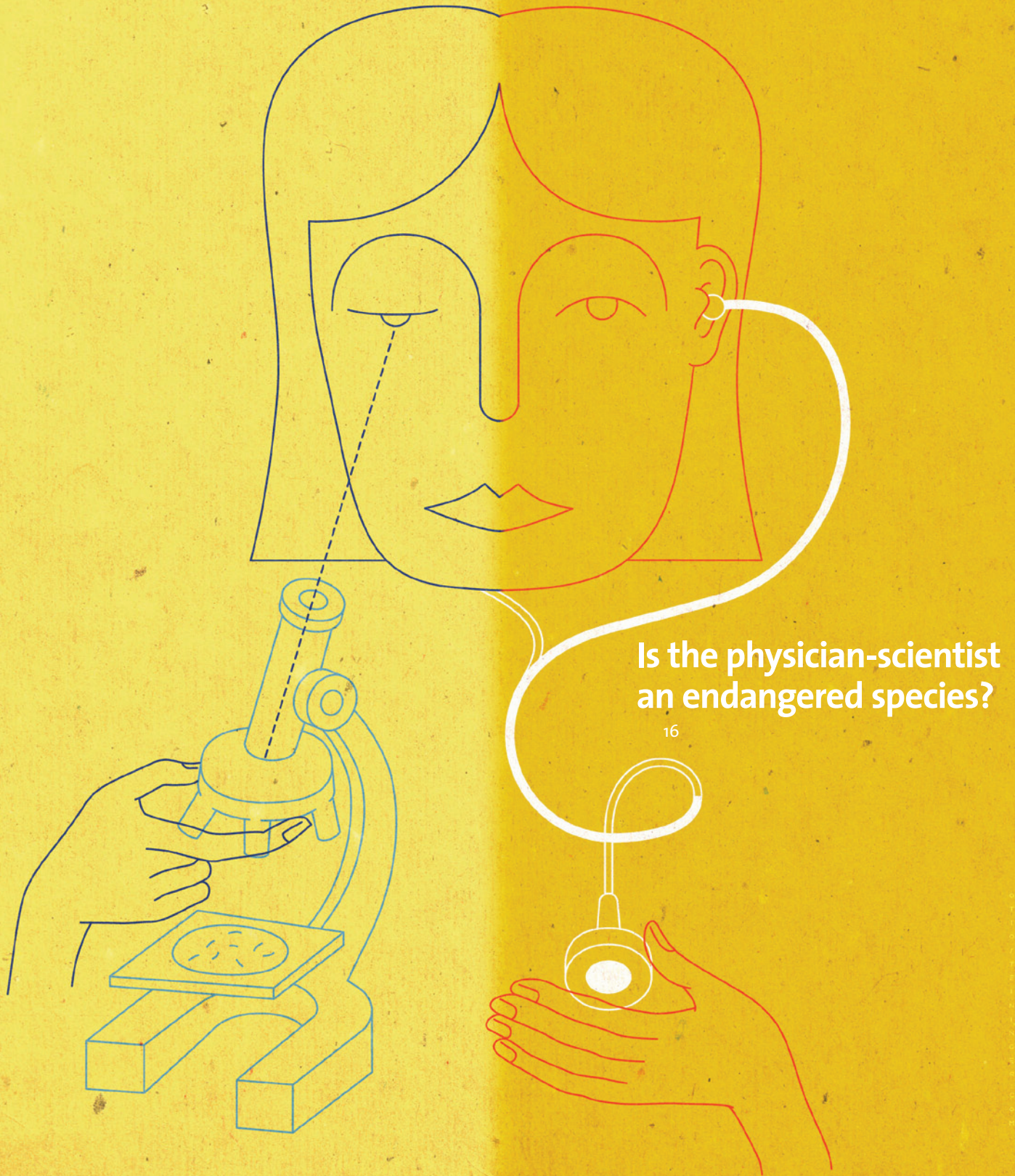
Teamwork leads to
better medicine

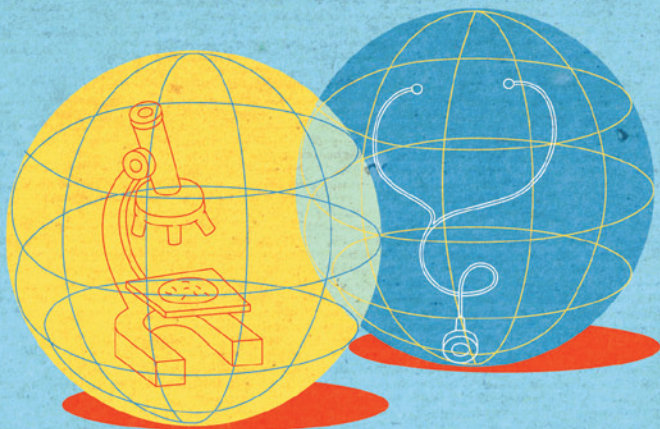
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Local docs care for
the uninsured

12

autumn 2011





AUTUMN 2011

CONTENTS

- 2 Letters
- 4 Chronicle
- 8 Books & Ideas
- 10 Capsule

12 **Medical care for the uninsured**

Local physicians launch a chapter of a national program that provides free specialty care to those in need.

By Ayelet Amittay

16 **Is the physician-scientist an endangered species?**

Citing the dearth of role models, burden of debt, and long periods of training, a committee looks for ways to encourage medical students to pursue dual careers.

By Colleen Shaddox

- 24 Faculty
- 26 Students
- 28 Alumni
- 32 In Memoriam
- 33 End Note

Illustration by Otto Steininger



HOW TO REACH US

Yale Medicine welcomes news and commentary. Please send letters (350 words or fewer) and news items to *Yale Medicine*, 1 Church Street, Suite 300, New Haven, CT 06510, or via e-mail to ymm@yale.edu, and include a telephone number. Submissions may be edited for length, style, and content.

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To serve this great nation

I particularly enjoyed the article on Norman Elliott, M.D. '79 [*Yale Medicine*, Spring 2011]. He is a distinguished School of Medicine graduate, and it pleases me to be reminded these many years later that I played a small part in his career.

I was an Air Force flight surgeon in the Vietnam War, which is how I first encountered Dr. Elliott. In addition to flying combat in supersonic fighters in that war, I served many years in the Air National Guard in tactical fighters (F-15s). I was fortunate to have had very interesting deployments—from the jungles of South America to the permanent ice of Antarctica (even the South Pole itself). I met many fascinating folks in our military service, but the warmest feeling as I look back is the opportunity I was given to serve this great nation—none of which would have occurred without the medical education I was privileged to have.

*Philip Steeves, M.D. '70
Wenham, Mass.*

On medicine and the military

I enjoyed your article on “Medicine and the military” [*Yale Medicine*, Spring 2011]. I had the privilege of working with Robert J.T. Joy, M.D. '54, while we were both at the Uniformed Services University of the Health Sciences at Walter Reed Army Medical Center. My time at the Yale School of Medicine has been one of the highlights of my educational career.

*Mahlon V.R. Freeman, M.D. '55
Col., U.S. Army Medical Corps Ret.
Denton, Texas*

Killing is never the goal

“Medicine and the military” [*Yale Medicine*, Spring 2011] reports an admissions interview at the School of Medicine in which a former Navy pilot’s job was described as “to kill people.” Perhaps the lack of ROTC at Yale is responsible for the persistence of such misinformed and distorted thinking.

Having testified dozens of times in courts of law defending law enforcement officers, I am familiar with such nonsense from plaintiffs’ lawyers in trying to mislead a jury. In the military as in law enforcement, the “job” is saving the lives of the innocent by deterring violence and stopping aggression. True, some killing results; but everything possible is done to avoid it. Killing is never the goal.

*Martin L. Fackler, M.D. '59
Col., U.S. Army Medical Corps Ret.
Gainesville, Fla.*

Editor's note: In May, U.S. Secretary of the Navy Ray Mabus and University President Richard C. Levin signed an agreement to establish a ROTC unit at Yale—the Navy's only such unit in Connecticut. The first class of midshipmen will enter Yale in the fall of 2012.

A remembrance of the Cushing collection

An article in a previous issue [“Cushing collection once again open for research,” *Yale Medicine*, Spring 2010] didn’t mention that prior to being housed in the basement of Harkness Dorm, the Cushing collection was stored in rooms in the basement next to the neuropathologist’s office down the hall from the morgue. While

I was attending Derby High School, I worked as a mortician’s assistant to Frank and Walter in the morgue during the summers of the early 1950s. One of my jobs was to move the collection to the rooms beneath Harkness. I will never forget loading the jars containing the specimens onto the gurneys and wheeling them through the tunnel to their new destination.

*Walter W. Karney, M.D. '62
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Uniformed Services University
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Rockville, Md.*

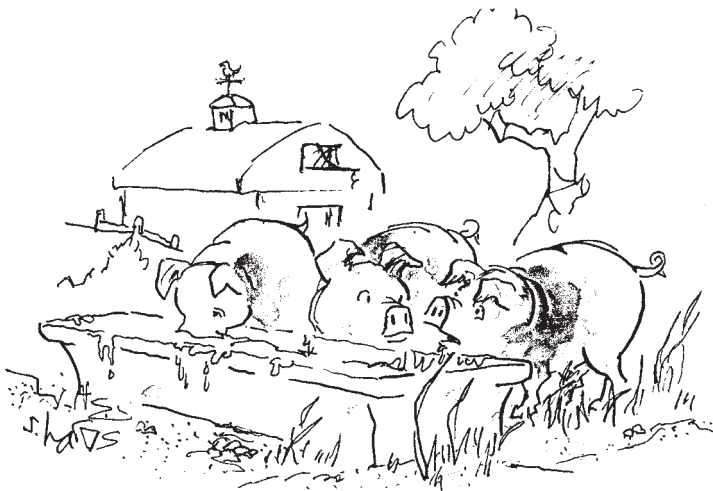
Health care for the uninsured, and encouraging physician-scientists

Many physicians at the School of Medicine have devoted their time and skills to providing free care for the uninsured. But, as we learn in an article by Ayelet Amittay, M.S.N. '10, such efforts often ran into obstacles and could not always guarantee continuity of care. Now area doctors have founded a local chapter of the national organization Project Access. Project Access-New Haven recruits specialists to take on uninsured patients in New Haven and six neighboring towns. By handling paperwork, scheduling, and other administrative matters, Project Access ensures continuity of care and makes it easy for physicians to donate their services. Both New Haven hospitals support the program and provide ancillary services, including labs and tests. More than 300 area physicians have signed up since last year and more than 100 patients have received treatment.

Our cover story by Colleen Shaddox explores the status of physician-scientists. For almost four decades, concerns in the academy have focused on the difficulties of maintaining dual careers in science and medicine—including longer training periods and lower salaries than those of clinicians in private practice. And as a new generation with strong feelings about the balance between work and life enters the ranks of academic medicine, those concerns have intensified. A committee led by Peter Aronson, M.D., FW '77, the C.N.H. Long Professor of Medicine (Nephrology) and professor of cellular and molecular physiology, has been looking into the issue and seeking ways to encourage medical students and young doctors to take this career path.

John Curtis
Editor

SECOND OPINION BY SIDNEY HARRIS



"NOTICE? THEY'RE FEEDING US A LOT BETTER NOW THAT WE MAY BE USED AS A SOURCE FOR TRANSPLANTS."

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Yale forms partnership to develop cancer drugs

Under the pact, Gilead Sciences can bring to market compounds discovered by Yale scientists.

Yale and Gilead Sciences, a biopharmaceutical company based in Foster City, Calif., announced in late March that they had forged a multi-year alliance to accelerate the discovery and development of drugs to treat cancer.

Over the next four years Gilead will provide up to \$40 million to support cancer research at the School of Medicine, and may provide up to \$100 million—the largest corporate commitment in Yale’s history—over 10 years if the partnership is renewed in 2015. Yale will maintain ownership of all intellectual property generated by the medical school’s research, and Gilead

will have the first option to license any compound it deems promising.

The partnership comes at a difficult time for drug development. Basic research conducted over decades is bearing fruit, but the cost of drug development has risen as clinical trials and regulations have grown more complex. The average cost to develop a single approved drug has risen to \$1.3 billion—a 60 percent increase since 2005.

“The collaboration brings together one of the world’s top research universities and a biopharmaceutical company dedicated to addressing unmet medical needs, with the goal of finding new treatments for cancer,” said Yale President Richard C. Levin. “This truly is transformative support that leverages Yale Cancer Center’s top scientists, our West Campus technology investments, and the resources of the new Smilow Cancer Hospital.”

The partnership benefits both industry and academia. Early-stage research carried out in settings like the School of Medicine is identifying more potential drug targets than ever. Research grants, however, are not designed to sustain the many additional steps involved in drug discovery. With the cost of bringing drugs to the

marketplace rising, pharmaceutical companies have become more selective about which targets to pursue. As a result, some pharmaceutical companies have been forming scientific alliances with universities.

The Yale-Gilead project will be governed by a joint steering committee chaired by Joseph Schlessinger, PH.D., chair and the William H. Prusoff Professor of Pharmacology. The six-member committee will include Richard P. Lifton, M.D., PH.D., chair and Sterling Professor of Genetics and a Howard Hughes Medical Institute investigator; and Thomas J. Lynch Jr., M.D. ’86, the Richard Sackler and Jonathan Sackler Professor of Medicine, director of Yale Cancer Center, and physician-in-chief of Smilow Cancer Hospital. They will be joined by three Gilead scientists: Howard Jaffe, M.D. ’82, president and chair of the board of the Gilead Foundation; William A. Lee, PH.D., senior vice president, research; and Linda Slanec Higgins, PH.D., vice president, biology.

Norbert W. Bischofberger, PH.D., Gilead’s chief scientific officer, said that collaborating with Yale dovetails with the company’s renewed focus on oncology. “Based on the strong track record of the Yale cancer research team, I am confident this collaboration will lead to important advances in the understanding of the genetic basis of cancer as we collectively seek to develop novel targeted therapies for patients in areas of unmet medical need.”

“When we find cancer targets that are new, we will work with Gilead on designing drugs, which they can then test in the clinic,” Schlessinger said. “This is a tremendous opportunity for Yale and Gilead.”

—Peter Farley



COURTESY OF GILEAD SCIENCES

Prime movers at Gilead Sciences in the new collaboration with the School of Medicine are (clockwise from left) Howard Jaffe, president and chair of the board of the Gilead Foundation; Linda Slanec Higgins, vice president, biology; and William Lee, senior vice president, research.

Army visits Yale to highlight its worldwide medical and humanitarian missions

To Afghan villagers, said General (Ret.) Stanley McChrystal, soldiers in combat gear, helmets, and body armor who don't speak the language, don't understand the culture, and race by in their armored vehicles "might as well be Martians."

McChrystal, former commander of U.S. forces in Afghanistan and now a senior fellow at Yale's Jackson Institute for Global Affairs, was a featured speaker at "Common Ground: Army Medicine in Support of Humanity," an event held in April to describe the Army Medical Department's humanitarian operations around the world.

"The ability to use medical relationships becomes extremely important," McChrystal told the audience in Harkness Auditorium. "I've watched coalition forces do everything from inoculations to basic checkups for kids, and it is something that breaks down the walls that can exist between us."

Col. Frederick C. Lough, M.D., who served at a military hospital in Afghanistan described some of the challenges facing military physicians. Although the hospital was near the historic city of Herat, the city was deemed too dangerous to visit, said Lough, now director of cardiac surgery at George Washington University Hospital. The military hospital was run by a Spanish contingent from

NATO but also staffed by Bulgarian and American physicians. Language was often an issue, said Lough, noting that the morning report was conducted in Spanish. The European doctors also differed in their approach to medicine and were less trusting of technology, he said. Although the team treated many Afghan civilians, the team members were often concerned about follow-up for serious conditions. "Then what? There is no rehab after care," he said.

A visit to a medical Deployable Rapid Assembly Shelter (DRASH) unit on display in Harkness Ballroom followed the talks in the auditorium. The unit—which can be up and running in an hour and includes a surgical bed as well as an assortment of essential medical equipment—represents the next level of care after battlefield treatment. Injured soldiers would be moved from the DRASH to a field hospital and then to the Army's regional medical center in Landstuhl, Germany.

Maj. Michael Filipowicz, the officer in charge of a medical recruiting station in Wallingford, Conn., said his goal in organizing the event was to build a relationship with Yale. "I am trying to break down the walls of misunderstanding and to promote the humanitarian missions that we do, and enlighten everyone that we're not just about taking care of soldiers, but taking care of civilians around the world," he said.

—John Curtis



Peter Arnold, a nurse anesthetist, explains the workings of the DRASH unit to a visitor.

et cetera ...

SCHOLARSHIP FUND HONORS ALUMNUS

Boston Scientific, a developer, manufacturer, and marketer of medical devices, established in February a \$1.7 million scholarship endowment for the School of Medicine. The Donald S. Baim, M.D. '75, Scholarship Fund will honor the late cardiology pioneer who served as Boston Scientific's chief medical and scientific officer from 2006 until his death in 2009.

A Donald S. Baim Scholarship will be awarded annually, beginning in August 2011, to a first-year student to cover half of tuition for all four years of medical school. The School of Medicine will seek candidates based on financial need and demonstration of the intellectual and clinical excellence that Baim's career exemplified.

Baim had been an expert in interventional cardiology during his 25 years at Harvard Medical School, Beth Israel Deaconess Medical Center, and Brigham and Women's Hospital in Boston before joining Boston Scientific.

—J.C.

HOSPITALS EXPLORE MERGER

Yale-New Haven Hospital (YNHH) and the financially troubled Hospital of Saint Raphael (HSR) announced in March that they are exploring a possible merger. YNHH would buy HSR's assets and invest about \$135 million in capital improvements to produce an integrated hospital with two campuses. The integration would create cost and operational efficiencies.

Employees of HSR would most likely become part of the combined hospital; YNHH would provide pay and benefits consistent with those of YNHH employees in similar positions. The merged institution would continue to honor HSR's Catholic heritage.

"With the prospect of significant health care changes on the horizon, hospitals across the nation are exploring innovative ways to enhance access to high-quality care while driving down costs," said Marna P. Borgstrom, M.P.H. '79, president and CEO of YNHH.

"The proposed integration is in the best interest of this community, our patients, and our two organizations," said Christopher M. O'Connor, president and CEO of HSR.

—J.C.

Teamwork and collaboration lead to better medical care in hospital settings

Being a good team player may make all the difference when trying to save patients suffering from heart attacks. Top-tier hospitals with low acute myocardial infarction (AMI) mortality rates achieve those results not only through state-of-the-art care but also because they foster a work atmosphere in which people combine their talents and strive toward a common goal, according to a study published in the March 15 issue of the *Annals of Internal Medicine*.

“While protocols and processes are important for AMI outcomes, it really is critical to pay attention to the environment in which those are implemented,” said Leslie A. Curry, M.P.H., Ph.D., research scientist at the School of Public Health and lead author of the paper.

Curry and her colleagues found that hospitals with the lowest AMI mortality rates exhibit a “positive culture” characterized by shared organizational values and goals; consistent involvement of senior management; broad staff presence and expertise in AMI care; effective communication and coordination among interdependent groups; and an approach to problem solving that emphasizes learning and growth. In low-performing hospitals, they found, staff often work in isolation, communicate poorly with members of the multidisciplinary health care team, point fingers when problems arise, and have no common vision regarding delivery of excellent health care.

“The importance of a positive culture has not been highlighted in the medical literature or in medical education, and our study may be heralding a factor that is as powerful as any new treatment,” said co-author Harlan M. Krumholz, M.D., M.Sc., the Harold H. Hines Jr. Professor of Medicine.

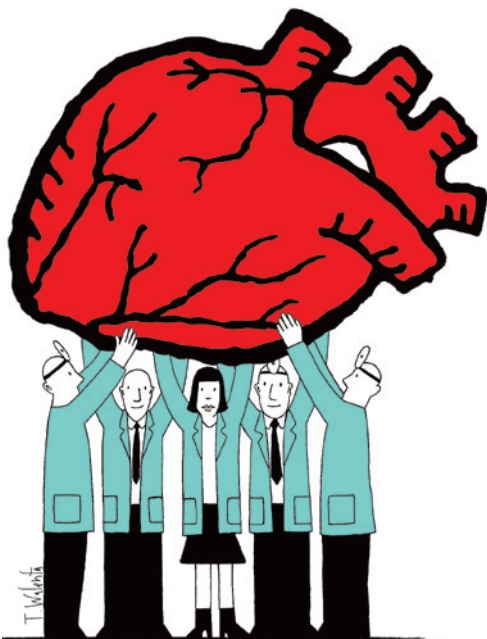
Surprisingly, the Yale investigators did not find any specific process or protocol, such as the use of rapid response teams or clinical guidelines, which differentiates high- from low-performing hospitals. “We may know what to do given current evidence, but how we provide care may also be very important,” Krumholz said. “An environment of coordination, communication, and collaboration may make a difference in making sure that mistakes are avoided and treatments achieve their promise.”

Researchers focused on improving the quality of health care have long sought to identify the factors that distinguish top-performing hospitals with stellar heart attack survival records. Prior studies, however, have failed to identify a silver bullet. The Yale group took a decidedly different approach with a provocative methodology called positive deviance. This approach examines exceptional performance (so-called positive deviance) to understand how it leads to high

outcomes relative to others. The Yale team explored myriad aspects of the hospital setting qualitatively rather than quantitatively—an approach that better reveals the importance of social interactions and organizational culture, which are difficult to measure using common research methods like surveys. “The nice thing is that we discovered a lot of approaches that do not require huge financial investments, which bodes well for improving quality without increasing costs,” said Elizabeth Bradley, M.B.A., Ph.D. ’06, professor of public health and a co-author of the paper.

The Yale group is now validating their initial qualitative findings, culled from 11 hospitals that ranked in either the top or bottom 5 percent in risk-standardized mortality rates, by conducting a nationally representative survey of more than 500 U.S. hospitals to identify and confirm specific hospital behaviors that promote positive AMI outcomes. “Soon we’ll be able to give hospitals more concrete advice about actions they can take to provide quality AMI care,” said Curry.

—Kara A. Nyberg





Refugee clinic fills needs for both patients and physicians-in-training

When Sachin Jain, M.D., M.P.H., asked his patient about her eating habits, she consulted with her interpreter, who answered, “A typical Iraqi diet.”

“What’s that?” Jain pressed, eliciting a list that included meat, starch, vegetables, and fried foods.

He then asked questions that don’t usually come up in a medical visit: Had she ever been a victim of violence? Ever witnessed it? Did she feel safe now?

Jain is one of the resident coordinators of the Adult Refugee Clinic, which serves eight patients each week in Yale-New Haven Hospital’s Primary Care Center. (A pediatric refugee clinic, which provides medical screening and primary care for children in newly arrived refugee families, shares the space.) About 200 refugees settle in Greater New Haven each year, with Iraqis forming the largest group. The refugees also come from such countries as Afghanistan, the Democratic Republic of Congo, Cuba, Ethiopia, Iran, Somalia, and Sudan.

The adult and pediatric clinics offer physicians-in-training an opportunity to see latent tuberculosis, various parasitic infections, and undiagnosed congenital disorders—diseases and conditions that are relatively rare in the United States. For the residents, however, the most important lessons involve communication. Understanding the patient’s story is essential to providing care, many clinic staffers said, and language is only part of the challenge.

Intern Sara Schwab, M.D., groaned on a recent shift when told she’d be

using a phone interpreter—it’s always better to have a live interpreter in the room because they can pick up on nonverbal cues like body language. Schwab walked toward the exam room asking people, “You don’t speak Arabic, do you?”

But whether on the phone or in person, standard questions can be mired in misleading assumptions. For example, a physician might ask, “Have you ever been hospitalized?” But in some countries hospitalization is a rare event. “There is a lot more detective work,” said Katherine Yun, M.D., HS ’09, a postdoctoral fellow who serves as an attending in the Pediatric Refugee Clinic.

The adult clinic got its start in 2007 when Teeb Al-Samarrai, M.D. ’06, HS ’09, who was born in Iraq, was recruited to translate in the pediatric clinic during her residency. Al-Samarrai, now a CDC Epidemic Intelligence Service Officer at the New York City Department of Health and Mental Hygiene, learned that refugee patients often ended up in the emergency room because it was difficult to get appointments with primary care providers. An adult refugee clinic at Yale had closed when its organizers left the medical school, so Al-Samarrai recruited residents and faculty to fill the need. Last year, the adult clinic became part of the ambulatory care curriculum so that it will have ongoing coverage.

That reorganization creates an opportunity for residents not only to treat a diverse population but also to change the way they interact with all their patients. Jain recalled a lifelong New Haven resident who had various complaints and a reputation for non-compliance. “I went into my refugee line of questioning,” Jain said. The patient recounted an adolescence marred by violence and memories of being mistreated by the health care system.

Symptoms that had frustrated other doctors suddenly made sense to Jain, who had finally gotten the whole story.

—Colleen Shaddox

et cetera ...

GHRELIN LEVELS LINKED TO FERTILITY

Mice whose mothers had low levels of ghrelin are less fertile and produce smaller litters, Yale researchers reported in the May issue of *Endocrinology*. Such hormones as ghrelin, which are involved in energy balance, hunger regulation, and metabolism, have also been shown to regulate reproductive function in humans. Ghrelin levels are typically low in obese women.

The Yale team studied the effects of ghrelin deficiency on the developmental programming of fertility in female mice, noting that abnormal functioning of uterine tissue led to lowered rates of embryo implantation.

“While our study involved mice, we believe our findings have significant implications for women,” said lead author Hugh S. Taylor, M.D., HS ’92, FW ’98, professor of obstetrics, gynecology, and reproductive sciences. “Our results suggest that low ghrelin levels could program the development of the uterus in the female children of obese women. These women may then be less fertile as adults.”

—John Curtis

EXOME SEQUENCING YIELDS TARGET GENE

Yale researchers have identified genetic mutations that can trigger severe hypertension through tumor formation in the adrenal gland—in a gene they had no plans to study, according to Richard Lifton, M.D., Ph.D., chair and Sterling Professor of Genetics, professor of medicine, and corresponding author of a paper published in the February 11 issue of the journal *Science*.

“This gene was not on anybody’s list to sequence in an investigation of this disease,” said Lifton, who is a Howard Hughes Medical Institute investigator. “We really hit the jackpot.” The findings are a major step in understanding the causes of high blood pressure, which afflicts one out of every three Americans.

Lifton and his team, which included investigators from Uppsala University in Sweden, New York Medical College, and Henry Ford Hospital, found the mutations using whole-exome sequencing—a technique that decodes all of a patient’s genes rather than just a few suspect gene targets.

—J.C.

The legacy of Milton Winternitz

A new book honors the achievements of the dean who led the medical school at a crucial time.

The man who laid the foundation of the modern School of Medicine has been largely forgotten, says Howard Spiro, M.D., professor emeritus of internal medicine (digestive diseases). And yet, as the dean of the medical school from 1920 to 1935, Milton C. Winternitz, M.D., created a legacy that touches every student and faculty member who walks along Cedar Street.

He established the Yale system of medical education; introduced salaries for full-time faculty; was one of the founding fathers of clinical medicine at Yale; and built the hub of the campus, including the iconic Sterling Hall of Medicine.

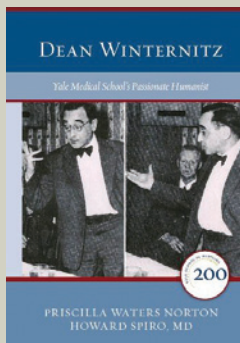
Spiro, founding director of the Program for Humanities in Medicine, and co-author Priscilla Waters Norton seek to refresh historical memory with their new book, *Dean Winternitz: Yale Medical School's Passionate Humanist*.

The book describes how the dean employed “superhuman energy” to introduce psychiatry at Yale, to strengthen ties with New Haven Hospital, and to grant relative autonomy to students who were “here to learn rather than to be taught.” He established the short-lived Institute of Human Relations to advance “social medicine,” a progressive interdisciplinary approach that drew on law and sociology as well as medicine, and took into account the socioeconomic, psychological, and spiritual aspects of illness.

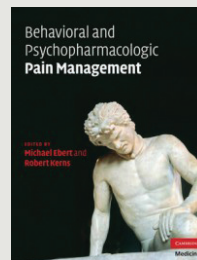
The authors also describe the fallout from the dean’s caustic personality, including his forced resignation from the deanship in 1935.

A decade after the 1910 Flexner Report revealed shortcomings in medical education nationwide, [Winternitz] “saved the medical school from becoming a second- or third-rate place.”

—Cathy Shufro



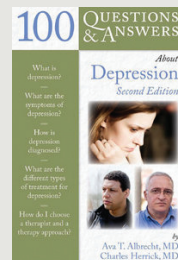
Dean Winternitz: Yale Medical School's Passionate Humanist
Published by the Program for Humanities in Medicine, New Haven, Conn., 2010. Available from Amazon in paperback and in Kindle format.



Behavioral and Psychopharmacologic Pain Management
edited by Michael H. Ebert, M.D., professor of psychiatry; and Robert D. Kerns, PH.D., professor of psychiatry, psychology, and neurology (Cambridge University Press) This book discusses the theory and evidence-based practice of behavioral, psychotherapeutic, and psychopharmacological treatments in modern pain medicine. The book reflects the interdisciplinary approach considered the current standard for the practice of pain management and can be used as a textbook for specialized training in the field. Contributors span the fields of psychiatry, psychology, anesthesia, neurology, nursing, and physical medicine and rehabilitation.

100 Questions and Answers about Depression, 2nd ed.
by Ava T. Albrecht, M.D., assistant clinical professor of psychiatry; and Charles Herrick, M.D. (Jones & Bartlett Publishers) Incorporating the views of patients as well as doctors, this guide presents information about the causes of depression, treatment options, and coping techniques. The book addresses risk factors associated with depression, brain stimulation therapies, and physiological drug dependence.

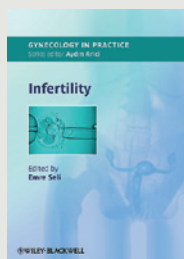
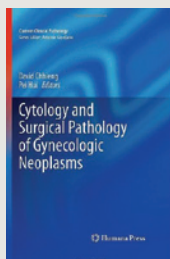
Oxford American Handbook of Cardiology
edited by Jeffrey R. Bender, M.D., Robert I. Levy Professor of Medicine (cardiology) and professor of immunobiology; Kerry S. Russell, M.D., PH.D., associate professor of medicine (cardiology); Lynda Rosenfeld, M.D., associate professor of medicine (cardiology); and Sabeen Chaudry, M.D., senior



fellow of medicine (cardiology) (Rowman & Littlefield) The text covers common cardiac conditions, including coronary artery disease, arrhythmias, valvular and congenital heart disease, cardiomyopathies, and heart failure, and includes a chapter on preventive cardiology. The handbook also includes practice guidelines, management strategies, and a summary of recent major clinical trials in cardiology—all designed for use by residents, fellows, students, and general practitioners.

Cytology and Surgical Pathology of Gynecologic Neoplasms
edited by David Chheng, M.D., professor of pathology; and Pei Hui, M.D., PH.D., associate professor of pathology (Humana Press) This text provides a reference for practicing pathologists and cytopathologists with a focus on gynecological tumors, specifically common ones and their benign mimics. Topics include morphologic recognition, resolving common diagnostic problems seen in routine practices, and a discussion of the current classification of gynecologic malignancies. The book also addresses the practical applications of such ancillary studies as molecular diagnostic testing and immunohistochemistry.

Sleep: An Issue of Clinics in Chest Medicine
edited by H. Klar Yaggi, M.D., M.P.H., associate professor of medicine (pulmonary), Teofilo L. Lee-Chiong Jr., M.D., and Vahid Mohsenin, M.D., professor of medicine (pulmonary) (Saunders) Sleep medicine topics covered in this special issue of the journal include the neurobiology of



sleep, adult obstructive sleep apnea (OSA), central sleep apnea (including complex sleep apnea and ASV), pediatric sleep-related breathing disorders, hypoventilation syndromes, metabolism in OSA, cardiovascular consequences of sleep apnea, home sleep apnea testing, insomnia, excessive sleepiness, narcolepsy, restless leg syndrome and movement disorders, the parasomnias, circadian rhythm sleep disorders, medication effects on sleep, and polysomnography.

Infertility

edited by Emre Seli, M.D., associate professor of obstetrics, gynecology, and reproductive sciences (Wiley-Blackwell) The authors provide a strong focus on effective diagnosis and management of infertility, assisting gynecologists and family practitioners to improve the care of patients who have trouble conceiving. Following a review of the factors affecting fertility, the book discusses evaluation of fertility, management and treatment, complications, preimplantation screening, and fertility preservation. The volume is part of the publisher's Gynecology in Practice series.

Three Boys Like You

by William M. Gould, M.D. '58 (iUniverse.com) Robert, Tony, and Philip believe that their friendships will last forever, but they are wrong. In 1949, the three high school boys engage in a prank that unexpectedly deteriorates into a crime. An innocent man is blamed. The novel shows how each of the three deals with the moral ramifications of his actions. Together again as adults in the midst of

civil war in Guatemala, the three men find that the past intrudes on the present as their personal values clash. Will Robert, Tony, and Philip move beyond their haunted memories? Will they have futures at all?

Visual Fields: Examination and Interpretation, 3rd ed.

edited by Thomas J. Walsh, M.D., clinical professor of ophthalmology and visual science and of neurology (Oxford University Press) This edition contains revisions and updates of earlier material as well as a discussion of newer techniques for assessing disorders of the visual field. It provides an overview of the techniques of visual field examination in a number of eye disorders and will be of interest to ophthalmologists, neuro-ophthalmologists, retina specialists, and optometrists. The book begins with a short history of the field of perimetry and goes on to present basic clinical aspects of examination and diagnosis of visual field defects in the optic nerve, optic disc, chorioretina, optic chiasm, optic tract, lateral geniculate field bodies, and the calcarine complex. It includes a discussion of several new techniques of automated perimetry.

The descriptions above are based on information from the publishers.

SEND NOTICES OF NEW BOOKS TO Cheryl Violante, *Yale Medicine*, 1 Church Street, Suite 300, New Haven, CT 06510, or via e-mail to cheryl.violante@yale.edu



ANNE-EMANUELLE BIRN

Health and social justice are connected

As in the days of the “robber barons,” today’s North American philanthro-capitalists have enormous influence over the global health agenda, convinced that a businesslike approach can resolve social problems more effectively than government or civil society, said Anne-Emanuelle Birn, sc.d., professor and Canada Research Chair in International Health at the University of Toronto. Speaking to this year’s Downs Fellows in March, Birn said that philanthropic work has often promoted short-term, narrowly technical approaches that favored donor interests over local needs. A costly Rockefeller Foundation campaign to eradicate yellow fever in Mexico in the early 1920s, she said, was of minor local importance but eliminated a public health threat to ports in the United States.

Birn argued that global health efforts should not be separated from addressing poverty and social injustice. For example, in Sri Lanka, Cuba, and Costa Rica, maternal and child health improvements have been coupled with women’s empowerment, fair-wage movements, universal education, and other elements of a welfare state. “There is a reality that the philanthrocapitalists reject,” she said, “that health, well-being, and social justice are inextricably integrated.”

—John Curtis



HOWARD KOH

Transformative moment for health care

Although the 2010 Patient Protection and Affordable Care Act faces legal and political challenges, it provides, said Howard Koh, M.D. '77, M.P.H., a “transformative” moment.

“All patients want good care, good insurance so they can get good care, and not to be patients in the first place,” said Koh, assistant secretary for health at the U.S. Department of Health and Human Services, when he delivered the Herbert Goldenring Memorial Lecture for the Department of Pediatrics in April. Noting that the act includes 10 titles, or sections, Koh said, “The law puts those 10 titles together in a unified package to give patients what they want.”

The act expands coverage for young adults, provides tax credits for small businesses to help purchase coverage for employees, guarantees coverage for children with pre-existing conditions, closes the Medicare “donut hole” (coverage gap) for prescription payments, provides preventive care, and promotes public health. A similar program in Massachusetts, where Koh was commissioner of public health from 1997 to 2003, “has driven down the rate of the uninsured to 2.5 percent, the lowest in the country,” he said.

“We are at a historic time as to the status of this law,” Koh said. “It is a moment that gives us an extraordinary opportunity to make our country healthier by 2020 and beyond.”

—J.C.

How the 1960s affected the School of Medicine

The Vietnam War and the civil rights movement led students to question the School of Medicine's curriculum and policies.

By David Baker



OPPOSITE In May 1970 thousands of students converged on New Haven to protest the trial of Black Panther leader Bobby Seale, on charges that he was involved in the killing of a suspected informant. The School of Medicine did not escape the era of protests, as students questioned the curriculum and administration policies.

AT RIGHT A poster for the May Day 1970 protest in New Haven.

The Yale School of Medicine was not immune to the student protests that gripped the country in the 1960s and early 1970s. Opposition to the Vietnam War and increasing criticism of social injustice led to questioning of the medical school's curriculum and administrative policies, culminating in a student strike in the spring of 1970.

In September 1968, the school had yielded to students' desire for more flexibility and compressed the time allotted to preclinical and clinical instruction, leaving the fourth year open for electives. The thesis, required for the Yale medical degree since 1839, seemed archaic to students eager to shift the emphasis in their education from research to healing and activism, but the administration held firm and maintained the requirement. Students welcomed the introduction that year of a six-week clinical rotation during the summer after the first year. Free to choose their own summer programs, many students ventured into urban community health centers or American Indian reservations.

Yale medical students also organized independently to respond to the social challenges of their profession. The Student Health Project was founded at Yale in 1969 to enact reforms in medical education and broaden the role of medicine to encompass individual community service projects.

New Haven became a center of nationwide attention in May 1970 when demonstrators protested the upcoming trial in the city of Black Panther leader Bobby Seale on charges that he had been involved in the murder of a Panther suspected of being an FBI

informant. The Panthers were believed by many to be targets of oppression by law enforcement, and sympathizers considered the case against Seale weak.

Medical students had expressed support for the Panthers in the fall of 1969 but did not immediately endorse a call for a university-wide strike. Undergraduates voted to strike in April 1970, and an estimated 75 percent of Yale College classes were canceled.

University President Kingman Brewster's statement of sympathy for the protestors' views at a faculty meeting on April 23, 1970, had a calming effect on the student body. The main rally on the New Haven Green on May 1 attracted an estimated 15,000 persons—far fewer than expected—and there were no significant violent incidents despite incendiary speeches by Yippie leaders Abbie Hoffman and Jerry Rubin.

During the two days of protests, some faculty and students from the School of Medicine, including members of the Medical Committee for Human Rights, staffed impromptu People's First Aid Stations in Yale's residential colleges to treat the effects of tear gas or other injuries, which were rare and mostly minor.

Medical students voted to join the university-wide strike on May 6, 1970, following the U.S. invasion of Cambodia on April 29 and the shooting of four students by Ohio National Guardsmen at Kent State University on May 4. Medical students agreed to suspend classes and other scheduled activities, while also arranging to meet with faculty during the strike to ensure maintenance of professional standards and such obligations as patient care.



The same spirit of compromise marked such other instances of student activism following May Day 1970 as the deliberations concerning academic governance. Students had in preceding years gained membership on the faculty Curriculum Committee as well as on the Student-Faculty Hospital Committee and a board to recruit underrepresented minorities to the student body. In 1970 the students attempted to gain an equal voice in deciding admissions, promotions, and graduation standards. The Committee on Governance, a faculty body, resisted this effort while creating a Medical School Council composed of students and faculty, "to provide an influential forum for discussion of significant School-wide issues." After its founding in 1970, the Council continued to meet for more than 30 years, evolving gradually into a speakers' forum for the exchange of information about current events within the school and across the medical profession.

This article has been adapted from *Medicine at Yale: The First 200 Years*, a book celebrating the bicentennial of the Yale School of Medicine.



Sancti Spiritus
Peter Ellis, MD

Suzanne Lagarde

Medical care for the uninsured

Local physicians launch a chapter of a national program that provides free specialty care to those in need.

By Ayelet Amittay, M.S.N. '10

Photograph by Robert Lisak

Germán León's left eye was bothering him. It was swollen and although it didn't hurt, it got tired when he was reading. He wanted the swelling to go away.

León, 39, lives with his wife and three children in Fair Haven. He makes sandwiches at a New Haven coffee shop, but his job provides no insurance coverage. In April he was in a second-floor office at the Hospital of Saint Raphael (HSR) in New Haven, where Edna L. Cruz-Cedeño, a patient navigator, was determining his eligibility for treatment through Project Access-New Haven (pa-nh.org/).

As she explained to León, Project Access offers free medical care to the uninsured by recruiting physicians who offer their services at no charge. During the interview, Cruz-Cedeño's goal was to determine whether León is eligible to receive care under Project Access. Patients must live in New Haven or one of its six contiguous towns. They must be without health insurance and their income must be no more than 250 percent of the federal poverty level. They must provide proof of residency and income. And their medical situation must fit within the project's guidelines.

Cruz-Cedeño asked León about his medical history. Does he have a history of alcoholism? Arthritis? Cancer? Diabetes? High cholesterol? Asthma? "We are the first contact the patient will have," she said. "We'll get a referral. One of our on-call doctors reviews it. We will do the initial screening, financials, location; make sure they qualify; provide appointment information and reminders, follow-up, and communication with specialists."

León qualified for the program and received an appointment at a private ophthalmology practice in New Haven. "After the visit, Project Access will receive the specialist return form from the physician," said Giselle Carlotta-McDonald, a patient navigator who followed up the case the next day. "The form will specify what the next step will be for the patient, such as if they will need any lab work, imaging tests, medication, or follow-up appointment. It will also let us know if the patient doesn't need any further treatments."

Once accepted, patients receive a Project Access ID card valid for six months, which they present at each medical appointment. Physicians commit to seeing the patients through their treatments. HSR and Yale-New Haven Hospital (YNHH), which support the program, assume responsibility for ancillary care—including costs for lab work, imaging, operating rooms, and physical therapy. And the program takes advantage of prescription assistance from pharmaceutical companies.

Project Access-New Haven is one of 55 chapters of a nationwide program designed to provide specialty care to the uninsured. More than 250 physicians in the New Haven area have signed on to the program since it began operations in 2010.

"It's a no-brainer," said Peter J. Ellis, M.D., M.P.H., director of the fourth-year primary care clerkship at the School of Medicine, and one of the program's founders. "Once physicians hear about the project, they say yes."

PREVIOUS PAGE Peter Ellis and Suzanne Lagarde joined forces to launch a local chapter of Project Access, a national organization dedicated to providing free medical care for the uninsured.

An epiphany in Mississippi

The story of New Haven's chapter of Project Access begins in Mississippi in 2006, when Suzanne P. Lagarde, M.D., HS '77, FW '80, was on a church trip to rebuild houses after Hurricane Katrina. "My skills were far greater in medicine than they were in Sheetrock," said Lagarde, assistant clinical professor of medicine. So she walked down the street to the Coastal Family Health Center in Biloxi and volunteered her services as a GI specialist.

Among her many uninsured patients was a man with rectal cancer. The diagnosis took only 30 minutes, but Lagarde spent hours calling hospitals, only to learn that the earliest appointment for treatment was eight months away because the patient had no insurance. "These people have nothing for specialty care," Lagarde said, "But if all the hospitals had were uninsured patients, they couldn't survive either."

This story is as familiar to physicians in New Haven as it is to those in Mississippi. As Connecticut's unemployment rate rises—it reached 9.6 percent in February—people are losing health insurance along with their jobs. Despite the passage of the 2010 Patient Protection and Affordable Care Act, an estimated 14.9 percent of New Haven residents—more than 19,000 people—remain without health insurance. Unable to access regular medical care, they often put off treatment or turn to emergency rooms when their medical problems can no longer be ignored. On her return to New Haven, Lagarde wondered what she could do to help the uninsured here.

Then she heard about Peter Ellis. He had recently begun working in New Haven after several years in Waterbury, where he had organized a chapter of Project Access. A nationwide program founded in 1996, Project Access provides gap coverage for patients who cannot afford health insurance but aren't eligible for such public programs as Connecticut's State Administered General Assistance (SAGA) or Medicaid. By providing patients with pro bono primary care until they meet spend-down limits to qualify for SAGA, Project Access helps end the cycle of repeat visits to the emergency room. Ellis and Kevin D. Carr, M.D., HS '02, an internist and attending physician at Waterbury Hospital, launched Connecticut's first Project Access in Waterbury in 2004.

Tackling health care in New Haven

Lagarde thought that she and Ellis would work well together—he had the experience in setting up the program,

and she knew the political/medical landscape of New Haven. They worked with Yale's Robert Wood Johnson Clinical Scholars Program to analyze the problem. The Scholars' answer was clear. "Doctors can't get patients into specialty care," said Scholar Katherine Goodrich, M.D., FW '10.

"Right now," explained Steven Wolfson, M.D., past president of the New Haven County Medical Association, Project Access board member, and associate clinical professor of medicine (cardiology) at Yale, "seeing uninsured patients happens piecemeal, in private in doctors' offices. But then we get stuck—what do we do when they need a service we can't provide? It's hard enough to do pro bono work without these roadblocks in the way."

Such roadblocks take their toll. Although physicians like Wolfson continue to provide free care to the uninsured, according to a 2006 report by the Center for Studying Health System Change, a nonpartisan policy research organization in Washington, D.C., physicians are donating fewer hours of charity care and fewer physicians are choosing to provide this care than was the case in the 1990s. In 2005, about 68 percent of the physicians surveyed donated time to uninsured patients, down from 76 percent in 1997.

Katrina Clark, M.P.H. '71, director of the Fair Haven Community Health Center, said efforts by physicians on behalf of individual patients are crucial but do not address the global need for an organized and consistent means of providing the uninsured with health care. The barriers that doctors and their patients face are mostly organizational, according to Clark. If a patient does get an "uncompensated care" appointment at YNH, communications between primary care doctors and specialists often falter, resulting in poor continuity of care. And many physicians, said Erica Spatz, M.D., a Robert Wood Johnson Clinical Scholar, don't provide specialty care to the uninsured. "So then it falls to a small group of physicians to attend to those patients, and they get asked again and again, so wait times increase."

"We don't want a little more free care for a few more people a month," Clark said. Instead she and her colleagues are hoping for a systemic change in providing uninsured patients continuity of care and access to all the services they need.

As Peter N. Herbert, M.D. '67, HS '69, senior vice president for medical affairs and chief of staff at YNH, phrases it, "Physicians, we want philanthropy from you in the form of your care, but it won't be such that it will bankrupt you."

Project Access encourages doctors to take on a few patients—usually two or three per month—to ensure that no individual care provider must bear an overwhelming burden. “We look for parity, because no good deed goes unpunished,” said Patrick Curley, Project Access’ executive director.

Patients have responsibilities, too. There is a two-strike policy in place to reduce the number of no-show appointments and wasted resources. “You miss one appointment, that’s fine,” said Curley. “Two strikes, you’re out.”

According to Curley, each patient case will have between eight and 10 “touch points,” or points of contact with the patient navigator. “It is our goal to try to get them their care in a reasonable amount of time,” he said.

These contact points also allow Project Access staff to measure the project’s impact, Ellis said. “How many patients have you seen? What is the quality of care? Are you impacting the number of ER visits? Everyone wants to save money, and there is a lot of interest in using patient navigators to keep people out of the hospital,” he said.

“We want to measure who does what when, every time a doctor saw someone and something was done,” said Curley. “We want to know the value of work that has been done.”

Support for Project Access comes from New Haven’s two hospitals, such donors as the Community Foundation for Greater New Haven, and the medical staffs at both hospitals. HSR has provided office space and computers for an executive director, a consultant who recruits physicians, and two patient navigators—one full- and one part-time—who steer patients to volunteer specialists. Originally referrals came only from the health center in Fair Haven; in its first few months Project Access enrolled 102 patients. “It just seemed natural to start small,” said Ellis. Now the program is accepting referrals from the emergency department at YNHH and the primary care clinic at HSR. YNHH is also providing 3.5 staff positions to support and monitor the program. The hospitals stand to benefit from the program as well. Studies around the country have shown, said Curley, that each dollar spent on the program saves at least \$5 in the emergency department.

For physicians in the emergency room, Project Access fills another need. Ian Schwartz, M.D., HS ’06, medical director of the emergency department at YNHH, said that of the 80,000 adult visits each year, only 20 or 25 percent qualify as true emergencies. Many patients come because they lack insurance or because they can’t get an appointment for urgent

or specialty care through their primary care provider. “We need to make arrangements, whatever their problem is, to get them followed on an outpatient basis so they’re not right back in the emergency department a few days later with another problem,” Schwartz said. “We aspire to deliver the highest quality care to our patients, whether they’re admitted to the hospital or go home. We are a triage center and a diagnosis center, but there’s a next step of really good outpatient care—aggressive care—that’s needed. We spend a large amount of time trying to make sure that there is a reasonable, practical outpatient plan.” Through Project Access, Schwartz said, emergency room physicians can arrange follow-up care that might not otherwise be possible.

Stephanie L. Arlis-Mayor, M.D., director of the outpatient clinic at HSR, said that Project Access ensures that patients are better able to navigate the health care system. “It allows our patients to be seen in the right place by the right person at the right time,” said Arlis-Mayor, who also sits on the Project Access board. “That’s advantageous to any health care system. It decreases the stretch and stress on the resources. There are cost savings overall because patients are being seen in the ambulatory world, where it’s far less expensive to see patients than it is in the emergency or inpatient world.”

“Project Access will not cure all the ills of people,” said Herbert. “But it is an approach to a certain segment of the population that could make a specific difference. That’s why [Project Access] deserves the full support of the hospital and the community, because they represent all that is good about medicine.” **YM**

—Ayelet Amittay is a 2010 graduate of the Yale School of Nursing. Additional reporting by John Curtis.

Is the physician-scientist an endangered species?

Citing the dearth of role models, burden of debt, and long periods of training, a committee looks for ways to encourage medical students to pursue dual careers.

By Colleen Shaddox

Illustrations by Otto Steininger

One of the challenges of interviewing Danny Balkin is that he keeps asking the questions—about the writing process, the state of journalism, and the quality of frozen yogurt purveyors in New Haven. If there is such a thing as a born investigator, Balkin is one. The M.D./P.H.D. student's face widens into a kid-in-a-candy-store smile as he talks about the possibility of harnessing his laboratory's basic research to benefit families whose sons have Lowe syndrome—a rare X-linked genetic disorder that causes mental retardation, kidney disease, and cataracts in boys.

Balkin works in the lab of Pietro De Camilli, M.D., Eugene Higgins Professor of Cell Biology and professor of neurobiology, on research intended to illuminate the mechanisms of Lowe syndrome. That connection to real-life patients is critical for Balkin, as it has been for generations of physician-scientists who tailored their investigations to solve clinical problems. Yet voices in the medical and research communities have warned of a looming shortage of physician-scientists since the 1970s. From 1983 to 1998, according to a 2002 article in *The New England Journal of Medicine*, the percentage of physician-scientists in the United States dropped from 4 percent of the total number of doctors to 2 percent.

Still, much of the evidence surrounding the issue remains anecdotal. Moreover, as Ann C. Bonham, PH.D., chief scientific officer of the Association of American Medical Colleges (AAMC), asks, just what is a physician-scientist? Bonham believes that the definition goes beyond simply physicians with dual degrees. "Having a broad

definition of physician-scientists is very important," she said. "We have come to think about it as physicians who are engaged in some form of science—whether it's basic science, clinical research, health outcomes research, community-based participatory research, or prevention research."

However the group is defined, the importance of the physician-scientist in medicine is more than just academic. This dual role brings an important perspective to research. "The thing that's so irreplaceable about physicians is that they approach research questions differently because they are inspired by their personal experience taking care of patients," explained Andrew I. Schafer, M.D., chair of the department of medicine at Weill Cornell Medical College. In 2009 Schafer edited *The Vanishing Physician-Scientist?*, a collection of essays by academic physicians and physician-scientists from more than a dozen institutions. For the record, the question mark in the title is significant. "I actually think that they are not going to vanish," he said, but shoring up the vocation of physician-scientist will take a lot of work. "We, the community of academic medicine, are going to have to make some major, major changes."

"We're at risk of having two separate worlds that don't interact—the research world and the clinical world," warned Dean Robert J. Alpern, M.D., Ensign Professor of Medicine. The physician-scientist is an effective bridge between those worlds, he said, adding that any drive to increase the numbers of physician-scientists is "going to have to come from schools like Yale."

Barriers to physician-scientists

A Yale committee chaired by Peter S. Aronson, M.D., FW '77, the C.N.H. Long Professor of Medicine and professor of cellular and molecular physiology, spent much of 2010 devising strategies to promote student interest in the physician-scientist career track at Yale. To be sure, the medical school already offers students opportunities in research. Medical students must write a thesis based on original research in order to graduate. Each year the school also admits about a dozen M.D./PH.D. candidates. In 2006 the school began offering a master's degree in health science (M.H.S.) to students who engage in full-time research for at least two years, meet coursework requirements, and complete either a laboratory-based or clinical thesis project. Since then, eligibility for the M.H.S. degree has been extended to participants in the Robert Wood Johnson Clinical Scholars Program, the YCCI/CTSA Scholars Program, and the Department of Surgery Residency Program. Other clinical departments are also seeking approval to enroll interested residents and fellows.

Yet the Aronson committee's final report, issued in September 2010, identified a number of barriers to those wishing to pursue dual careers: extra years spent in training at lower pay; the burden of medical school debt; the underrepresentation of physician-scientists on medical school admissions committees; a dearth of physician-scientists on bedside teaching rounds; and a disproportionate tendency for women—who represent half of M.D. and M.D./PH.D. students—to leave research at all stages of their careers. (Schafer also notes that as young scientists and doctors of both genders strive for “work/life balance,” traditional career paths must be reevaluated.)

The report made a number of recommendations, including tracking the careers of medical school alumni. “There should be systematic collection and analysis of data on careers of Yale graduates with respect to measures of success as physician-scientists (e.g. grants, academic positions, citations),” the document says. “It is also important to compile easily accessible data on student demographics and experiences while at Yale (e.g. time in research, type of research, funding of mentor, advanced degree programs, elective courses, etc.) so that these variables can be correlated with career outcomes.”

At the heart of the report were recommendations for encouraging physician-scientist careers while students are still

at the medical school. Because of Yale's thesis requirement, research is already a part of student life—the Office of Student Research matches students with faculty investigators and helps them find funding for research projects. More than half of Yale medical students opt to spend a fifth year on research—but John N. Forrest Jr., M.D., HS '67, professor of medicine, director of the Office of Student Research, and a member of the Aronson committee, worries that the extra year is becoming a necessity as research time within the four-year curriculum is shrinking. “It's fallen because good things have been put in the curriculum,” he said, noting that summer clerkships are now available to students who might otherwise have spent those months doing research. Over the past 20 years, according to the committee's report, the time available for research over four years has decreased from 11 months to 6 months.

The group's recommendations include calls for more guaranteed time for research throughout the four-year curriculum, loan forgiveness for medical school graduates who meet such career benchmarks as a K08 or K23 award from the NIH, elective courses relevant to basic and clinical research, an enhanced advisory system for students interested in physician-scientist careers, and greater integration of faculty who are physician-scientists into clinical teaching programs.

The report also proposed the creation of “Summer Zero,” a six-week program before medical students begin their first year at Yale. The program, to be called START@Yale (Summer To Advance Research Training at Yale), would come with a stipend and would feature a hands-on research experience. It would also include lectures and discussions of topics in laboratory and clinical research, with an emphasis on the importance of research in advancing patient care. “It is a great concept and means that the students' first exposure at the School of Medicine would be in hands-on research” Forrest said.

Growing the M.D./PH.D. program

The dean's office is still considering the specifics of the committee's recommendations. “If I had an infinite amount of money,” Alpern said, “I'd probably do everything in the report.”

“All of this stuff costs money,” sighed James D. Jamieson, M.D., PH.D., professor of cell biology, director of the M.D./PH.D. program, and a member of Aronson's committee. The committee suggested an expansion of the M.D./PH.D. program, which provides full support for its students. A majority of them go on to faculty positions and obtain research grants.

“The thing that’s so irreplaceable about physicians is that they approach research questions differently because they are inspired by their personal experience taking care of patients.”

Andrew Schafer, M.D., chair of medicine at Weill Cornell Medical College



“We’re at risk of having two separate worlds that don’t interact—the research world and the clinical world.”

Dean Robert Alpern, M.D.,
Ensign Professor of Medicine

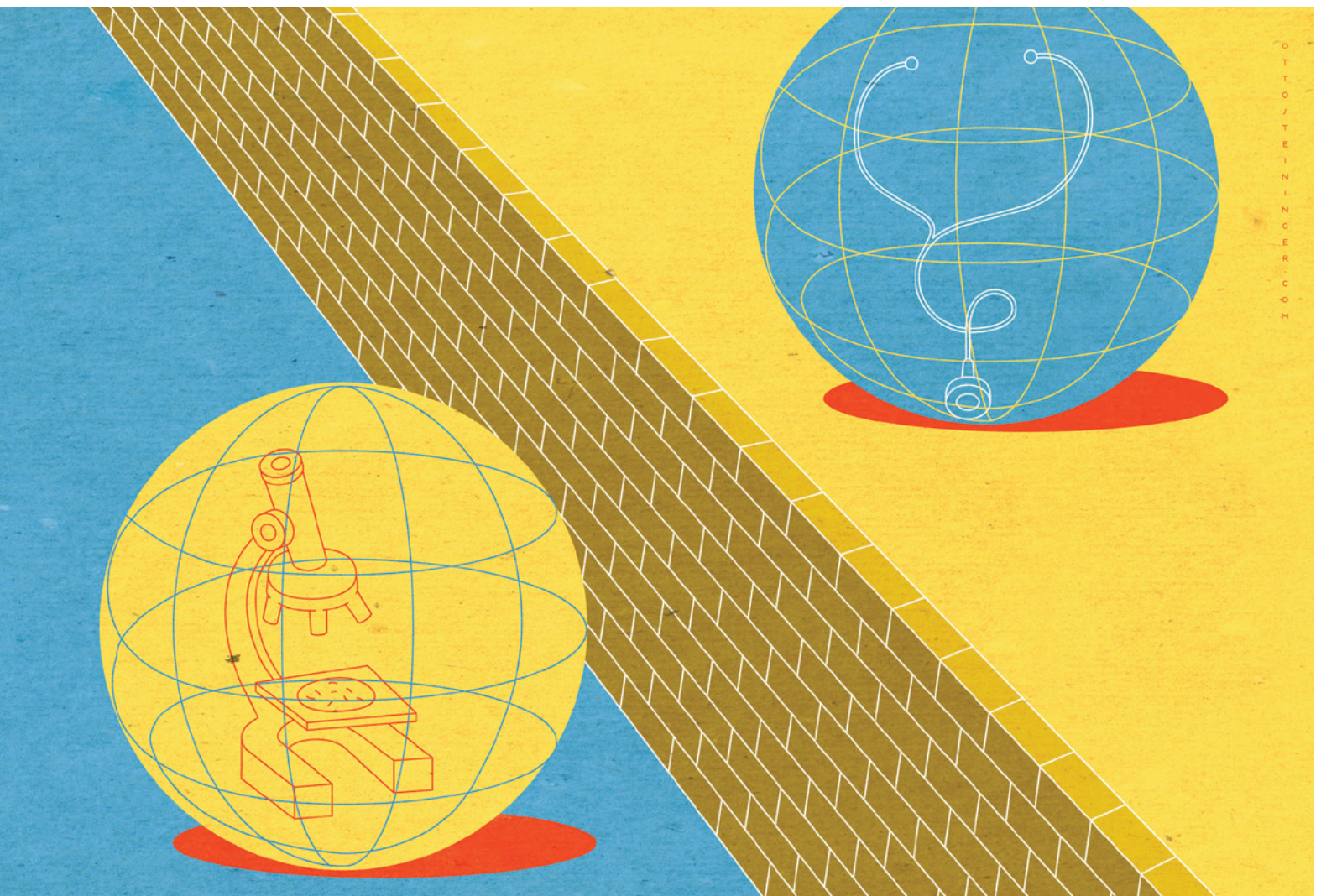
“We are committed to helping the M.D./PH.D. program grow,” said Carolyn W. Slayman, PH.D., Sterling Professor of Genetics, professor of cellular and molecular physiology, and deputy dean for academic and scientific affairs. There’s a consensus among chairs, she said, that it would be ideal to expand the program from about 12 percent to between 15 and 20 percent of each class. “It’s something that Yale does very well,” she said.

Part of that success comes from choosing the right type of student from the start, said Jamieson. “These are people who ask questions and have the best interests of their patients at heart,” he said. He’s a zealous advocate for weighing research experience heavily at admission and for rigorous science throughout the curriculum. “You’re teaching people how to bloody well think—not to memorize facts!” But Jamieson admits that flat government funding is a hurdle for young physician-scientists, and not one that individual medical schools can easily move aside. Without a nationwide investment in research, he predicts that the best and brightest investigators will pursue careers overseas.

The AAMC’s Bonham sees some bright spots on the horizon for up-and-coming physician-scientists. The health care reform bill passed in 2010 created the Patient-Centered

Outcomes Research Institute, charged with setting priorities for comparative effectiveness research. “That kind of research will need physicians and physician-scientists, and there is dedicated funding,” Bonham said, adding that this field of research also creates new collaborative niches outside the traditional bounds of laboratory or clinical research. “There will be opportunities for engaging medical students, fellows, and junior faculty in comparative effectiveness research,” she said. “That necessarily implies teams with health outcomes researchers, clinicians, nurses, social scientists, and implementation scientists.”

Yale does have several programs in place to aid junior faculty in establishing themselves as researchers who’ll be competitive for NIH funding. Getting started, warned one leading researcher, can be daunting. “You need about four or five years of concentrated investigation in your field of interest,” said Robert S. Sherwin, M.D., FW ’74, C.N.H. Long Professor of Medicine and director of the Yale Center for Clinical Investigation (YCCI). YCCI Scholars are early-career scientists in clinical or translational research who receive salary support as well as mentorship and access to resources in such areas as biostatistics and bioinformatics or study coordination and recruitment. YCCI also houses the



Investigative Medicine Program, which supports physicians seeking a PH.D. to pursue patient-oriented research. The School of Medicine has several other named Scholars slots elsewhere that support early-career scientists.

The time it takes to establish a research career is in part a reflection of a rapidly expanding body of knowledge. “Many of the things I learned in medical school are of little value today,” Sherwin said with a smile. “Our knowledge of the biological basis of disease has expanded dramatically and become much more complex than it was when I started.”

Although Aronson considers medical school “the broadest biological training you can have,” the financial implications of getting dual degrees discourage some young people. The PH.D. route offers a faster track to a job in academia than pursuing two degrees, followed by completing a residency and possibly a fellowship, Aronson explained.

But there are great rewards to be had, said Aronson. He takes pride in the accomplishments of his “scientific grandchildren,” the students of his students. And, of course, there are the potential advances in medicine. “My father and most of his family died in their 50s,” said Aronson. “Thanks to the discovery of statins, I have had the chance for a longer life than the previous generation.”

Aronson’s committee came up with a proposal, which they caution is preliminary, to streamline the M.D./PH.D. program and the path to establishing independence as a researcher. The objective is to shorten the time spent in training. Currently, says David A. Hafler, M.D., M.Sc., chair and Gilbert H. Glaser Professor of Neurology, scientists starting out often write their first R01 and establish their laboratories quite late in their careers. Hafler suggested a novel program that combines the M.D./PH.D. and residency into one program. Students would apply for admission to the M.D./PH.D. program in their third year, be interviewed to stay at Yale for their residency, and begin graduate coursework in their fourth and fifth years. The existing option—in which students apply to the program when entering medical school—would still be available. Students on the new track would do a two-year clinical residency and specialty fellowship followed by three more years of intensive research. The proposal saves about three years compared with the more traditional path.

Exposing students to research

Complexity and time pressures keep many physician-scientists off the wards—the place they are most likely to inspire medical students, said Alpern. To be competitive

for NIH grants requires the average academic physician to spend a majority of his or her time on research. Some maintain clinical skills by becoming “very subspecialized,” he said. But most will have little contact with students. “The role model for the students is the clinician,” he said.

Not all four faculty tracks at the medical school lend themselves equally to contact with students. Most physician-scientists enter the Traditional track, a path to tenure in which faculty spend most of their time in research, with some time devoted to teaching. The Clinician-Scholar track was added in the 1980s to allow faculty to spend more time in practice without impeding their advancement. The Investigator track is designed for faculty who spend most of their time in research.

Students are most likely to be supervised in their third and fourth years by Clinician-Educators, a role created in the 1990s as the school sought to expand and develop more areas of excellence within its clinical practice. Yale was more willing to support the medical school’s expansion with Clinician-Educators, who are not eligible for tenure and would not lock the university into the kind of long-term financial commitment associated with employing tenured faculty, Slayman explained. She cautioned, however, against a simplistic understanding of the tracks. Many Clinician-Educators, who have grown in number from 135 in 2001 to 278 today, are not only great clinicians but also boast impressive research achievements. Nevertheless, she said, medical students spend more time on the wards with people who think of themselves primarily as clinicians.

To get more physician-scientists on the wards, some medical schools use a system of co-attendings. Physician-scientists and clinicians form a partnership that offers students a taste of the investigatory approach while a clinically current doctor is involved with every patient, said Aronson. “Many of us do teach medical students,” said Aronson, a role he said he enjoys. But with the decrease in residents’ work hours, the role of the attending has become more critical. “It makes it more difficult to do part time and do efficiently,” he said.

To give students more exposure to physician-scientists, the Department of Pediatrics offers a “Bedside to Bench” elective seminar that pairs students with a physician-scientist mentor. The student and mentor select a pediatric patient as a focus—the student makes a presentation on that patient to the group and reviews what’s known about his or her disease. Then the heart of the students’ work

begins—figuring out the most important unanswered questions about the biological basis of the disease and outlining a program of research that would provide answers.

“We encourage them to think creatively,” said Clifford W. Bogue, M.D., FW ’93, interim chair of pediatrics and one of the seminar directors. The seminar presents “an opportunity to expose them to what it means to be a physician-scientist.” Originally for M.D./PH.D. students only, the seminar is now open to all first-year medical students and typically draws 50 to 60 a year, he said. Part of the attraction may be a taste of clinical contact in the first year. “They’re dying for some sort of clinical relevance,” said Bogue.

The bulk of clinical time typically comes in the latter half of medical school. Clinical practice is “the last thing they are seeing,” said Balkin, the M.D./PH.D. student, who reflected that timing alone could contribute to a choice to pursue clinical practice over investigation.

Balkin is a regular at the Leadership in Biomedicine Lecture Series sponsored by the Office of Student Research. Top investigators talk not only about their research but also about the paths that led them to it. Balkin recalled Richard P. Lifton, M.D., PH.D., chair and Sterling Professor of Genetics, telling about a reviewer who deemed “impossible” a study that Lifton had proposed in 1988 as a resident in Boston. That only made the young investigator absolutely determined to soldier on. The proposal outlined what would become Lifton’s landmark research in hypertension. Balkin said those talks help him see what’s possible and spur him on his path.

“We need to make the students aware of what an exciting lifestyle it is to be a physician-scientist,” said Alpern. “To have the NIH give you a million dollars a year to play in your lab is really fun.”

Being committed to the career path is half the battle, according to Schafer. He throws in a trick question when interviewing potential fellows, asking them what they’d do if they absolutely could not get funding for their research. About 90 percent reply that they’d devote themselves to clinical practice. A select few say the idea of not combining medicine with basic science is “inconceivable.” Those applicants get the job.

Balkin feels much the same. “The problems are the problems,” he said. “But if you want to do research, you will find a way to make it work.” **YM**

Colleen Shaddox is a writer in Hamden, Conn.

**“You’re teaching
people how to bloody
well think—not
to memorize facts!”**

James Jamieson, M.D., PH.D.,
professor of cell biology, director of the
M.D./PH.D. program, and a member
of Aronson’s committee





Thomas Steitz

Nobel laureate named to Royal Society

THOMAS STEITZ, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, and a winner of the Nobel Prize for Chemistry in 2009, was one of 52 scientists named in May as fellows or foreign members of the Royal Society, the United Kingdom's national academy of science. Steitz, a Howard Hughes Medical Institute investigator, was one of eight foreign scientists to be honored by the society, which has counted Isaac Newton and Charles Darwin among its members. Steitz was selected "for his pioneering contributions to the mechanisms involved in the processes of gene replication, transcription, control, and translation that are fundamental to all life."

Steitz, colleague Peter Moore, PH.D., Sterling Professor of Chemistry and professor of molecular biophysics and biochemistry, and others at Yale were instrumental in discovering the structure of the ribosome, the cell's protein-making factory necessary for life. The work has led to creation of a new generation of antibiotics now in clinical trials. Scientists in England and Israel shared in the Nobel Prize for their research on the ribosome.

Founded in 1660, the Royal Society has three roles: as a provider of independent scientific advice, as a learned society and as a funding agency. Its membership includes renowned scientists from the United Kingdom and beyond.



Alanna Schepartz

Grant awarded for study of artificial enzymes

Two Yale researchers, **ALANNA SCHEPARTZ, PH.D.**, the Milton Harris '29 PH.D. Professor of Chemistry and professor of molecular, cellular and developmental biology, and **SCOTT J. MILLER, PH.D.**, department chair and the Irénée du Pont Professor of Chemistry, have received a \$1 million grant from the W.M. Keck Foundation to support a three-year study to create artificial enzymes using beta-peptide bundles. These miniature synthetic proteins were discovered in the Schepartz laboratory in 2007. The enzyme project has far-reaching implications in the field of synthetic chemistry as well as in biomimetics and synthetic biology.

The construction of an artificial enzyme has long been considered a "Holy Grail" of modern chemistry. Natural enzymes are known to accelerate chemical reactions dramatically. If this behavior can be mimicked to drive desirable reactions in research or industry, scientists will have unprecedented control over the creation of new and useful materials. Some researchers believe that artificial enzymes could be used to target specific cellular functions or applications and could work with greater efficiency than their natural counterparts.

Schepartz and Miller are focusing on beta-peptide bundles in part because of their novelty; these tiny protein-like structures offer unique advantages for catalyst development. In addition, beta-peptide bundles are stable, relatively predictable in their behavior, and well suited to systematic study in the laboratory.



Scott Miller



Michael Higley



David Spiegel

Four Yale scientists, including two in biomedical sciences, were among 118 named in February as 2011 Sloan Research Fellows by the Alfred P. Sloan Foundation. The two-year fellowships are awarded annually to researchers in science, mathematics, computer science, and economics from the United States and Canada, and include \$50,000 in research funding. The Fellows in the biomedical sciences are:

Michael J. Higley, M.D., PH.D., assistant professor of neurobiology, and **David A. Spiegel, M.D. '04, PH.D. '04**, assistant professor of chemistry. Higley's lab seeks to understand how synaptic connections among brain cells support the processing, storage, and retrieval of information in healthy individuals and how these connections are disrupted during the cognitive decline associated with neuropsychiatric disease. Spiegel's lab develops novel chemical strategies for modifying the human immune system that can be used to treat such diseases as cancer, HIV infection, and diabetes.

Sidney J. Blatt, PH.D., professor of psychiatry and of psychology, announced his retirement effective June 30. Blatt has been the longstanding chief of the Section of Psychology in Psychiatry; under his leadership, the predoctoral training programs in psychology at the Connecticut Mental Health Center



Sidney Blatt



Hilary Blumberg

and Yale-New Haven Hospital ranked among the top programs in the country. Since his arrival at Yale in 1960, Blatt distinguished himself with his rigorous approaches to the study of the psychoanalytic dimensions of psychological processes, particularly depression and its treatment. He has received numerous honors, including the Sigmund Freud Professorship at Hebrew University of Jerusalem; the Mary S. Sigourney Award of the Sigourney Trust; seven visiting professorships; and distinguished research awards from two divisions of the American Psychological Association.

Hilary P. Blumberg, M.D., associate professor of psychiatry and director of the Mood Disorders Research Program at Yale, was awarded a \$3.7 million grant from the National Institute of Mental Health in March to expand her research on bipolar disorder. Blumberg's lab will use brain imaging and genetic tests to study bipolar disorder in adolescents and adults. Researchers plan to track changes in brain circuitry as the disorder progresses from adolescence to adulthood and to identify genes related to this progression. The goals of the research are to find new ways to intervene early in the disease process and to develop new therapies based on the age and genetic profiles of individual patients.

Marie E. Egan, M.D., associate professor of pediatrics (respiratory), has received a 2010 Hartwell Individual Biomedical Research Award for research on cystic fibrosis. The award provides research support for three years at \$100,000 direct cost per year, as well as



Marie Egan



Jorge Galán



Jo Handelsman



Rajita Sinha

William
Tamborlane

Mary Tinetti

videoconferencing equipment to enable periodic communications with the Hartwell Foundation. Located in Memphis, Tenn, the foundation funds innovative biomedical applied research with potential benefits for children.

Jorge E. Galán, D.V.M., PH.D., the Lucille P. Markey Professor of Microbial Pathogenesis, professor of cell biology and chair of the Section of Microbial Pathogenesis, received in February the 2011 Robert Koch Award, one of the most prestigious honors in the field of microbiology. Galán was honored for his work in describing how such foodborne pathogens as *Salmonella* and *Campylobacter* cause so much damage. The award, given by the Robert Koch Foundation in Berlin, Germany, carries a prize of 100,000 euros and honors the work of the German physician who sought a cure for tuberculosis in the 1880s.

Jo Handelsman, PH.D., was named the Frederick Phineas Rose Professor of Molecular, Cellular and Developmental Biology this spring. Handelsman, who is also a Howard Hughes Medical Institute investigator, is noted for her research on diversity in microbial communities and their role in infectious disease, as well as for her efforts to improve science education and increase the

participation of women and minorities in science at the university level. Her term as Frederick Phineas Rose Professor runs through June 30, 2015. In January she was one of 11 individuals selected by President Barack Obama to receive the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring. Handelsman co-founded the Women in Science & Engineering Leadership Institute at the University of Wisconsin-Madison, was appointed the first president of the Rosalind Franklin Society, and served on the National Academies' panel that wrote the 2007 report *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering*.

Abeel A. Mangi, M.D., was appointed surgical director in March of the Center for Advanced Heart Failure, Mechanical Circulatory Support and Heart Transplantation at Yale-New Haven Hospital. Mangi is an associate professor of surgery at the School of Medicine. He specializes in complex and re-operative cardiac surgery; heart, heart-lung and lung transplantation; ventricular assist devices; total artificial hearts; extracorporeal membrane oxygenation; operations for heart failure and aortic or mitral valve repair and replacement; off-pump coronary bypass grafting; septal myectomy; surgical treatment of left ventricular outflow tract obstruction; treatment of chronic pulmonary emboli; and ascending aorta and aortic arch replacement.

Jennifer Prah Ruger, PH.D., associate professor of health policy at the School of Public Health, is a recipient of a

2011 Guggenheim Fellowship. The award will support the completion of her forthcoming book, *Global Health Justice and Governance*, to be published by Oxford University Press. Ruger specializes in global and domestic public health and health policy, with a focus on the intersections of ethics, economics, and politics in health and health care.

Rajita Sinha, PH.D., professor of psychiatry, succeeded Sidney Blatt as chief of the Section of Psychology in July. Sinha is internationally known for her work on the psychobiology of stress and its effects on addictive behaviors. She directs two large NIH-supported research centers, the Office of Research on Women's Health and the National Institute on Drug Abuse Specialized Center of Research on sex/gender issues and addiction, as well as the Yale Stress Center. In her capacity as chief, Sinha will work with the psychology faculty to build on the strengths of the psychology section with regard to professional development, clinical care, research, and education.

William V. Tamborlane, M.D., FW '77, professor of pediatrics (endocrinology), received the T2-Translation Award by the Society for Clinical and Translational Science. This award recognizes the

translation of research from early clinical use to applicability in clinical practice. The award was bestowed on April 28 at the national joint meeting of the Association for Clinical Research Training/Society for Clinical and Translational Science/American Federation for Medical Research meeting in association with the Association for Patient-Oriented Research. Tamborlane was recognized for his work, which has provided new delivery methods for the physiologic replacement of insulin while preventing many of the catastrophic long-term complications of childhood diabetes.

Mary E. Tinetti, M.D., director of the Yale Program on Aging and the Gladys Phillips Crofoot Professor of Medicine (Geriatrics), professor of epidemiology (chronic diseases), and of investigative medicine, in the Section of Geriatrics, has been awarded the Edward Henderson Award from the American Geriatrics Society. Tinetti was the first investigator to show that older adults at risk for falling and injury can 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. Tinetti was also the 2010 recipient of the Maxwell A. Pollack Award for Productive Aging from the Gerontological Society of America.

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On selfishness in the service of others

“You have to own your good works,” speaker tells Class of 2011 during May Commencement ceremonies.

Mother Nature provided the rain, but the proud teachers, family members, and friends supplied the lightning—in the form of camera flashes—during Commencement ceremonies on May 23.

The bicentennial class of 81 graduates marched down Cedar Street to Amistad Park as the cheers of loved

ones and the skirl of bagpipes led them to the shelter of a tent that they entered as students and left as doctors.

In his Commencement address, Frank J. Bia, M.D., M.P.H., FW '79, professor emeritus of medicine and medical director since 2008 of the disaster relief organization AmeriCares, discussed the virtue of selfishness in medical service. “You cannot share what you don’t even have yourself,” he said to the Class of 2011, the last group of students he taught in the classroom and at the bedside.

The altruistic model of medicine as a social contract that subsumes a doctor’s needs to those of her patients is flawed and irrational, Bia said. In his 40 years as a doctor, Bia learned that good work and service come from a selfish place—a place where “selfishness becomes a virtue when your own happiness is tied to service. What matters is that you own your own motives completely,” said Bia. “If good works are done solely at the request, or even the mandate, of others, you will not be happy—not as happy as you deserve to be.”

In 1982, Bia and his wife, Margaret J. Bia, M.D., FW '78, professor of medicine, spent some time at Hôpital Albert Schweitzer Haiti shortly after both of his parents had passed away. When he spoke of his experiences at grand rounds on his return, he grew increasingly frustrated by colleagues who remarked that he had done such good and selfless work in Haiti.

“I needed Haiti a helluva lot more than Haiti needed me,” said Bia. “I found myself making a difference—one patient at a time—and that made me happy.” The concentrated clinical work in the Haitian countryside, Bia said, both healed his grief and renewed his understanding of medicine’s social contract.

“You deserve to be the beneficiary of your own moral actions,” Bia concluded.

The graduating class wrote an oath for Yale physicians that echoed Bia’s sentiment. “I know that I cannot effectively care for patients without

also caring for myself,” the students read. Following Yale tradition, the oath is based on the Hippocratic Oath and other classical statements.

Bia’s remarks were preceded by the presentation of a class gift to the American Red Cross for disaster relief efforts in the southern United States and in Japan.

The Bohmfalk Prizes for outstanding teaching went to John Fenn, M.D., clinical professor of surgery (vascular), in the clinical sciences, and to Peter Marks, Ph.D., M.D., associate professor of medicine (hematology), in the basic sciences.

The Leonard Tow Humanism in Medicine Award was bestowed on W. Scott Long, M.D., associate clinical professor of medicine.

The Leah M. Lowenstein Award, presented by the Office for Women in Medicine to a member or members of the faculty who represent the highest degree of excellence in the promotion of humane and egalitarian medical education, went to Marcella Nunez-Smith, M.D., M.H.S., assistant professor of medicine.

The Francis Gilman Blake Award was given to Andrea G. Asnes, M.D., assistant professor of pediatrics.

The Betsy Winters House Staff Award went to Anup Patel, M.D. '09.

The Alvan R. Feinstein Award was given to Richard J. Gusberg, M.D., professor of surgery (vascular) and of diagnostic radiology.

—Stephanie Soucheray



JOHN CURTIS (2)

TOP Frank Bia, medical director of AmeriCares and a former member of the Yale faculty, delivered the Commencement address this year.

ABOVE Students Lionel McIntosh and Westin Amberge waited at Cross Campus for the graduation procession to begin.

“One of our own” returns to Yale as Farr lecturer on Student Research Day

George Lister, M.D. '73, HS '75, spent more than 20 years on the Yale faculty as a professor of pediatrics and anesthesiology and founder and chief of the Section of Critical Care and Applied Physiology (now the Section of Critical Care Medicine). He left Yale in 2003 for the University of Texas Southwestern Medical School, where he holds the Robert L. Moore Chair and is the chair of Pediatrics and pediatrician-in-chief at Children's Medical Center of Dallas.

Lister returned to Yale on May 9 to deliver the 24th annual Farr Lecture on Student Research Day. His talk was titled “Sowing Seeds for a Career in Medicine: Reflections, Projections.”

“We bring back one of our own,” said Dean Robert J. Alpern, M.D., Ensign Professor of Medicine, in his introduction of Lister. Alpern had lured Lister away from Yale when he was dean of the medical school in Dallas.

In his talk, Lister recalled the things of value he had found at Yale as a medical student. “I found faculty who were accessible and invested in students,” he said. “I found faculty who valued curious and industrious learners. I found faculty who were helping students focus on figuring things out. And I was amazed by the talents of my classmates.”

After describing his part in a national effort to determine the causes of sudden infant death syndrome and find a way to prevent it, Lister concluded by offering some of the lessons he had “learned along the way—regrettably, some more than once.”



TERRY DEGRADI (3)

“Surround yourself with people who are smarter than you are, then look over your shoulder.”

“What afflicts the patient and what challenges the physician create an excitement for the doctor-patient relationship. That intersection creates a bond for the doctor-patient relationship.”

“The opportunity to learn from the patient ... is really the beginning of being a physician. ... Every patient interaction presents an opportunity to learn.”

“Take mastery of your education. No one else will. Instead of asking residents or attendings what to do, consider a problem; propose an approach or rationale; request affirmation.”

“Do not ignore an observation just because it disagrees with the explanation. What does not fit often provides a novel insight into a patient's problem.”

“In medicine, not doing something erroneous is a lot smarter than doing something clever.”

“Don't promise the patient or family what you can't deliver. The only things you can promise are your presence and attention.”

Sixty-four students, including nine in the M.D./PH.D. program, presented posters at the event in The Anlyan Center. Six students—Isaac Benowitz, Noah Capurso, Tyler Durazzo, Jamie Harrington, Alexandra Miller, and Keri Oxley—made oral presentations.

—John Curtis



TOP Faculty posed with the five oral presenters at this year's Student Research Day. Front row: keynote speaker George Lister, Alexandra Miller, Isaac Benowitz, and Jamie Harrington; back row, John Forrest, director of student research, Tyler Durazzo, Keri Oxley, Noah Capurso, and Dean Robert Alpern.

MIDDLE Anna Engberg discussed her research, on a novel dendritic cell therapy for solid tumors, with medical students Leonard Edokpolo and Oge Eze.

ABOVE Eyiymisi Damisah studied the neurochemistry of spontaneous recurrent seizures.

Alumnus brings social perspective to post

New York State's new health commissioner will apply lessons learned in public health.

When Nirav R. Shah, M.D. '98, M.P.H. '98, HS '01, was a medical student, he found a research paper that proved to be such a useful study tool that he left a photocopy at the library's front desk with a note urging his classmates to use the paper.

Yale's teaching philosophy, with its emphasis on collaboration rather than competition, "was extremely useful for learning," said Shah, who is now applying the same principles to his new job as New York State Commissioner of Health. "It's fundamental in public service," he said. "You all have a common goal, and you have to figure out how to advance your shared agenda, so working together as a group is key."

Shah, the youngest person as well as the first Indian-American to be named to the post, became commissioner in January 2011. Before that, he had been an attending physician at Bellevue Hospital Center in Manhattan, associate investigator at the Geisinger Center for Health Research in central Pennsylvania, and assistant professor at the New York University School of Medicine in Manhattan.

Shah's medical career got off to an inauspicious start during his first week at Yale when he met Ralph I. Horwitz, M.D., FW '77, chair of the Department of Internal Medicine, with whom he hoped to collaborate on research related to work he had done as a Harvard undergrad.



MIKE WREN, NEW YORK STATE HEALTH DEPARTMENT

Shah was so nervous that he spilled Horwitz's coffee on his desk.

Despite that ill-fated introduction, Shah and Horwitz had "a phenomenal working relationship"—one that presaged Shah's interest in public health and led to his staying at Yale for his residency in internal medicine. Shah's research, which explored better methods for answering clinical questions as well as the comparative merits of randomized controlled trials and observational studies, was published in *The New England Journal of Medicine* in June 2000. "Everyone thought observational studies are fatally flawed, but we showed that in fact you can get great answers," Shah said.

Shah's interest in bringing a population health perspective to interactions with patients took root while he was at Yale. He offered this example: "You know that tobacco is the number-one killer—but your patient who is a smoker has three or four complaints he wants you to address, and tobacco probably isn't one of them. What do you do?"

Shah is grateful that Yale allowed him to spend his fourth year earning a public health degree. "Gaining a population and public health perspective helped flavor the type of doctor I became and the kind of questions I ask."

Shah's other area of interest is caring for the medically underserved—a

highly germane field of expertise in a state where nearly one in every five residents receives Medicaid assistance. "At Bellevue it was the urban immigrant poor," he said. "At Geisinger, where I spent nearly half my time, it was rural underserved elderly patients."

Those experiences helped prepare Shah for the challenges he faces in his new job. As New York's top health official, his mission is to rein in a Medicaid bill that amounts to one-third of the state budget, or about \$1 billion a week. "We're taking an all-hands-on-deck approach," he said. "It's going to be a transparent process that engages all aspects of the health care system."

Shah again credits his Yale education with giving him the tools he needs. While at Yale, he organized a conference against gun violence. "We had community, clergy, police, gang members, and affected family members all around a table together," he said. While the conference was a success, Shah's subsequent plan, a gun turn-in program, failed for administrative reasons. "Understanding the various stakeholders' perspectives and all of the lessons I learned through that experience factor into what I need to know as a state health professional," he said.

Shah, his wife, Nidhi, and their two young children recently moved from Manhattan to Albany for his job. "One

Nirav Shah became the health commissioner for the state of New York in January. His wife, Nidhi, attended the ceremony with their two children.

reason I was able to do this is because of the phenomenal support I've received. My wife changed her life in support of this shared vision."

Only two months into his new job, he and Governor Andrew Cuomo began to tackle Medicaid. Cuomo got the hospitals and unions—two historic adversaries—to agree to work together for improved health care at a reduced cost. Meanwhile, Shah traveled the state listening to people and gathering more than 4,000 ideas on how to achieve this goal. "We heard from a woman who asked why she left the hospital in an ambulance, which cost \$400, rather than a taxi, which would have cost less than \$40," Shah said.

The list of suggestions was boiled down to 79 and submitted to the legislature for approval. This reform agenda was approved by the legislature in the spring, and Shah said that, if enacted, the suggestions could reduce the state's Medicaid budget by \$2.3 billion in the first year alone.

Shah knows the goal is ambitious, especially for somebody who is still learning the bureaucratic intricacies of Albany, but he said he's ready for the challenge. "What can I say? I'm an optimist."

—Jennifer Kaylin

In retirement, a urologist finds a new career bringing health care to rural Kenya

Three years ago, Ralph F. Stroup, M.D., HS '73, a retired urologist, stepped out of his comfort zone and into the village of Chumvi, Kenya, home to nomadic Maasai pastoralists. Accustomed to providing state-of-the-art medical care, Stroup was struck by the reality of the primitive health care conditions he encountered. Here in Kenya's Central Highlands, women were giving birth in huts without running water or electricity while herds of cattle and goats roamed outside. The situation tugged at Stroup's heartstrings. The result is Kenyan Health Care Initiatives (KHCI), a humanitarian effort affiliated with the nonprofit organization International Consultants and Associates. Stroup has been raising funds to improve health care in two rural towns in this East African country.

Stroup did not foresee during his first visit to Kenya in 2008 that he would soon be deeply involved in creating educational programs, raising awareness, and soliciting funds to support basic health care infrastructure and clean water acquisition in the Central Highlands of Kenya. At the time, Stroup had traveled to Nanyuki, Kenya—a town of about 31,000 three and a half hours north of Nairobi—to help facilitate a workshop for health care workers on techniques for community mobilization against HIV/AIDS. Then came an invitation from his hosts to visit the Laikipia District north of Mount Kenya, home to thousands of Maasai who follow the water as they graze their cattle and goats.

Water has been increasingly hard to obtain due to several years of severe drought, and the Maasai are just beginning to recover from the loss of nearly 70 percent of their herds—their main source of income and food.

During Stroup's first visit to the Laikipia District, he traveled more than two bone-jarring hours by safari van along cattle paths to reach Chumvi, where a small health care clinic provides primary care to 8,000 people. The clinic, staffed by a full-time nurse, faced closure due to lack of funding, and Stroup promised to find funds in the United States. "I am a firm believer in finding ways to connect people with people, and resources with people, so that we can greatly enhance the accessibility of good-level primary health care in these remote areas," said Stroup. Stroup came through, and he now provides about \$5,000 of support to the clinic each year through KHCI.

The Chumvi clinic opened a new two-bed maternity unit in July. Stroup's efforts also support another clinic in nearby Lokusero that serves about 9,000 Maasai. The clinic was an unfinished shell when Stroup first visited in August 2008; however, his initiative has raised money for construction, including two outhouses and nurses' quarters, as well as the purchase of furniture and medical equipment.

Stroup works on a shoestring budget and does all of his own fundraising. He spreads the word about his efforts to church groups, local medical societies, and Rotary Clubs in southern Connecticut. Although all the donations are relatively small, Stroup brings in about \$15,000 to \$20,000

Ralph Stroup, a retired urologist, has launched a program to bring medical care to rural Kenya.



JOHN CURTIS

per year for the projects in Nanyuki and Lokusero. Stroup's motivation is simple: "Immersion experiences like this have been life-changing for me. I now have a group of friends who have irrevocably changed who I am as a person," he said.

For a man who is retired, Stroup finds plenty to keep him busy aside from helping out his Maasai friends. Although Stroup spent his career in a private urology practice with four other physicians in New Haven, he has always had a clinical faculty appointment at Yale. Stroup is an assistant clinical professor in surgery (urology) at the School of Medicine and works part time as the attending in charge of the urology residents' clinic. Stroup also makes time for more leisurely pursuits, including gardening, travel, photography, and volunteer work. He also enjoys visiting his grandchildren with his wife, Mary Ann, who served as the charge nurse when an ambulatory surgery center first opened at Yale-New Haven Hospital in the 1980s, and who now works part time as a school nurse.

Stroup said the most agonizing issue troubling the people of Lokusero is a lack of running water, even though the government installed a well in 2009. The well pump runs on diesel fuel, which the community can't afford. At the top of Stroup's priority list is obtaining funds for a solar-powered well pump. He has raised half the \$20,000 for the pump and is determined to raise the rest of the money by the end of the year. "The Maasai of Laikipia District have experienced great hardship during the past two years," he said, "and clearly their needs for the basics of life—clean water, adequate food, access to health care, and health care education—are an ongoing issue."

—Kara A. Nyberg

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, 1 Church Street, Suite 300, New Haven, CT 06510.

Madeline S. Crivello, M.D. '77, died on February 19, in Naples, Fla., after a lengthy fight with cancer. She was 58. After a residency and fellowships in diagnostic radiology, Crivello spent several years in private practice at Framingham Hospital in Massachusetts, followed by many years in practice as director of women's imaging and active involvement in the radiology residency program at Mount Auburn Hospital in Cambridge, Mass. She was diagnosed in her 40s with aggressive breast cancer and underwent extensive therapy at Dana-Farber Cancer Institute. She went on to develop one of the first women's imaging centers in New England, where she found great fulfillment as a leading advocate for women's health in the Boston area. Although a lifelong non-smoker, she was diagnosed with primary lung cancer in 2008.

William H. Prusoff, PH.D., a member of the School of Medicine faculty for 57 years, died on April 3. He was 90 and lived in Branford, Conn. Prusoff was born in 1920 in Brooklyn, N.Y., the son of a grocer. In the late 1930s the family moved to Miami, where Prusoff majored in chemistry at the University of Miami. His poor eyesight kept him out of the Armed Forces during World War II, but he spent the war as a munitions inspector in Memphis and a water-quality tester for troops stationed in Miami.

After the war and unsuccessful attempts to enter medical school (including Yale), he obtained a PH.D. in chemistry at Columbia University and then joined Arnold Welch, PH.D., at Western Reserve University (now Case Western Reserve). When Welch came to Yale to head the pharmacology department in 1953, Prusoff came with him. Prusoff soon synthesized 5-iododeoxyuridine, one of the first nucleoside analogues, which was shown to have antiviral activity. The first clinically useful antiviral drug, it found widespread use as a preventive of herpes

virus keratitis in infants. Prior to the synthesis of this compound, researchers had thought the development of effective nontoxic antiviral agents was impossible. Prusoff has been called the father of antiviral chemotherapy for this seminal work.

But his major contribution was still to come. As the AIDS epidemic was raging in the 1980s, Prusoff and his late Yale colleague Tai-Shun Lin, PH.D., showed that an unsuccessful cancer compound known as stavudine or d4T was active against human immunodeficiency virus (HIV). After securing the patent for d4T, Yale licensed it to Bristol-Myers Squibb, which sold it under the trade name Zerit in 1994. Zerit soon became a component of the first combination drug therapy for HIV.

The William H. Prusoff Foundation supported numerous programs under his direction, including the Yale Initiative for the Interdisciplinary Study of Antisemitism. Prusoff also endowed lectureships in virology and pharmacology at Yale, funded scientific prizes, and supported the research of individuals and laboratories at Yale. When Doctors Without Borders and Yale students called on the university and Bristol-Myers Squibb to make Zerit available at low cost in impoverished areas of the world, Prusoff actively joined in the campaign. The company acceded in March 2001.

David Seligson, M.D., SC.D., professor emeritus of laboratory medicine, died at home in Branford, Conn., on March 3. He was 94. Born in Philadelphia, Seligson was the founding chair and chief of the Department of Laboratory Medicine at the School of Medicine and at Yale-New Haven Hospital. The discipline of clinical chemistry and the broader field of laboratory medicine as they are practiced today are the results of his vision and creativity. Recruited from the University of Pennsylvania to Yale and Grace-New Haven Hospital as the first director of the hospital's clinical

laboratories in 1958, Seligson established the infrastructure of the Department of Laboratory Medicine, creating divisions of clinical chemistry, microbiology, transfusion medicine (blood banking), and hematology.

Recognizing the growing need for clinical laboratory data in the modern practice of medicine, Seligson pioneered the use of automation. One of the first applications of a digital computer in the clinical laboratory was made in Seligson's department at Yale, and shortly thereafter data were transmitted directly from the laboratory computer to data stations on the patient wards. Seligson was also among the first to highlight the clinical importance of test specificity and accuracy, as compared to simple reproducibility. He retired in 1988.

We have also received word of the passing of the following alumni:

J. Alfred Berend, M.D. '56, died on January 18 of heart failure in San Diego, Calif. He was 79. Berend had been an internist at the Scripps Clinic in La Jolla, Calif., for 31 years.

Colin M. Bloor, M.D. '60, HS '62, FW '64, distinguished professor emeritus of pathology at UC San Diego School of Medicine, died on September 9, 2010, in San Diego Hospice from complications of a stroke. He was 77.

Benjamin Bursten, M.D. '58, HS '62, died on December 4 in Oak Ridge, Tenn. A specialist in forensic psychiatry, he was 83.

Linus W. Cave, M.D. '46, died on September 4, 2010, in Dover, N.J. He was 87.

Robert Evans, M.D., a clinical professor and psychoanalyst at the Child Study Center, died on May 13, 2010, in North Branford, Conn. He was 95.

Michael A. Gilchrist, M.D. '69, died on October 31, 2010, in Chelmsford, Mass. A pediatrician, he was 66.

Barbara (Wilmer) Gibson, M.D. '55, died on January 17 in Burlington, Vt. She was 80.

Val S. Greenfield, M.D. '56, a retired ophthalmologist, died on March 16 in Voorhees, N.J. He was 78.

Marshall R. Holley, M.D., HS '69, former associate clinical professor of obstetrics/gynecology at Yale, died of cancer in New Haven on December 5. He was 75.

Harold March, M.D. '50, died on January 23. He was 92.

Elmer T. Mitchell Jr., M.D. '56, a specialist in plastic surgery, died on December 27 in Port St. Lucie, Fla. He was 80.

Adrian M. Ostfeld, M.D., former chair and longtime faculty member in the Department of Epidemiology and Public Health, died on January 28 in Hamden, Conn. He was 84.

Joel M. Rapoport, M.D., professor of medicine (hematology) and pediatrics at Yale and a pioneer in the treatment of patients with bone marrow failure, died on January 16 at his home in Woodbridge, Conn. He was 71.

Sara S. Sparrow, PH.D., professor emerita of psychology and chief psychologist in the Child Study Center from 1977 to 2002, died in New Haven on June 10, 2010. She was 77.

Carter Stilson, M.D. '42, HS '46, died on January 7 in New Haven. He was 94.

Walter P. Sy, M.D., HS '56, an anesthesiologist, died on February 17 in Westmoreland, N.H. He was 74.

Irving N. Wolfson, M.D. '43, a retired cardiologist, died at his home in Worcester, Mass., on July 8, 2010. He was 90.

SEND OBITUARY NOTICES TO Claire M. Bessinger, *Yale Medicine*, 1 Church Street, Suite 300, New Haven, CT 06510, or via e-mail to claire.bessinger@yale.edu

Many of the speakers at the Bicentennial Symposium joined President Richard Levin, Dean Robert Alpern, and other medical school faculty for a dinner on April 28. Front row, from left: Levin, Charles Sawyers, Joseph Goldstein, David Baltimore, Eric Kandel, Elizabeth Blackburn, Elaine Fuchs, Robert Lefkowitz, and Alpern. Back row, from left: Peter Kim, Phillip Sharp, Harold Varmus, Michael Brown, and Michael Marmot. Speakers Robert Califf, Susan Lindquist, and Huda Zoghbi were unable to attend the dinner.



Biomedicine in the New Century

In the signature event held on April 28 and 29 to celebrate the School of Medicine's 200th year, 15 world-renowned scientists, clinicians, and scholars—including seven Nobel laureates—gathered to give lectures on “Biomedicine in the New Century.”

“This bicentennial symposium is really the most important event of our celebration,” Dean Robert J. Alpern, M.D., Ensign Professor of Medicine,

told the audience in the Mary S. Harkness Auditorium. “We now find ourselves in a great era of advances in biomedical research. When we got together to decide how to celebrate our anniversary, there was uniform agreement that it had to be done with a scientific symposium, bringing in scientists of the highest regard. I think you are in for a real treat.”

—John Curtis