INSIDE THE PERFECT STORM THAT IS THE TEENAGE BRAIN

RAGING HORMONES,

BUT WHAT ELSE?
Truckin’

We miss those of you who’ve moved outside of the ‘Burgh. So we’ve packed up some programs about the latest advances at Pitt and hit the road.

Watch for a health sciences alumni program near you.

Tucson, Ariz., Sept. 16
Lancaster, Pa., Sept. 21
Dallas, Texas, Sept. 30
Hackensack, N.J., Oct. 10
Naples, Fla., Feb. 17

Sponsored by the University of Pittsburgh Office of Alumni Relations, Schools of the Health Sciences. For information, contact Norma Wilson at 412-647-4726. For an invitation to the Florida program, call Pat Carver at 412-647-5307. See more details on the inside back cover.

CORRECTIONS / CLARIFICATIONS

Although in our May issue we mistakenly reported that she was “the late pediatrician,” we are pleased to report that Lois Pounds Oliver (MD ’65) is alive and well. See the Class Note on p. 36 to find out what she’s been up to. We deeply regret any confusion this mistake may have caused.
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BY MICHAEL FITZGERALD

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Photographer C.E. MITCHELL (Cover and “Raging Hormones, But What Else?”), whose work has appeared in Time, The Washington Post, and USA Today, recently released his first documentary feature film, The WYO Way, which aired on public television in July. The film traces the history of a rodeo in Sheridan, Wyo., drawing connections between traditional ranching skills and the competitive rodeo events of today. Mitchell, who was born in Sheridan, has long been enamored of the cowboy life. His first photographs, which he took when he was 14, were of cattle brandings and rodeo events. “A good day for me,” he says, “is a day when I’ve got dirt under my feet.”

MICHAEL FITZGERALD ("In Search of Happy Numbers") says he’s a technology writer from way back: “I covered personal computing, Intel, and microprocessors when they were even geekier than they are today. ... I talked to Bill Gates back when he was still the world’s most accessible billionaire.” He loves writing about people first; our feature on Martin Weinstock was a good fit for this writer—a story about a guy who is passionate about math and science as well as saving lives. Fitzgerald has written for Boston Globe Magazine, Inc., The Economist, and The New York Times. Before setting out as a freelancer, he held senior editorial and reporting positions at Red Herring and Computerworld among other media outlets.

COVER
From birth to 3 years old isn’t the only critical time for brain development. What scientists are learning about teenage brains could change the way we raise our children. (Photo © C.E. Mitchell)
A physician asks a pharmaceutical sales rep how well one of her company’s drugs works. She says that it performs about as well as similar medications on the market but costs almost twice as much. Oh, one more thing—patients who take the drug are likely to end up constipated for a week, she adds matter-of-factly, using less polite words.

Sound unreal? It is. What I’ve described is a fictional scene from the independent film Side Effects, written and directed by Kathleen Slattery-Moschkau, a young pharmaceutical sales rep who became disillusioned with her vocation. Slattery-Moschkau releases her film as issues of transparency in the pharmaceutical industry come to the fore. Most worrisome has been the selective reporting of clinical trial results. Also insidious: promoting the use of drugs for conditions or populations in which these drugs haven’t been proven effective or safe. In one such case, a medication for gastro-esophageal reflux, approved only for use in adults, has been blamed for a number of infant deaths.

Some pharmaceutical companies have volunteered to register the results of their clinical trials, yet some are concerned about revealing trade secrets. Creating a culture of openness in a highly competitive, litigious, and market-driven environment is not a facile undertaking. But here are a couple of excellent first steps.

First, it should help to have everyone playing by the same rules. The International Committee of Medical Journal Editors now requires anyone interested in ultimately publishing results to publicly register a phase 3 clinical trial at its start, not after the results are in. Need it even be said that we can’t continue having physicians prescribing medications that, unbeknownst to them, others suspect could be harmful—or a waste of money?

Now the National Institutes of Health is implementing a strategy for encouraging openness on the other end of the drug-development path. The agency has established a network of university-based laboratories to develop molecular-screening libraries that promise to accelerate the rate of drug discovery while making information gleaned available and free to all. Pitt is one of nine institutions in this network that will use highly sophisticated, high-throughput robotic systems to synthesize many tens of thousands of molecules and then screen each of these, using high-throughput assays, for their efficacy and toxicity as drugs. We’ll be searching for molecules that interact in interesting ways with cellular targets. Does a given molecule make a cancer cell stop dividing? An inflammatory cell stop inflaming? The end result of this coordinated national effort will be a bank of millions of compounds and much new insight into fundamental biology. With this bounty, coupled with our knowledge of pharmacogenetics, we’ll learn ways to identify who might be harmed by a given medication and who might be helped. (Not everyone is likely to suffer a heart attack from Vioxx, for example. Most feel better because of it. The hard part is figuring out who is who.) In a few years, drug discovery and testing will look very different than it does today. I’m thrilled that Pitt is taking on such a significant role in what will be a prolific time in biomedicine.
Breakthrough in Arthritis Gene Therapy

At a time when the medical community was beginning to wonder about the promise of gene therapy, a Pitt/Harvard team has restored the confidence of many. The team administered experimental rheumatoid arthritis gene therapy to nine women between 1996 and 1999 at UPMC Presbyterian. Chris Evans (former Henry J. Mankin Professor of Orthopaedic Surgery at Pitt, now at Harvard Medical School) and Paul Robbins (professor of molecular genetics and biochemistry and of orthopaedic surgery as well as director of Pitt’s Viral Vector Core Facility) led the trial. The investigators removed cells from the knuckles of the women and grew them in culture using gene therapy to stimulate production of a protein that inhibits joint tissue inflammation. They then reinserted the cells into the patients.

The study offers evidence for gene therapy proponents that the technique can be a safe alternative. Evans and Robbins safely used a viral vector that was also administered in a recent French study in which patients developed leukemia as a result of gene therapy. The Evans/Robbins study was designed to test the safety and feasibility of the gene therapy, but not its efficacy. It’s not clear whether the therapy would have helped the severe cases of arthritis in the women, because they all went ahead with previously scheduled joint replacement surgery. In future studies, the researchers plan to intervene at an earlier stage of the illness (with a different vector) and measure the therapy’s effectiveness in treating arthritis. — Nita Chawla

READ ALL ABOUT PITT

If you think you’ve noticed University of Pittsburgh School of Medicine faculty in the news more recently, you’re not imagining it. Last year, UPMC, whose doctors and researchers are often School of Medicine faculty, ranked sixth among the top academic medical centers mentioned in major national publications. In April, it was tied with the University of California, San Francisco for third. (Harvard’s and UCLA’s hospitals placed first and second, respectively.)


The favorable visibility “promises to increase,” says Duffield, “because of the caliber of the research going on in the University.” The competition to get noticed by these publications is fierce, she notes. — Erica Lloyd

FLASHBACK

“Although the propriety of establishing a medical school here has been sharply questioned by some, we will not attempt to argue the question. Results will determine whether or not the promoters of the enterprise were mistaken in their judgment and action. This city, we think, offers ample opportunity for all that is desirable in a first-class medical school.”

— John Milton Duff’s comments to the first class of the Western Pennsylvania Medical College, 1886
With Lifelong Neighbors Vonzell Williams and Kevin Vilsaint

After attending the same small high school in Brooklyn, N.Y., and then graduating together from St. Joseph’s College, also in New York, Vonzell Williams (left) and Kevin Vilsaint (right) didn’t plan to go to the same medical school, yet each decided that Pitt was the place for him. Vilsaint will graduate in 2006 and plans to go into anesthesiology. Williams, who took time off to do research and is considering family medicine, will finish a year later. They are next-door neighbors.

On moving away from home for the first time, only to live next door to each other: Williams: This is our first real experience moving away and having to deal with a whole bunch of new personalities ... and making new friends. The fact that we have so many similarities—we’re both first-generation Americans (Kevin’s parents are Haitian and my parents are from St. Vincent), we’re both really Brooklyn kids, we both talk about going back to New York—means that we do go out and explore, but at the same time, because of our relationship, we get to remain ourselves. We don’t get lost. If I see him doing something that I know is out of character for him, I can call him on it, and vice versa.

On providing support for each other during med school: Vilsaint: I definitely feel like the majority of our classmates give us opportunities, but to see a big, tall dude with dreads is unusual for some people. It’s good to have someone who can relate to me so I can go home and have my comfort zone, where I can talk about New York or whatever.

Why medicine? Vilsaint: I volunteered at a hospital during high school and college, and I was struck by a discrepancy—that minority people were patients but often didn’t necessarily have the resources to become doctors. ... [Medicine] is very results oriented: You see who’s sick, you diagnose it, and, hopefully, you fix it. And even though I sort of keep to myself, I do appreciate the interaction with people. ... You can’t make a deep connection with every single person, but once in a while, there are people you really can help and make a connection with.

On the future—together again? Williams: We’ll definitely meet back up, because he [plans to go] to New York for residency, and I want to go back and work, if not in the community I was raised in, very close to that community.

Their question for the world: Where do you want your life to take you, and what will you have to do to get there? —Interview by Hattie Fletcher

Faculty Snapshots

Estrogen is linked to lung cancer. Oncologists have long known that targeting estrogen receptors yields effective treatments for breast cancer. More recently, researchers have shown that estrogen-receptor levels in cases of lung cancer—in both men and women—rival those in breast cancer. Pitt pharmacologists Pamela Hershberger, Mark Nichols, Jill Siegfried, and Laura Stabile tested how breast cancer treatments might be parlayed in the lung. In two reports in the February issue of Cancer Research, they described the synergistic effects of a treatment that targets both estrogen and epidermal growth factor receptors on lung cancer, documented how estrogen affects gene expression in lung cancer cells, and confirmed the ability of an estrogen inhibitor called fulvestrant to block that effect.

How a virus manufactures tumors has been laid bare by Yuan Chang, a Pitt professor of pathology, and Patrick Moore, an epidemiologist and professor of molecular genetics and biochemistry. The husband-and-wife MD pair has found the mechanism by which KSHV—the herpes virus that causes Kaposi’s sarcoma, the leading malignancy in AIDS patients—creates tumors. “It targets the tumor suppressor pathways that keep the cell from running amok,” says Moore. “If a cell recognizes that it is infected, it will try to commit suicide—apoptosis—to prevent itself from acting as a source of infection,” he says. The virus has evolved mechanisms to try to dampen that response. In the process, it pushes the cell toward an “immortalized phenotype,” as Moore puts it, enhancing its likelihood of becoming a cancer cell. “If a person has immunodeficiency from AIDS and can’t control the virus, the cell could then be free to grow under the influence of the virus, which is trying to promote its own survival.”

The American Society for Clinical Investigation again gave the big nod to researchers in the School of Medicine: This year, Steven Reis, associate vice chancellor for clinical research, and Ian Pollack, the Walter E. Dandy Professor of Neurosurgery, were asked to become members of the society, an invitation considered a weighty recognition for physician-scientists early in their careers. (Doctors must be invited by the age of 45.) Reis, 42, studies gender- and race-related differences in cardiovascular disease. Pollack, 44, one of the few surgeons elected to the society, researches novel approaches to diagnosing and treating brain tumors. —Sharon Tregaskis
Advanced Age and Cunning v. Youth and Skill

“Where’s the ball control?” fourth-year Neil Bhayani asks his opponents, Vice Dean Steven Kanter and Associate Dean of Students Joan Harvey. As Bhayani chides, he carefully maneuvers the foosball, preparing it for a shot. He wears royal-blue scrubs, sneakers, and a gold chain with the letter N hanging from his neck. It was Bhayani’s idea to break in the new foosball table—an addition to the student lounge funded by the Medical Alumni Association (MAA)—with this inaugural student/faculty foosball tournament.

Today, the lounge is full of cheers, jeers, and pep talks—sometimes self-inflicted: “Come on Bill, put the little guys up!” Bill McIvor (Res ’94), assistant professor of anesthesiology, demanded of himself as the brown ball slipped away from his armless players in the match he lost to second-year Kristen Scopaz. Students and faculty have squished themselves into the tiny area around the table to watch as a ball meanders into the reach of players. Occasionally, they’re rewarded with a sharp snap of the axle for a cross-table goal. Those moves are likely to be followed by a high-five.

A new game is starting, and expectations run high about Samuel Tisherman’s (MD ’85, Res ’93, Fel ’91 & ’94) prowess. “He’s a surgeon. His coordination at baseline beats most people’s here,” Bhayani says of the associate professor. To everyone’s surprise, the student team shreds him and his wife, Susan Dunmire (MD ’85, Res ’88), emergency medicine prof and MAA executive director. Youthful response time beats seasoned agility, 5 to 0.

But the professors still hold the upper edge. Bhayani playfully teases Dunmire about losing; her reply: “You still have a test to take on Monday, baby!” —NC

FISHER HONORED

On a rare warm, sunny day in March, surgeon Bernard Fisher joined Nobel laureate Philip S. Hench (MD ’20) and other Pitt med greats in the portrait gallery of the Biomedical Science Tower lobby. Fisher (MD ’43) is best known for his studies of breast cancer that led surgeons, in some cases, to replace radical mastectomy with more conservative local surgeries combined with chemotherapy.

“It was an honor to give Bernard Fisher the acknowledgment he truly deserves,” says Arthur S. Levine, dean of the School of Medicine and senior vice chancellor for the health sciences. “His work changed the course of treatment, the rate of survival, and the quality of life for women with breast cancer.”

Painted by artist Greg Kavalec, the portrait in oils was unveiled during a celebration attended by more than 200 faculty and students. Prominent University of Washington breast cancer researcher Mary-Claire King, who collaborated with Fisher on a study of the gene BRCAs, implicated in the development of hereditary breast cancer, gave a talk on her genomic analyses of inherited breast cancer.

“For anyone else, it was probably just another day at the office,” says Fisher, a Distinguished Service Professor of Surgery at the University. “For me, it was momentous.” —ST

PREVENTING SCHIAVO-LIKE CASES

This spring, the nation watched as Terri Schiavo’s family struggled over her medical care. Although few families grapple publicly, physicians report that conflict erupts in nearly 80 percent of cases involving a decision to limit life-sustaining care. Most doctors would rather avoid open disagreement, be it with colleagues or family members. But according to palliative care expert Robert Arnold, effectively dealing with such situations has the potential to greatly improve patient care and reduce physician stress. “If you ignore conflicts, they fester,” says the physician. “To a certain extent, this isn’t about medicine; it’s about life. If you don’t say anything, the conflict just gets worse.”

In its March 16 issue, The Journal of the American Medical Association published “Dealing with Conflict in Caring for the Seriously Ill,” by Arnold, the Leo H. Crip Professor of Patient Care at Pitt, and Anthony Back, a professor of medicine at the University of Washington, Seattle. The article is a case study of the course of treatment for an 84-year-old woman suffering from dementia. It discusses how conflicts tend to arise; details the pitfalls that often beset clinicians, patients, and families; and suggests strategies for working through disagreements. “For doctors, who are problem solvers, the hardest initial thing is to be curious and realize that stepping back, going slow, and really understanding the other person’s story may be the most helpful way to move the conversation forward,” says Arnold.

“Communication about conflict, about issues that you have strong emotions about, is hard work,” says Arnold. “This is something you have to be intentional about.” —ST
Calm Down Hurry Up

Sure the brain is mysterious, but scientists thought they had at least this much figured out: Some neurons release neurotransmitters that are considered excitatory—they help neurons propagate impulses. And some release inhibitory neurotransmitters—which dampen impulses. No neuron that helped dampen impulses would also excite them. Straightforward, right? Wrong. The latest finding by Deda Gillespie, a research assistant professor, and Karl Kandler, an associate professor of neurobiology, is getting a lot of attention. Gillespie was running an experiment on the part of the brain known as the LSO, until a few months ago considered a “pure inhibitory pathway,” says Kandler. Neurons in the LSO produce calming transmitters like GABA, which is key to how barbiturates and alcohol quell brain activity. But the pathway isn’t so pure. The LSO is where Gillespie came across neurons able to release not only the inhibitory transmitters GABA and glycine, but also glutamate, the classic excitatory transmitter. Glutamate is involved in learning and memory; it also plays a role in addiction (which some scientists now think is another kind of learning), chronic pain, epilepsy, and other conditions.

At first Kandler thought no one would believe their finding. But since the discovery was the cover story in March’s Nature Neuroscience, colleagues have said to him, “I thought I saw clues to something like that happening, too.” “It wasn’t supposed to be there,” says Kandler of the glutamate. “So they’d discussed it away.” —EL

PA. INVESTS TOBACCO MONEY AT PITT

“Now, close your eyes and imagine this room filled with robots,” says John S. Lazo, Allegheny Foundation Professor of Pharmacology, to a small group of state legislators wearing white hard hats and goggles. On this May morning, the legislators are on hand to tour the University’s still-under-construction Biomedical Science Tower 3, and Lazo is trying to give them a sense of the research facilities that state funds support, including a coming robot crew that will help organize the new building’s chemical library for drug discovery. His is one of several five-minute presentations. The combination of real researchers describing their labs-to-be and a little imagination seems to work. “I see [the building] as a cauldron of activity,” says State Senator Mary Jo White.

In a historic legal settlement in the late ’90s, tobacco companies agreed to pay $206 billion to 46 states between 2000 and 2025. Many states have used the money for a range of purposes, but the Pennsylvania legislature decided to narrow the allocation of its share to health programs and medical research. The new Biomedical Science Tower is one beneficiary; about $4.5 million from the settlement has gone toward design and construction. Tobacco settlement funds also support a number of research programs at the University, and Pitt researchers have done well securing competitive grants funded out of the settlement, bringing in support for programs on cardiovascular disease, neurodegenerative and mental disorders, cancer, and early warning systems for disease outbreaks.

As the state now faces budget challenges, some have argued for revisiting the funding formula, a move that University officials oppose. “Pennsylvania is one of the only states that is investing all of its tobacco money in health-related initiatives,” says Margaret McDonald, associate vice chancellor for academic affairs, health sciences. “It’s also a time when other states are pumping money into research. It makes no sense to stop just when the competition is heating up, and we have just the tiniest of head starts.” —Nita Chawla and Robin Mejia
LOCATION, LOCATION

Say you happened to buy a magnet 140,000 times stronger than the magnetic field generated by Earth. Where do you put it?

Well, if it’s part of a machine that weighs 400 tons, like the 7-tesla MRI scanner Fernando Boada just bought, you put it in the basement, for obvious structural reasons. (Tesla is the unit of magnetic flux density.) And if you’re using that über-magnetic power to get incredibly high-resolution images, you keep it away from big, moving things, like buses. So, if you’re in urban Oakland, the scanner goes in the center of the building. But you also need to think about where the elevators are in relation to it. Elevators are built with iron counterweights that can throw off resolution at the 100-micron level. Really, you might as well start from scratch and plan the building layout with a 7-tesla scanner in mind. That’s more or less what Pitt did. Boada’s new scanner was one of many considerations architects took into account when designing Biomedical Science Tower 3. Building designers placed the elevators as far from the machine as possible. And not all elevators in the building go to the basement.

Why all the fuss? Using 7 tesla, Boada (shown left), who directs Pitt’s MR Research Center, will be able to generate images that are 10 times more detailed than a typical hospital MRI. He says that cancer and neuroscience researchers especially have been chomping at the bit to use the machine, which is among a handful designed for use on humans. He himself is excited about the prospects of examining stroke tissue more carefully. The new machine will help his lab more clearly determine whether brain tissue is still alive. (If not, the stroke therapy could cause more damage to the patient.)

With that huge magnet inside, what will stop the wristwatches of unsuspecting Fifth Avenue pedestrians from flying off and sticking to the new building? Roughly 350 tons of the 400-ton machine is an iron shield, which keeps the magnetic field contained, for the most part, in the scanner. —EL

PHOTO | CAMI MESA
Geskin and Falo have developed an experimental vaccine for cutaneous T-cell lymphoma that seems to work. Here, dendritic immune cells (green) interact with a tumor.
NOT ALL TUMORS ARE CREATED EQUAL

MADE-TO-ORDER CANCER VACCINES

BY ROBIN MEJIA

When Richard Nixon launched the “War on Cancer” in 1971, he couldn’t have known the battles ahead. At the time, doctors seemed to be beating back disease everywhere you looked. Vaccines had relegated the most horrible of the childhood diseases to the realm of memory (in the Western world, at least). Antibiotics were still at their peak of effectiveness, leading many to predict the same fate would befall infectious disease. Why not cancer?

Of course, history has shown that not all diseases are as amenable to controlling as measles and polio. (World Health Organization officials are still struggling to completely wipe these diseases out.) Bacteria and viruses have fought back with remarkable ferocity. And, though our understanding of cancer has developed at a terrific pace, much of what we have learned has simply taught us that we are dealing with a remarkably crafty enemy.

That’s not to say that treatments for cancers haven’t improved tremendously; they have. Yet for the most part, the weapons at a doctor’s disposal have been blunt instruments: surgical removal, radiation therapy, difficult chemotherapy regimens. More recently, a new level of understanding of many cancers has allowed doctors to develop more sophisticated treatments; for example, drugs that target a specific step in a metabolic pathway of a cancer cell.

But a small number of researchers have pursued another approach in the development of targeted therapy, taking a page from the playbook of Jonas Salk.

“This may be the ultimate targeting,” says Louis Falo, an MD/PhD and chair of the School of Medicine’s Department of Dermatology, who works with a number of Pitt researchers on cancer vaccines. The term “vaccine” is a misnomer; Falo and colleagues are not pursuing preventative inoculations, like Salk’s polio vaccine, but rather treatments for patients who already have cancer. Still, if you think in terms of analogy, the name makes sense. Just as a polio vaccine uses some of the virus itself to arm the body’s immune system against the disease, a cancer vaccine uses a tumor’s own antigens for the same purpose.

Larisa Geskin (MD ’98, Res ’01, Fel ’03), an assistant professor of dermatology, is leading a clinical trial of a cancer vaccine that she developed with Falo. Geskin’s patients have cutaneous T-cell lymphoma, a rare form of cancer that targets the immune system. In advanced stages of the disease, most of a patient’s key immune cells have been replaced by cancer cells. Patients who enroll in Geskin’s trial are generally no longer able to respond to traditional therapies.

“There really is not great chemotherapy for end-stage cutaneous lymphoma,” Geskin explains. “There is not a single therapeutic agent that prolongs life.”

She’s hoping to change that. The trial is still in its early stages; she’s only given her cancer vaccine to four patients. But they have responded astonishingly well. The first patient to enroll was a man in his 50s with leukemia and a skin lymphoma that left him nearly bedridden, all of his skin red and cracked. Within two months, he was walking again and even pouring cement in his garage. Because the vaccine is an experimental therapy, Geskin only was able to give him eight injections, and he eventually relapsed, but she says he is in better health than he was before the trial. She intends to enroll another 15 patients in the trial. Yet, the initial results have been so startling that Geskin and Falo plan to publish their immediate findings in the next few months.

Pitt researchers believe the process they use to make the vaccine is unique. They start with precursors to dendritic cells. Dendritic cells are immune cells that recognize antigens and prime the body’s T-cells to attack. They go after whatever has that antigen on it, typically a virus or bacterium. Geskin harvests precursors to dendritic cells, along with cancer cells, from each patient. By growing the dendritic cells in the presence of tumor cells, the dendritic cells learn the tumor’s antigens. Geskin then matures dendritic cells with a chemical cocktail that makes them capable of presenting tumor antigens to the immune system as foreign invaders. Once she injects those dendritic cells into the patient’s lymph nodes, the body starts attacking the cancer cells. John Kirkwood, an MD professor and vice chair for clinical research in the Department of Medicine, is collaborating with Falo on a similar vaccine targeted at melanoma.

Geskin thinks that the personalized approach is the reason she’s seeing results.

“This is a key concept. Many vaccines for cancer failed because people used someone else’s tumor to treat another person’s cancer,” she explains.

Another innovation in the Pitt process is the way researchers capture antigens from entire tumor cells.

“Other vaccines use short peptides,” explains Falo. “We use whole cancer cells. The advantage of that is that you capture a broad range of antigens.”
20,000 to 25,000 genes are active in most cells at any given time. Some turn on and off at different points in the body’s development. Others respond to stimuli such as diseases. Yet it can be tough to measure whether or not a gene is actively producing protein at any given moment. Assays do exist that are designed to measure gene activity—but they have limited application and it doesn’t appear that they’ll ever be suitable for use in humans. Some assays require killing the animal that received the compound and staining its tissue. Others are themselves toxic. Still others involve using compounds that are visible only near the surface of the skin.

Eric Ahrens, an assistant professor of biological sciences at Carnegie Mellon University and an adjunct assistant professor of neurobiology at Pitt, and William Goins, a Pitt assistant professor of molecular genetics and biochemistry, have developed a technique that uses MRI to measure gene activity in living animals, without—as far as they can tell—harming them.

Because MRI machines use magnets to polarize the nuclei of atoms, it makes sense that magnetic molecules in the body would affect the image an MRI produces. Goins and Ahrens inserted a ferritin-producing gene into cultured human cells and also live mice. When the gene is active in the cell, the ferritin sequesters a small amount of a harmless form of iron.

“You can detect a signal from this iron when you put it in a magnetic field,” explains Goins. The iron doesn’t appear to influence the functioning of the cell, but it does change the way the cell looks to an MRI machine. MRI scanning isn’t toxic, so this process could help scientists perform long-term animal studies. They would be able to MRI the animals far more frequently than they could, say, x-ray them.

To get the ferritin gene into cells, Goins and Ahrens used a viral vector. (To create the vector, the virus was modified, so that instead of delivering illness-inducing DNA, it delivers DNA chosen by a scientist.) Viral vectors are commonly used in gene therapy trials. One challenge for those researchers has been confirming that the intended cells have accepted the therapeutic gene. Goins sees a potential future for genes like ferritin in providing a nontoxic marker.

By inserting both the therapeutic gene and ferritin-like gene in the vector, explains Goins, you could see where the genes are expressed. He notes that many current targets for gene therapy, such as Parkinson’s disease, are in the brain, a particularly tough place for scientists to assess activity using current techniques. He and Ahrens, however, have watched gene expression in mouse brains. But applying their technique in humans is a long way off, cautions Ahrens: “We’re not in any rush to get into people. I think our focus is going to be preclinical work or animal studies.”

Ahrens explains that though he and Goins used viral vectors, the ferritin gene could be inserted using just about any of the technologies scientists apply to develop transgenic animals. This would help researchers confirm information about gene activity in animal models of arthritis or cancer, for example.

In theory, the ferritin gene also could be inserted next to native genes to report on their activity.
One day, a 60-year-old man was diagnosed with terminal cancer; the melanoma started on his foot and spread throughout his body. He squeezed into the last spot in a clinical trial in another town and lived with his wife in their motor home there so he could receive an experimental treatment. He felt it was his only hope, and his gamble paid off. He’s enjoying time with his wife that some doctors never thought he would have.

We hear about such stories from time to time that remind us about the promise of medical research. Yet very few people volunteer for clinical trials. Overall figures are hard to come by, but as an example, among adults with cancer eligible for drug trials in this country, only about 3 to 5 percent volunteer to participate.

And these kinds of stories can also create the wrong impression. Many people, like the man in this story, consider enrolling in clinical trials only when their other options look dire. “Too many patients incorrectly assume that if you’re in a trial, it’s a last resort. Trials are essential in testing treatments at all stages of cancer as well as new methods of cancer prevention and screening,” says Ted Gansler (MD ’81), director of medical content at the American Cancer Society.

The shortage of volunteers slows the availability of new treatments and drugs, notes Samuel Jacobs (Res ’73), clinical professor of medicine at the University of Pittsburgh. With the help of a $1.2 million grant from the National Cancer Institute, he intends to both figure out why so few people volunteer and develop new ways to recruit participants. Although Jacobs is an oncologist, the tools he’s developing can be applied by other specialists looking to recruit.

Jacobs says there are many reasons for the lack of patient participation in trials. Among them: confusion about the risks of taking part and a dearth of awareness among both doctors and patients. “Some patients are very fearful of whether they’ll get a placebo or a real drug,” he says. “Some are mistrustful of the medical system. Others worry about drug toxicity and hidden costs involved.”

To help dispel fears and build trust, Jacobs is developing an interactive Web site for potential volunteers. His years of experience have helped him anticipate questions trial candidates are likely to ask. To make sure they cover all the bases, his team has asked patients and their families and friends to suggest information they’d like to see on the site.

The site lets users ask questions of a nurse whose prerecorded video responses simulate a one-on-one conversation. “We’ve got smart features built into the system that can respond to the different ways people may express themselves,” says Jacobs.

There’s been some buzz about how HIPAA privacy regulations have thrown up what seem like insurmountable hurdles to trial organizers, especially those who require healthy volunteers or are pursuing large epidemiological studies. Most other clinical researchers we spoke to have found the regulations to be a hassle they can live with. Their solution is mundane: more forms (in concert with patient orientations).

For Jacobs and others, a more significant part of their struggles in recruiting patients has been getting other doctors on board. Many physicians don’t tell patients about trials for which they’re eligible. For an oncologist, who’s likely to have a patient load of 2,000 a year, figuring out how to make the additional time for individual patient meetings on clinical trials isn’t always straightforward. And many docs aren’t informed about ongoing trial research.

“We’d like to develop a culture where we get all 70 UPMC oncologists involved,” Jacobs says. As part of his grant, he established video-conferencing for oncology grand rounds that allows doctors outside of Pittsburgh to learn about new trials at the University. Using AvantGo, an online PDA application, Jacobs has also developed a quick way for his colleagues to look up disease-specific trials for which their patients may be eligible.

He sees his work as urgent: “With rapid advances in molecular biology and the enormous number of new drugs being developed, we need more volunteers to determine [treatment] efficacy.” His goal is to increase participation in Pitt trials to 10 to 15 percent of eligible patients.
The eminent Richard Lawrence Day made his mark on pediatrics at Pitt. (Photo 1962)
When Richard Lawrence Day was 80 years old, he noticed an interesting phenomenon in his own kitchen. He had accidentally left a spoon in the freezer, and when he removed it, he dropped it into a cup of hot water he had heated in the microwave. The water immediately began to boil. Day, who had been exploring matters of heat and body temperature since the mid-1930s, was intrigued and wanted to know more. He enlisted the help of a Yale University engineer, Robert Apfel, to reproduce and investigate the phenomenon in the laboratory. They wrote a detailed and erudite explanation of how minute ice crystals on the spoon would interact with water raised to superheated temperatures and published it in a letter to *Nature*.

“My father had all the curiosity of an 8-year-old child,” Sally Day Perreten, Day’s eldest, says. “He was always asking questions, tinkering, seeking information about things he had observed.”
Once, she recalls, he was introduced to a scientist who was quantifying the forces of gravity. Day immediately bombarded him with questions: How does gravity work? What are the physical principles involved? How could its force be measured?

"The quintessential skeptical inquirer," his longtime collaborator, close friend, and expert on blindness in premature infants, the neonatologist William Silverman said when presenting Day with the John Howland Award, the highest honor of the American Pediatric Society, in 1986.

Dick Day was chair of pediatrics at Pitt from 1960 to 1965, and one of the intellectual architects who built the school into the medical-research powerhouse it is today. Colleagues from those days still speak of him with awe and admiration 40 years later.

"He helped make it a first-rate center," says Bernard Michaels (MD '42), retired clinical professor of pediatrics, citing Day's insistence on what is now called "evidence-based medicine." "He declared that the rules of evidence [for the clinic] were no different from those in the laboratory."

Richard Michaels (who is not related to Bernard Michaels) was recruited by Day from the University of Cincinnati, where he worked with Albert Sabin on what would become the live-virus polio vaccine. Richard Michaels had studied under Day at Columbia University and jumped at the chance to join him again; he stayed at Pitt for more than 30 years. "Dick Day was rigorous," Richard Michaels says. "Instead of asking, 'What do you think?' He considered things that were measurable. 'Where is the evidence? Follow the evidence.' He could be harsh with those who [offered] anything less." Richard Michaels recalls that when Day conducted grand rounds, one physician always had an opinion to share. He held forth at length and volubly on every case. When "Dr. Blank" had finished, Day would declare, "You've heard Dr. Blank's opinion. Now does anyone have any facts to contribute?"

Day arrived at Pitt with an already well-burnished reputation and a pediatric syndrome named for him. In the 1940s, at Babies Hospital at Columbia University, Day and Conrad Riley had been confronted with five children—ages 18 months to 8 years—afflicted by a mysterious and puzzling set of symptoms. The children were undersized, lacked muscle tone ("floppy," according to one description), and seemed impervious to pain. Strangest of all, they cried like other children, yet produced no tears. When Riley and Day reported on their cases in medical journals, 33 more came to light. The complex of symptoms was eventually named the Riley-Day syndrome, also known as familial dysautonomia. Transmitted when a child inherits a defective gene from each parent, the disorder attacks the autonomic nervous system and has been found primarily in those of Eastern European Jewish descent. One in 27 Ashkenazi Jews is said to be a carrier of the defective gene. Many of those afflicted die early. Today, half survive into their 30s.

At Babies Hospital, Day had also studied thermoregulation in premature infants in ways that upended prevalent thinking about newborn nurseries. Conventional wisdom at that time held that premature babies could not maintain body temperature as they had in the uterus because of incomplete neural development. Essentially, doctors thought they were temporarily cold-blooded and could thrive at a lower stable temperature. To explore the question, Day and the physicist James Hardy of Cornell University developed the first gradient calorimeter for precisely and directly measuring heat loss in newborns. The two men showed that premature infants actually made all the necessary physiological adjustments one would expect to maintain body temperature. Their systems were just easily overwhelmed in the face of massive heat loss because of their small size.

Day's study included only premature infants a week after delivery, so his work was at first disparaged, and his research was not accepted until 15 years later. Subsequent studies showed that very small reductions in heat loss led to increased survival of premature infants.

His findings on heat loss and, later, on the use of oxygen in preterm birth, led him to establish Babies' first care center for premature infants in 1949, the model for neonatology centers elsewhere.

Day also performed landmark research in kernicterus. This disorder, found in the early days of life, is marked by an accumulation in the brain and spinal cord of bilirubin, the yellowish substance cast off in the breakdown of red blood cells. The condition can cause brain damage in infants, especially the premature. Again, conventional wisdom and Day parted ways. Before Day studied the disorder, physicians believed that bilirubin, which gave a telltale yellow cast to babies, was merely a marker of the condition; they believed the real culprit lay elsewhere in the body. Day went to the laboratory to investigate. In a series of animal studies, he showed that bilirubin itself did the damage by depressing respiration in brain tissue.

During World War II, Day's work on heat regulation brought him to the attention of the U.S. Army's Climatic Research Laboratory. Officers wanted him to develop protective clothing for troops in subzero climates for protracted periods. Yet Day's experience with neonates had demonstrated for him that the surface-area-to-volume ratio of a limb was crucial in heat exchange. So to fully insulate and protect fingers in temperatures as low as -10 degrees Fahrenheit, he concluded, gloves would have to be preposterously large. In presentations to medical students afterward, he famously showed photographs of Antarctic penguins—they don't bother to insulate nests. They simply hold eggs above the frozen conductive surface until they hatch.

When Day came to Pitt in 1960, it was with two distinct missions. His first was to help the medical school undergo its transition (a tense one) to a full-time faculty instead of one made up of community practitioners working part-time for the school. Malcolm Holliday, a retired pediatric nephrologist at the University of California, San Francisco and pioneer in pediatric kidney transplantation, recalls that he was one of only six early hires. (Richard Michaels was another.) Day was also to put research and clinical practice on equal footing in pediatric training. He constantly gave sermons on the need for scientific methodology and grew angry when doctors spoke of "preclinical" to mean scientific and "clinical" to imply nonscientific studies. He insisted that the same rules should govern both.

Fifty-five years old when he came to Pitt and swept up in the reorganization, Chairman Day himself performed little research but continued bedside and classroom instruction.

"He was a wonderful teacher," says Richard Michaels, who notes that Day won student awards as best teacher at Columbia and later at SUNY Downstate Medical Center in Brooklyn and Mount Sinai School of Medicine. (Downstate Medical Center students dedicated their yearbook to Day in 1959; the dedication read, "Dr. Day, through his own professional life, offers personal inspiration for each of us. Would that all physicians were as courteous, as astute in clinical medicine, as interested in teach-
When Day left Pitt in 1965, there was much head shaking and tongue clicking, Silverman recalls in a short biography. But his decision “made perfect sense to anyone who knew of his lifelong interest in the welfare of children.” He and his wife, Ida (pronounced EE-dah), had strong social consciences, and Day accepted the position of medical director of Planned Parenthood Federation of America “because of his strong conviction that overpopulation was arguably the most important problem faced by this planet,” according to Silverman. He similarly accepted an appointment at Downstate Medical Center. Silverman writes, out of a desire to train those bringing pediatric services to the less well-off.

“My parents were Quakers,” says daughter Betsy Day Darlington. “They were very involved in the peace movement and many other good causes.” In New York, Ida Day worked with the American Friends Service Committee to help women from Hiroshima who had been facially disfigured in the atomic bombing get reconstructive surgery. One woman lived in the Day household for four years while the Days put her through Parsons School of Design and tutored her in English. She returned to Japan and set up a successful dress shop, staffed by other Hiroshima women. For one year, the family also housed Hilde Speer Schramm, the daughter of “Hitler’s architect,” Albert Speer. Because her father had been convicted of war crimes at Nuremberg, Hilde had been denied hospitality elsewhere. She is now a leader in the German Green Party and still visits the Day daughters.

“It was quite a childhood,” Darlington says.

In Pittsburgh, the Days owned a large house just off the campus and, says Perreten, filled it with “foreign students, graduate students, displaced persons, concentration-camp victims, anyone needing help. Some stayed for weeks or months.”

“A common topic of conversation was speculation over the number of keys to the Day house that were handed out,” one friend said, suggesting that the Days didn’t know how many guests were sleeping there at any given time. (An exaggeration, notes Perreten.)

Silverman, a frequent visitor, called it a “Youth hostel atmosphere.”

Ida’s idea of bedside reading, Silverman writes, was “ban-the-bomb literature.” Then he adds, seemingly with a wink, “sweet gentle Ida had the reputation for mixing the most potent martinis east of the Mississippi.”

The Days’ unbridled hospitality and activist positions didn’t always sit well with the community. For three years in those racially conscious days, a Nigerian graduate student lived in the house, recalls Richard Michaels (who was a next-door neighbor for six months). That brought on some muttering in the neighborhood. Dick Day also contested the racial barriers that blocked African Americans from the University Club, a fight that was eventually successful.

“He put principle above all else,” Holliday says. “He was passionate, and he was right.”

Day left Planned Parenthood in 1968 to help establish the Mount Sinai School of Medicine. In his retirement years, he moved to Westbrook, Conn., to follow another lifelong passion, sailing. The Days kept a sailboat on Long Island Sound even in their Pittsburgh days and spent every August cruising Long Island Sound and the Maine coast. They owned a succession of sailboats, starting with what Darlington calls a “real clunker” that they brought down the Erie Canal. Once, 6-year-old Betsy, who was sitting on the stepped mast, slipped off, fell into the cabin, and suffered a concussion, but that didn’t stop her family. After all, she notes, they had a doctor on board. The “crew” also included two Labrador retrievers. During every voyage, they would find a place to anchor where Ida would convince a property owner to let the dogs go ashore to relieve themselves.

The family also shared a passion for music. While at Columbia, Day received an offer of a position at an out-of-state medical school. He declined because his daughters’ music teachers were all in New York. “I don’t think that’s an adequate reason,” the dean reportedly said. “To me, it is,” Day replied. He outfitted an old Jeep station wagon to carry Sally’s harp, which he covered with a homemade platform on which sat Betsy with her violin and Kate, the youngest daughter, with her cello. (Ida played viola.) Sally Day Perreten today is a professional harpist, Kate Day Beare teaches cello in England, and Betsy Day Darlington performs with a chamber orchestra. (The family tradition continues: One grandchild is a bassoonist with the Boston Symphony; another plays flute in the Toronto Symphony.)

But pastimes like music and sailing weren’t enough to quench the retired Day’s insatiable curiosity, as the chilled spoon incident shows.

Before his death in 1989, he was redesigning the traditional rowing oar and studying the placebo effects of acupuncture. He questioned the accepted advice for sharp back blows to dislodge food particles jammed in the airway. So he designed a series of models to simulate the throat and used them to test the effectiveness of back blows against Henry Heimlich’s recommended method of squeezing the midsection. With a colleague at Yale, Arthur DuBois, he documented the inertial and aerodynamic forces at work in each method. They showed the Heimlich maneuver was more effective, and that back blows had the potential to move obstructions deeper into the throat. Their findings persuaded the American Heart Association to stop recommending back blows for dealing with choking. (The research was partially funded by Heimlich’s own foundation.)

Day’s undying curiosity led him to seek out full evidence; he also tempered his investigations with caution, recalls Perreten:

“There was a pond behind our house. Dad loved hockey, and we all skated, but Dad insisted he had to test new ice first. He’d put on his skates and go out on the pond, but he prepared himself for every eventualty. He wore a bright orange life jacket just in case the ice was thin and he fell through.”
People have always been suckers for a good love story. That’s true even of scientists. Ronald Dahl, the Staunton Professor of Psychiatry and Pediatrics at Pitt’s Western Psychiatric Institute and Clinic, is a big fan of one in particular, because of what it says of the intensity of human emotion at certain times in our lives. The story begins at a large party, where a guy—let’s call him Doug—notices Susan across a crowded room. Her beauty stuns him; his eye is drawn to her face as if a spotlight lighted it.

Doug doesn’t know her name yet. Susan isn’t aware of her admirer until he crosses the room, and she suddenly finds her hand in his. Doug, perhaps
Adolescents seek thrills and experience emotions with an intensity that adults find hard to fathom. It turns out that they’re not just hyped up on hormones—the teenage brain is undergoing fundamental changes that we never suspected.
embarrassed now to have been so forward, spews forth a semblance of an apology, though he doesn’t let go of her hand. In fact, emboldened by a wave of emotion, he says that if he has offended, perhaps he should kiss her hand to atone for the transgression. Susan does not rebuff these sudden advances. She flirts a bit in reply—at the same time, letting him know that kissing, at least kissing her hand, is uncalled for in this situation. Then, within moments of first laying eyes on each other, their lips meet in a first kiss.

From this day on, the two are infatuated with one another. And though their respective families disapprove of the match, the couple elopes later that same week. Each declares, in all seriousness, that life is not worth living if they cannot be together.

There are different ways to react to these characters. Imagine, for example, that Doug is 35 years old and that he is a successful automobile salesman. Susan is two years younger and is a professor of linguistics at the local university. Their story may seem too far-fetched to be believed. The family and friends of these formerly rational adults would likely think that they’d somehow lost their minds. They might recommend immediate psychiatric evaluations. They might look for evidence of brain injury or wonder if the punch at the party was spiked with illicit drugs. This is not the sort of behavior we think about in the way we raise our children and the way we think about the perfect storm that is the teenage brain.

What scientists are learning now has the potential to alter the very way we raise our children and help teenagers reach their full potential despite their inherent vulnerabilities.

What scientists are learning now has the potential to alter the very way we raise our children.
social science, and more. Dahl leads this effort at Pitt, one of a handful of medical research centers that includes the National Institute of Mental Health, UCLA, Harvard University, and others doing broad, interdisciplinary work in this area.

Dahl’s office occupies one corner of the seventh floor of Pitt’s Western Psychiatric Institute and Clinic (WPIC). From here, he leads a group of researchers and clinicians trying to understand the teenage brain. Dahl can gesture down one hall to psychologists interested in using neuroscience to improve therapy for depressed teens and down the other to PhD neuroscientists who want to understand how genes put their mark on brain function. Dahl is the tall guy at the intersection, encouraging communication and collaboration between these deep thinkers and others, asking questions, and offering encouragement. As a mentor of students and junior faculty, he’s always on the lookout for that collaborative spark—revealed when a person becomes intrigued by another’s perspective and begins asking new questions. What Dahl’s students and col-

HARIRI’S HAMMER

A man enters his house late at night, drops his keys and wallet on the table, and freezes. He sees broken glass beneath a window that has been forced open. A sound on the stairs tells him an intruder is in the house. If we could see an MRI scan of his brain at this moment, a spot toward the back of his head would be glowing like a night-light. This is the amygdala, an almond-sized mass of gray matter that is very active whenever we are faced with a “fight-or-flight” situation. “The amygdala has been most comprehensively studied in terms of fear and especially fear conditioning,” says Pitt neuroscientist Ahmad Hariri, “although it’s important in any behavior that requires the organism to become attentive to its environment and to redirect resources to something that is pressing.” It’s also believed to play a role in emotional states.

When Hariri gives a talk, he often plays a video clip. It’s not about the amygdala or even the brain—it’s about reptiles—but it shows what the amygdala does. During a talk show before a live audience, a special guest holds a Texas rat snake. The host of the show is doing a pretty good job of keeping his cool next to this scaly, writhing, 5-foot-long coil of serpent. He asks whether or not the species lives in their part of Texas. You betcha, says the guest. Well, let’s see how long it is, the host suggests, and he gamely takes hold of the tail end of the snake. At this moment, he is not thinking about the gecko on the table. A gecko is a harmless lizard with a sticky tongue, a taste for insects, and an extraordinary ability to cling to vertical surfaces, which it unexpectedly demonstrates at this moment by launching itself into the air and latching onto the host’s jacket, just shy of belt level.

Ever seen a person panic and flail at a particularly pesky wasp or bee? The host’s reaction is orders-of-magnitude worse. He staggering backward several steps and spasmodically flaps his hand at the lizard. Nonsensical, choking sounds emerge from his throat interspersed with barely intelligible words (Get, this, thing, off), a few of which are frowned upon by the FCC. Finally, he falls to the floor.

Hariri laughs like a kid watching cartoons. He usually plays this clip twice and laughs just as hard the second time. As director of the developmental imaging genomics program in the Department of Psychiatry, Hariri wants to learn how specific genes can make a person biologically prone to having a stronger fear response, whether faced with an intimidating gecko or emotional stress at home or work.

“We can’t throw snakes in the scanner,” Hariri reminds his audience. (He doesn’t comment on the feasibility of geckos in the scanner.) So what does a researcher do to light up the amygdala? Enter Hariri’s Hammer.

With Susan Brookheimer, his PhD adviser at UCLA, Hariri developed a simple task, which he later fine-tuned with Daniel Weinberger at the National Institute of Mental Health: While in the scanner, volunteers are shown photos of three people with scared faces, one biologically prone to having a stronger fear response, whether faced with an intimidating gecko or emotional stress at home or work.

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With Susan Brookheimer, his PhD adviser at UCLA, Hariri developed a simple task, which he later fine-tuned with Daniel Weinberger at the National Institute of Mental Health: While in the scanner, volunteers are shown photos of three people with scared or angry expressions and asked to match the two that are most similar. The controls are asked to match shapes that have no biological significance. On a functional magnetic resonance imaging scan, the amygdala of a person performing the face-matching task lights up robustly.

“It’s a hammer because it’s very crude,” says Hariri. “We’re not principally interested in faces or facial expressions or anything along those lines. We’re interested in engaging the amygdala very forcefully and then exploring the effects of genetic variation on that reactivity. ... It’s like taking a hammer and smacking the amygdala, getting it to reverberate, and then measuring those reverberations and understanding what factors determine the magnitude of those reverberations.” —CS
leagues describe as charisma manifests itself as an inexhaustible curiosity fed by questions—lots and lots of questions, asked in a patient, thoughtful tone. He’s not soft-spoken, but his voice seems to lack all harshness.

Kupfer has been tracking Dahl (MD ’84) since the latter was a medical student. Kupfer helped him secure a one-year research fellowship in sleep/neuroendocrinology between his third and fourth years, and he has watched him turn into a unique clinician and researcher—a trained pediatrician working in a psychiatric setting with expertise in adolescent development. (Dahl has run Pitt’s pediatric sleep and neurobehavioral lab since 1988. He’s extensively documented biological changes in the sleep cycle during adolescence and their implications for development and behavior.)

“He has been well informed by a number of things happening in the fields around him,” says Kupfer, including clinical and basic neuroscience, genetics, brain imaging, psychiatric therapy, and therapeutics.

for 20 years. Every time a gene showed some connection to depression, or attempted suicide, or bipolar disorder, later studies would fail to replicate the findings, says Hariri. He thinks scientists just went about it in the wrong way.

“Psychiatric genetics and behavioral genetics have tried very explicitly to relate a gene and a variation in a gene to behavior, which is just silly,” says Hariri.

“It’s silly, because a gene doesn’t code behaviors.”

Genes code for proteins—small molecular entities. Variations in genes, if they have any impact at all, are going to have small, subtle effects at this level. In the brain, explains Hariri, those subtle alterations can influence how different parts of the brain communicate. Finally, these subtle alterations can slightly bias behavior. Behavior is at the very end of a long, complex equation that begins with genes. So before anyone can talk about genes for depression, neuroscientists have to work on the middle part of this equation.

High levels of hormones don’t cause the emotional problems that some adolescents suffer—look at the vast majority of teens who have no serious emotional difficulties while their hormone levels peak.

“I feel like the architect sometimes,” says Dahl, “and I need a lot of engineers.”

Ahmad Hariri is one of these “engineers,” recruited to Pitt just two years ago to work in Dahl’s group as well as in the Center for the Neural Basis of Cognition, a joint neuroscience effort of Pitt and Carnegie Mellon University. Ask him about adolescent development, and the assistant professor of psychiatry is quick to define his perspective:

“I’m not a developmental biologist. I’m interested in genes, brains, and behavior.”

Hariri is a PhD neuroscientist. He’s also 33 years old, well over 6 feet, and lanky. His knees barely fit beneath his desk, and he appears ready to take the basketball that rests on his bookshelf out to the court, dressed as he is in shorts on a spring day. (He admits, somewhat sheepishly, that the ball hasn’t swished through the net for some time, though.)

Hariri’s work may help enable parents to one day talk very specifically about the genes that bias their kids for anxiety, depression, and other disorders. This is something that science has attempted and mostly failed to do.

Hariri studies activity in the amygdala, an almond-size region of the brain linked to fear and emotion.

In a 2002 paper in Science, Hariri and colleague Daniel Weinberger at the National Institute of Mental Health looked at a variant of the human serotonin transporter gene, which had long been suspected of having a link to anxiety. Using functional magnetic resonance imaging (fMRI) of the brain, they showed that people with two copies of this variant, as compared to those with only one or no copy, tended to show much greater amygdala activity when they viewed pictures of scared faces (see “Hariri’s Hammer”). In other words, some people’s brains have a genetic tendency to react strongly to emotional stimuli. Notice, the researchers hadn’t tried to connect the gene to behavior yet—only to brain activity.

However, in Nature Neuroscience this year, Hariri, Weinberger, and colleagues took one more step in linking genes to brain function and finally to behavior. They found that the gene variant biased communication between the amygdala and prefrontal cortex. That’s a process that shapes behavior and predicts the degree to which healthy humans are harm avoidant. How biologically reactive we are to signs of danger is probably an adaptive trait, but it also appears that it can place us at greater risk for anxiety or depression.

For Hariri, the obvious next question is, what happens to people with these variants in adolescence—when so much of this brain development, including the formation of neural circuits that process negative emotion—is occurring? Also, how do some people with highly reactive amygdalas avoid depression and anxiety, as so many of them do?

Hariri theorizes, “You take that person who has a more reactive amygdala because of his genetic background, and you put him into a very nurturing environment that protects that individual … and in all likelihood, you won’t see any differences. He won’t be more vulnerable to becoming sick, to developing anxiety or depression than the next person without that particular genetic background. You take that same individual and you put him in a very unstable background, without parents, without social support, always encountering stressors in his life—they could be socioeconomic stressors or they could be very direct, acute stressful events like the loss of a loved one, crime, etc.—then the environment begins to provoke a system that’s already more reactive. That’s genetically more reactive. And that’s where you start this downward spiral into increasing susceptibility for disease.”

This is not to say that the parent of the near future need only obtain a genetic profile to know whether a child is at risk of a behavioral or emotional problem. There are lots of depressed people who don’t carry such genes. For example, says Jennifer Silk, a new assistant professor of psychiatry, we know that about 40 percent of children with a depressed parent will go on to develop depression themselves. This is probably a result of a combination of genes and environment. Designing strategies to identify and help that 40 percent requires insights that come from both neuroscience and clinical psychology.

Last year, Silk was a postdoc working with
Greg Siegle, a PhD assistant professor in Pitt’s psychiatry and psychology departments. Siegle had found a curious phenomenon in the way that depressed adults responded to reading emotional words. He used a simple video camera to measure light reflecting from a person’s retina. Like the red eyes that show up in a snapshot, the light reveals pupil size from moment to moment. The participants read words like death, war, divorce, and lonely. At other times, they would read neutral words—table, door, pencil—or words like happy, friend, and sunshine. Almost without fail, people’s eyes dilated in response to reading words associated with negative emotions. Most returned to baseline within a few seconds. In depressed adults, the dilation often lasted 15 seconds or more.

It looked like Siegle and Silk had found what poker aficionados call “a tell.” (If eyes dilate in response to sad words, perhaps they do the same when faced with a lousy pair of deuces—no wonder gamblers sport sunglasses.) “What we think it’s telling us,” says Silk, who is more interested in the neuroscience of depression than she is in poker, “is that they have a stronger reaction to emotional information, or they are thinking about negative information over and over again.” The eyes reveal activity in the brain.

As a new faculty member working with Dahl’s group, Silk is using this approach to study adolescents at high risk for depression. You might expect that depressed teens would react to sad words in a similar way. Silk did, too, but was wrong.

“They pupils dilate, then quickly go back to normal, like a healthy adult,” she says. “Normal kids? Their pupils dilate, and stay dilated for a while. Just like depressed adults. It’s the direct opposite effect.”

Silk thinks those who are prone to depression have the ability to shut down negative emotional reactions early in life but lose that ability later on, perhaps during adolescence. She’s interested in finding out exactly when in adolescent development such neurobehavioral changes occur and whether they are linked to the hormonal changes of puberty. (Evidence shows that some features of adolescent brain development occur even in children with delayed puberty.) The ultimate goal is the prevention of depression, and finding out when our patterns of emotion regulation form is key to prevention. This year, she’ll expand her study to include more kids from ages 8 to 18, in hopes of watching their development throughout the course of several years.

“W e miss seeing his smile,” the concerned teacher said to the mother of one of her students. Eleven-year-old Jesse was a quiet kid, but he did well in school, and he’d always loved going to football practice. Suddenly, he didn’t care about practice anymore. When he won an essay contest at school, he didn’t want to go to the award ceremony to read it aloud. This normally pleasant kid was now getting into schoolyard scuffles with other boys. That’s when his mother brought him to the outpatient STAR clinic (Services for Teens at Risk) at WPIC, and they met Erika Forbes, who’d recently received a Pitt PhD in clinical and developmental psychology and was doing her clinical internship.

Forbes saw Jesse every week for psychotherapy. She used cognitive-behavioral therapy. In other words she addressed automatic thoughts—helping Jesse understand how thoughts, emotions, and behavior are linked. She then helped him change his mood and change his behavior by addressing his thoughts and teaching adaptive behaviors.

Jesse was a motivated kid who wanted to take steps to get better. Fortunately, he made quick progress during the two or three months that he continued therapy at the STAR clinic.

Patients like Jesse (not his real name) encouraged Forbes to start thinking about depression in a new way: It’s not just a preponderance of negative thoughts and emotions (“negative affect,” as it’s known in the field), it’s a change in positive affect. Jesse had lost his smile. He’d lost his motivation to play football and to do well in school. To understand the biology of these behaviors, Forbes, who had spent much of grad school studying behavior and emotional expression, began to study brain anatomy and neuroscience. She’s now doing a postdoc in the School of Medicine with Dahl as her adviser and beginning a research project that will use fMRI to understand what’s going on in the brains of adolescents like Jesse as they increase or decrease positive thoughts and emotions. She envisions one day diagnosing types of depression in adolescents more precisely, so that clinicians can recognize when enhancing positive affect would have the most benefit.

Dahl describes Pitt’s program as clinically oriented: “We want to use this advancing knowledge about adolescent brain development to really inform clinical and social policy.” He and his colleagues believe that they can show that adolescence is not only a period of increased risk for psychopathology but also the period in which clinicians can get “the most bang for their buck” in terms of intervention. Pitt’s clinical approach embraces a lot of disorders, says Dahl, rattling off a list of experts in depression, anxiety, pediatric bipolar disorder, and drug and alcohol abuse. Several of these experts, like Silk and Forbes, have been mentored by Dahl.

“We’re like talent scouts,” says Kupfer, describing why he noticed a med student named Ron Dahl and encouraged his research interests. Twenty years later, his prospect has become another scout.
Flordeliza Villanueva and colleagues were the first to prove the principle that—with the use of ultrasound—heart disease could be diagnosed in a living being at the cellular level. Here is an early version of the targeted microbubbles her team developed that make this possible. What you see here are microbubbles adhering to inflamed cultured rat endothelial cells. (Later, she demonstrated this technique works in living animals, too.) The bubbles stick to the inflamed cells because these cells overexpress unique molecules on their surfaces. The shells of the targeted bubbles bear antibodies directed against these molecules, causing them to flock to inflamed cells.
The stranger on the phone wanted to see Flordeliza Villanueva's research.

Gary Brandenburger explained himself: He was living at Family House in Pittsburgh (this was in 1995), while his wife, Linda Brandenburger, waited for a heart-lung transplant. Although she was very ill, Linda, a psychiatric nurse who specialized in counseling people facing medical crises, was keeping busy in the ICU, helping fellow patients and their families. Brandenburger, however, far from their home in St. Louis and his biomedical engineering work at a pharmaceutical company, was looking for something useful to do. A coworker recommended he visit Pitt cardiologist Villanueva.
Villanueva welcomed Brandenburger to her lab. As a cardiology fellow in the late ’80s at the University of Virginia, she had studied noninvasive methods of imaging heart disease. It was there that she first investigated microbubbles, inert gaseous bubbles smaller than red blood cells. Brandenburger was an engineer for a company that designed the only commercially available microbubbles. These tiny bubbles zoomed through arteries and veins without causing blockage. When used with echocardiography, the sound waves bounced off the bubbles, causing the orbs to glow and reveal otherwise hidden processes like blood flow. Toward the end of her fellowship in Virginia, Villanueva had noticed that the bubbles sometimes clung to injured vascular tissue; this intrigued her.

When she came to Pitt, Villanueva continued to work with the commercial microbubbles, but she wished they consistently stuck to molecules appearing on cell surfaces in the early stages of heart disease. That way, she could produce pictures of disease during its genesis or shortly thereafter. Imagine, she thought to herself, if I could get the bubbles to work, cardiologists could detect early coronary heart disease in people in their 20s—decades before symptoms even developed. (In cases of atherosclerotic cardiovascular disease, physicians have no way of knowing there’s a problem until a patient endures symptoms like chest pain, shortness of breath, fatigue—or until it’s too late.) And using such bubbles, physicians would be able to identify early heart disease noninvasively. Villanueva was exploring this idea in the mid-1990s, when no one was producing images of disease on a molecular level with ultrasound, certainly not in living people.

The proposition fascinated Brandenburger, too. After watching Villanueva’s research group at work, he said, “Hey, do you guys want to create your own bubbles?”
Currently, physicians take more than a dozen biopsies in the first year after surgery to determine a heart transplant recipient’s chance of rejection. If the standard of care one day became targeted-microbubble imaging, patients would not be required to go through frequent, unpleasant biopsies. Gregory Weller (MD/PhD ’05), as a grad student in Villanueva’s lab, investigated this possibility. The top left ultrasound image shines brightly because Villanueva’s targeted microbubbles cling to cells rejected after transplant. (Both top images are of rejecting hearts; the bottom images aren’t rejecting. Both left images are made with targeted bubbles; the images on the right are made with bubbles that aren’t targeted.)
After months of trial and error, Villanueva (who’s now an associate professor of medicine at Pitt), William Wagner (now an associate professor of bioengineering, of chemical and petroleum engineering, and of surgery at Pitt), and Brandenburger’s colleague in St. Louis, Sasha Klibanov, created a bubble filled with an inert gas. The gas was encased in a lipid shell. Within the shell, the researchers had embedded a protein—an antibody that binds to molecules that appear on the lining of blood vessels in the early stages of disease. In other words, they’d created a bubble that consistently attached to damaged tissue, which otherwise would be hard to tell was damaged.

Brandenburger returned to his lab in St. Louis in 1996 after his wife received her new heart and lungs. In 2001, he came back to Pittsburgh with Linda—her body had rejected her lungs. Villanueva stood by his side as they watched Linda take her last breath. Their friendship not only led to the first targeted microbubbles (which are now being refined in animal models), but also to the founding of a charitable organization in Linda Brandenburger’s name. Today, Villanueva believes these microbubbles will change how doctors detect other diseases and conditions as well, including transplant rejection.
After the initial success with targeted microbubbles, Villanueva and University of Pittsburgh Cancer Institute colleagues have come to believe that the bubbles could improve noninvasive imaging techniques for many conditions, not just for cardiovascular disease and transplant rejection. They created microbubbles with a tripeptide embedded in their shells (blood vessels in cancers overexpress molecules that bind the tripeptide). In A, targeted microbubbles stick within a sarcoma engineered in a mouse model, and, when ultrasound is used, the microbubbles light up, generating a bright picture of the tumor. Image B is what a nontargeted-microbubble ultrasound looks like in the same tumor. In C, the targeted microbubbles illuminate a human prostate tumor growing in a mouse. The ultrasound in D is dark because nontargeted microbubbles are used in this same tumor.
The current recommended approach for detecting melanoma at best identifies only 80 percent of cases, says Martin Weinstock. (Others say only one third.) It’s time to move on, Weinstock believes.
Martin Weinstock remembers his obscure pursuits as a math major at Williams College in the early 1970s. One night in the computer lab, he wrote a program to find what were then called happy numbers. He was interested in any number whose digits, when raised to a power (squared or cubed, for example) and added, equal the number itself. His program ran for a couple of hours and was still going when it was time to shut the computer off for the night. He convinced the student computer administrator to let it keep running, despite department policy. The computer was still churning away at Weinstock’s program the next morning, which landed him in the office of the chair of the math department.
kind of happy numbers formula—one that he believes will save the lives of thousands.

In his junior year in college, he typed letters to 50 medical researchers asking whether they needed a summer lab intern with no prior lab experience. Only one of them did: the director of Columbia University's cancer institute. Weinstock moved into the medical school dormitory and went to work in the lab. It was a classic wet lab, with pipettes and solvents. He didn't care for this work, either. It seemed his life in medical research would end with the passing of summer. Then free food came into the picture. Years later, he is pursuing another

Weinstock got a wink-and-a-nod lecture and notoriety in the department. But the lack of practicality in searching for things like happy numbers made him certain that he did not want to spend his life doing pure math. Many of his friends were premed students, as was his older sister, Ruth (now an MD/PhD who directs a well-regarded diabetes center at SUNY Upstate Medical University, in Syracuse). So Weinstock wondered whether there might be a way to use his math skills in medicine. Years later, he is pursuing another

It seemed his life in medical research would end with the passing of summer. Then free food came into the picture.

Weinstock's dorm offered its residents complimentary breakfast, so he was there every morning. One day late in the summer, he sat down at a table with a lively group of about 10 people, none of whom had he seen there before. In the group was a white-haired woman. As they talked, she looked at him closely; then she asked whether he had written her a letter looking for a summer job.

The woman was Zena Stein, even then a famous epidemiologist. Her offices were in the next building, and she invited Weinstock to come see what she did. As Stein talked about her research—which, in a broad sense, involved studying how the public could be motivated to adopt healthier behaviors, such as quitting smoking—she piqued his interest. Weinstock arranged a winter study program with her.

“It was complete happenstance, and it really changed my life,” he says. After he graduated from Williams, summa cum laude in mathematics, he became the first MD/PhD candidate in Columbia's epidemiology program.

“It's quite special to have someone with both mathematical and medical interests” in epidemiology, says Stein. Weinstock, whose dry one-liners are delivered in a Groucho Marx cadence, made her laugh, too. When Stein studied IQ scores based on birth order, Weinstock, with his own family's pecking order in mind, wanted to know “if the first born was a girl, will you have a higher IQ if you're the second born?”

She remembers how upset he was about the incident at Three Mile Island. It was nice to see that he cared as deeply about public health issues as she did.

“To the average young man or woman entering medical school, ‘public health’ means drains and sanitation,” she says with a sigh.

Weinstock's own PhD work established that filtered cigarettes had the same impact on birth weights and miscarriages as the unfiltered kind. After finishing his MD at Columbia in 1983, he trained in the University of Pittsburgh programs at UPMC Presbyterian and at the VA Pittsburgh Healthcare System as a resident in internal medicine. Both Weinstock and his wife found the city a relief after years of being cramped in Manhattan. They particularly enjoyed taking their 1-year-old daughter to summer events at Point State Park.

Weinstock also remembers that the Pitt training environment under the chair of medicine, Gerald Levey, was rigorous yet more supportive than many. “In a very real sense, it trained me to be a doctor,” he says.

But he picked internal medicine as a residency before his final rotation of medical school, dermatology.

Dermatology appealed to him on multiple levels. The mathematician in him liked the elements of pattern recognition in the field—most skin diseases can be diagnosed on sight. The epidemiologist in him saw obvious potential for public health. The doctor in him liked the clear-cut impact a dermatologist can have on patients—lesions can be excised, rashes dispelled.

“You can often make people feel better very quickly—and that’s really nice!” he says.

Weinstock was accepted for a dermatology residency at Harvard after he started at Pitt. It was at Harvard that Weinstock began to study melanomas and to develop ways to apply epidemiological approaches to the field of skin cancer.

“What he did with us was really top-quality work,” says Walter Willett, a professor of medicine as well as the Frederick John Stare Professor of Epidemiology and Nutrition at Harvard. Willett says that one of his main career regrets is that Harvard couldn't find a way to keep Weinstock when Brown University came calling.

“We consult with him even now. He is one of the very few dermatologists with epidemiological experience. And he’s special—reasonable, thoughtful, smart, generous with his ideas.”

One of the salient events of Weinstock's research career occurred while he was at Harvard. An older man came in complaining about a spot on his skin. It was late on a Friday afternoon, and the man apologized to Weinstock and the attending physician at Lahey Clinic for the bother, but there was this mark on his leg, and it wouldn't go away. Even dumping Gold Bond Medicated Body Powder on it hadn't helped, he explained.

Weinstock looked at the black, snarled, crusty lesion and knew immediately that it was advanced melanoma, which the man had less than a 50 percent chance of surviving. He doesn't know what happened to that patient. Weinstock has long since moved from Boston to Brown University's Medical School, a move he made in 1988; he still wonders about that man.

In time, Weinstock grew more and more concerned with finding ways to diagnose
Weinstock’s instruction on its Web site.

It does feature guidelines on such exams, it does feature Cancer Advisory Group to promote self-
tion, such as the Check-It-Out Project he
demiological impact of skin self-examina-
tions. That’s the central irony of melanoma.

About 1 million Americans are diagnosed with skin cancer each year, making it by far the most common form of cancer, occurring about as often as all other forms combined. Most cases are basal cell carcinomas, a lesser amount, squamous cell carcinomas. But a growing number, now about 60,000 a year, are melanoma, which is the deadliest of the three; about 8,000 Americans die of it each year.

Weinstock thinks this number represents needless tragedy, and he means to change it. “My goal is to cut melanoma mortality in half,” he says.

To do so, he has been plugging away to find a different sort of formula from the one that got him notoriety in college. And he thinks he’s hit on it.

Weinstock has not found a cure for skin cancer. That will be for a wet lab researcher. But he thinks that a two-pronged approach of training doctors to look for melanoma signs and teaching people how to examine their own skin will rapidly drive up melanoma detection rates—and send fatality rates plummeting.

In July, he rolled out a Web-based training program for doctors detailing BSCT, for basic skin cancer triage (referred to as “Biscuit”). It is based on an eight-step detection algorithm for melanoma. The initial study involves 50 doctors.

“We’re trying to demonstrate that it will work. If I can say there’s unequivocal proof that it does, then we have a shot at making this program a requirement for doctors.” (Brown already incorporates skin cancer detection in its med school curriculum and intends to make BSCT its foundation.)

Weinstock is continuing to study the epidemiological impact of skin self-examination, such as the Check-It-Out Project he devised. And he’s using his position as chair of the American Cancer Society’s Skin Cancer Advisory Group to promote self-exams. Although the ACS has yet to formalize guidelines on such exams, it does feature Weinstock’s instruction on its Web site.

There is, of course, an existing detection program for melanoma—the ABCDs campaign. The acronym, introduced in the mid-1980s by a team of dermatologists at New York University (NYU), stands for four characteristics of a melanoma growth: asymmetrical shape, border irregularity, color variations, and diameter (at least six millimeters). It’s been a successful campaign. Numbers show that for 25- to 34-year-olds, melanoma death rates are dropping. Indeed, melanoma, which 50 years ago killed about half the people diagnosed with it, today kills about 11 percent of them. (Although in some groups, like men older than 60, fatality rates have risen sharply.)

Weinstock says the ABCDs have worked very well. In the next breath, he qualifies that remark: The ABCDs at best identify about 80 percent of melanomas (others say less than a third), and it’s time to move on to something else. He recommends focusing on new and changing lesions. But his proposal has been “a tough sell,” Weinstock says, in part because the ABCDs are seen as having been very effective.

Darrell Rigel, a professor of dermatology at NYU who helped devise the ABCDs, thinks Weinstock is right that “it’s time for some movement forward” past them. “Anything that improved survival rates, we would embrace,” he says. “The problem is you will never come up with a template to catch 100 percent of melanomas.”

Rigel has known Weinstock for more than 15 years and says, “His energy and enthusiasm for what he does are infectious.” He thinks Weinstock is generally so far ahead of the crowd that it can take a while for others to grasp his ideas. “I usually look at them and say, ‘Why didn’t anybody think of that before?’”

Even so, Rigel thinks Weinstock’s goal of cutting melanoma deaths by half is “lofty.” He adds quickly, “I would love to do that, too.”

Even Arthur Rhodes, head of Rush University Medical Center’s Melanoma Surveillance Clinic in Chicago and a long-time collaborator of Weinstock’s, thinks the goal is unrealistic, because it depends too much on people developing a good habit.

Weinstock, however, keeps the faith that melanoma numbers will get happier through his vision: “We’ll see if I’m proved naïve.”

In part because of work by Weinstock and others, there is some stirring to add another letter to the ABCDs. A team of NYU researchers in December proposed adding an E to the ABCDs, for “evolving” lesion.

John Kirkwood, a noted melanoma special-

ist and Pitt professor of medicine, thinks other letters are needed for early detection. He calls the ABCDs “an old algorithm” and notes that by the time a spot meets one or more of the criteria, “it’s a pretty far gone disease.” Kirkwood wants to focus on three new letters—the E for evolving, but also N and U (for new and unusual lesions). Kirkwood and Weinstock are putting together a research proposal now on the early detection of melanoma.

Weinstock’s office is at the VA hospital in gritty west Providence, R.I., a seven-story affair made of brown brick set alone on a hill. From his fifth-floor office window, he has a clear view to the downtown skyline, with the dome of the state capitol smack in the middle. His office has its own skyline, of paper. There are six chairs, yet no place to sit—various stacks of documents rest on them, representing different projects in process. His office door, however, is bare, save for a fortune cookie prophecy: “You may prosper in the field of medical research.”

It will take years more to prove his theories on the impact of doctor and patient education about skin exams. But Weinstock is both ambitious and patient, according to his wife, Gail Gilkey. He relishes tasks others see as onerous, she confides: “He loves doing the taxes. He can’t wait until January.”

She smiles a bit as she thinks back to what she refers to (several times) as a “rocky” courtship at Columbia. Her “hemming and hawing” about the relationship just seemed to bolster his interest, she says: “I think he was like, ‘Hey, she’s not going to say no to me.’” They’ve been married for 24 years.

AUGUST 2005

One sunny day in May, Weinstock talks to a group of undergraduates at the University of Rhode Island. It’s one of the first beautiful days of the New England spring and near the end of the school year, so the students aren’t very responsive—his jokes have gotten almost no laughs, nor has his wordplay (e.g. “moliness”).

Then Weinstock starts putting up slides of advanced skin cancers from patients he’s seen over the years. The photos are grippingly horrible, like watching a collision unfold. The snarled, black lesion from the man at Lahey Clinic is the star of the show. In all likelihood, the man’s cancer had metastasized by the time he came to the clinic.

Now the students are paying attention.

One step at a time, Weinstock is getting people to understand what’s at stake.
In addition to many community members who were “polio pioneers,” the Class of ’53 took part in tests of the vaccine. Clockwise from top: Jonas Salk draws blood from Marie Adele Reagan. Melvin Cohen applies the needle to Henry Mankin, then to John McCague Jr. Robert Milligan watches Michael Miklos work on the arm of James Medley. Marshall Levy bends to inspect blood sample tubes with Salk. Charles Adams draws blood from David McAninch. (Circa 1952.)
As the heat set in, parents told their children to avoid crowds in the summer of 1954. No trips to Kennywood. No afternoons at the pool. Wash the fruit good, they said. It’s polio season.

Newscasts and March of Dimes telethons brought images of children with crutches, canes, braces, or wheelchairs or encased from the neck down in monstrous, negative-pressure ventilators known as iron lungs.

When letters and permission slips from Jonas Salk arrived in the mail during the school year, parents worried; they argued at the dinner table. This new vaccine, this clinical trial, was it safe enough for their children? The Sunday before the testing began, nationally syndicated gossip columnist Walter Winchell reported that the Salk vaccine might actually kill them, and fear tightened its grip. Perhaps it was the thought of another generation in this stranglehold that convinced parents to sign those permission slips.

As part of this year’s 50th-anniversary celebration of the Salk vaccine developed at the University of Pittsburgh, Pitt invited those who had participated in the clinical trials or wrestled with the disease firsthand to share their memories. Hundreds responded. Soon to become part of the University’s archives, their accounts tell the story of how ordinary people helped win the struggle against one of the most crippling diseases in history.

Even today, if I were to hear the gentle swishing of the ventilators, I would recognize the sound immediately.
—Diana Ney, Pittsburgh

In 1946, Diana Ney started her first job out of school as a nurse at Municipal Hospital in Oakland. She worked to the mechanized rhythms of ventilators in the otherwise quiet of night. She could hear them all the way down at the nurses’ station.

Nurses at Municipal were required to wear short sleeves, short hair, and short, unpolished nails. In this place where Ney’s lifetime devotion to cleanliness began, she was unnerved to see the occasional mouse near the autopsy room, which Salk’s team used as an animal lab. Tiny, white-furred mounds scooted along the halls dragging paralyzed hind limbs behind.

Ney learned to handle polio patients by their joints, mindful of the tender muscle bellies, and to watch patients closely through their acute phases, knowing the quicker the progression of symptoms, the bleaker the prognosis. Patients arrived with fevers and stiff necks, their hamstring muscles tightening as the disease began to take its toll. Children cried for their families, and young adults who’d been in their prime just months before struggled for the strength to clench their fists in frustration. Some patients depended on the staff for everything, right down to scratching their noses. Ney and her team brought the outside world to those confined to the hospital walls, reading newspapers and playing Oklahoma! and South Pacific records to pass the time.

Some patients are as vivid to her now as they were 50 years ago: Patients like the schoolteacher who used to summon Ney down the hall over and over through the night shift—a ploy to keep herself awake. The teacher feared that she would stop breathing if she fell asleep in bed. She’d only let herself sleep in the iron lung. And patients like the G.I. who survived a war only to fall as a casualty of polio. That soldier’s favorite record still turns in Ney’s mind:
“There’s nothing left for me of days that used to be. I live in memory among my souvenirs.”

They took my little brother away somewhere, and I didn’t know why.
—John Brown
Harrington Park, N.J.

John Brown was 6 years old when the red-and-white quarantine sign was nailed to his front door in the summer of 1952. He still remembers crying on the front lawn of their Penn Hills home as his parents took 1-year-old brother Jimmy to Municipal. Two weeks later they took John, too, but at first, the boys were not allowed to see each other. For months, they couldn’t see their parents, either, as clergy were the only visitors permitted in the wards. In a room full of other sick children, John felt alone.

Today, if you mention Mrs. Moore—the sweet lady who snuck in popsicles for the children, called them her precious babies, and told them that their parents loved them all very much—John Brown’s voice trembles. “She is still the nearest thing to an angel I’ll ever know,” he says.

One day, people dressed in white put John in a bathtub full of water so hot that it hurt. When they dried him off, they dressed him in flannel pajamas to move him to a new room. They wheeled John’s bed down the hall and parked him next to his brother. “Bubba,” Jimmy said, over and over, and the two stretched their arms out toward each other, reaching, reaching, reaching. Even now, the feel of flannel is still a warm, visceral comfort to John.

Summer passed, fall came, and the boys remained together in that room. Through the window they could see the massive wall of Pitt Stadium outside. On game days, they heard the bands play and could even see the blue-and-gold uniformed football players pass on the sidewalk below. Years later, they learned that their father stood on that same sidewalk for hours looking up at their room. With Dad on the street below, John in his bed, and Jimmy in his crib, they were a family again.

I thought it was part of elementary school. I remember telling my friends that I liked school “except when they took blood from me.”
—Evelyn Levine, Pittsburgh

In designated schools across the nation, children lined up in alphabetical order, rolled up their sleeves, and waited. It was hardest on the kids at the end of the alphabet; fears mounted as they watched Salk’s team administer vaccines and draw blood at the front of the line. The needles, sterilized in flames and used again and again, became dull and weak, sometimes breaking in the children’s arms. Crying was contagious. Some trial participants still wince at the smell of rubbing alcohol.

A man on the television announced that the vaccine worked. Mom came over, held me tight, and wept. The battle had been won. That we had taken part made the victory that much sweeter.
—Mike Silverstein
Washington, D.C.

The April 12, 1955 announcement of the Salk vaccine’s success ended polio’s reign of terror in the United States. In the years that followed, the iron lung faded from public attention. The primary manufacturer of the machines ceased production in 1970, and last year, the company that maintained the few remaining iron lungs in the United States announced that it would no longer provide spare parts for repairs. Once so precious in medical wards that patients were triaged for their use, iron lungs now number fewer than 40 across the country. Iron-lung users have been forced to transition to positive-pressure ventilators, which some find far less comfortable. Others have stayed with the old standby because of emotional attachment. Perhaps after 50 years with one machine, it would be difficult to fall asleep with another and learn to trust that you won’t stop breathing.

BEING A POLIO PIONEER

My name is Linda Emanuel, and I am a polio pioneer. In 1955, I was 9 years old, and in third grade at St. Joseph’s School in Sharon, Pa. I remember the day we became a polio pioneer. I will always remember. I even recall what I wore—my nickname was Blackie, and I loved it and wore it.

We were always put in the back of the hall in the cafeteria when we had lunch.

In 1954 before I made a girlfriend of mine that had polio, she was supposed to push her up to the community when we were told about being polio-free. I never wanted to wear the wheelchair.

When we got to the classroom, I was terrified of a needle. He pushed me into a chair. A nurse came over and put on a nurse’s cap and tried to comfort me. The doctor approached him, and I couldn’t get away. We were told they had to give us shots. I was petrified. I had to get shot. The nurse started to cry and said, “You didn’t give me shot, or the bloodwork when I was passed out. They just said they couldn’t do shots then.”

For some reason or other, I was always sick when I was young. For years my one big effort would go on to build a couple of time ar...
### Anesthesiology
- Bloom, Jonathan
- Massachusetts General Hospital
- Chaplin, Maurice
- Medical University of South Carolina
- Kauwman, Stainer
- University of South Florida College of Medicine
- McCann, Spring
- UPMMC Medical Education Program
- Weller, Gregory
- Hospital of the University of Pennsylvania

### Dermatology
- Gibbs, Mark
- University of Michigan Hospitals-Ann Arbor
- Khera, Poonja
- UPMMC Medical Education Program
- Spicknall, Kendal
- Tran, Kim
- University of Texas SW Medical School-Dallas

### Emergency Medicine
- Albrecht, Robert
- St Luke's Hospital, Pa.
- Britton, Brigit
- St Luke's-Roosevelt Hospital, N.Y.
- Dingman, Jeffrey
- University of Maryland Medical Center
- Foderingham, Nia
- Rhode Island Hospital/Brown University
- Guyton, Steven
- Palmeto Health Richland Hospital, Columbia, S.C.
- Hammons, Matthew
- Resurrection Medical Center, Ill.
- Lessen, Aaron
- University of Arizona Affiliated Hospitals, Tucson
- Marchik, Michael
- Carolina Medical Center, N.C.
- McCallen, Patricia
- Yale-New Haven Hospital, Conn.
- McFarland, Cameron
- University of California, San Diego Medical Center
- McLaughlin, Michael
- University of Arizona Affiliated Hospitals, Tucson
- Popson, Kendra
- Vandebilt University, Tenn.
- Schmidt, Katherine
- University of Utah Affiliated Hospitals, Salt Lake
- Scott, Sara
- University of Maryland Medical Center
- Sutherland, Katherine
- Maricopa Medical Center, Ariz.
- Weng, Kelvin
- Loma Linda University, Calif.
- Yang, Mike
- Stony Brook Teaching Hospitals, N.Y.
- Yonek, Dyan
- UPMMC Medical Education Program
- Zhong, Xun
- Mount Sinai Hospital, N.Y.

### Family Practice
- Alkon, Allison
- East Tennessee State University
- Calhoun, Amelita
- National Capital Consortium, Andrews AFB, Md.
- Dickson, Gretchen
- University of Missouri-Kansas City Programs
- Gibson, Margaret
- UPMMC St. Margaret
- Jupan, Richard
- North Colorado Medical Center
- Landfair, Jeffrey
- Maine Medical Center
- Lin, Robert
- University of California Irvine Medical Center
- Manuel, Jeffrey
- Exempia St. Joseph Hospital, Colo.
- Marts, Paulina
- INDIV Fairfax, Va.
- Marts, Eric
- UPMMC St. Margaret
- Ricks, Laila
- Christiana Care Health Services, Del.
- Roth, Elizabeth
- Maine Medical Center
- Shelsky, Gretchen
- UPMMC St. Margaret

### Internal Medicine
- Children, Jodie
- University of Rochester/Strong Memorial Hospital, N.Y.
- Englert, Joshua
- Brigham & Women's Hospital, Mass.
- Levine, Lena
- University of Virginia
- McFarland, Soyoung
- Scripps Mercy Hospital, Calif.
- Ramamoorthy, Mena
- Duke University Medical Center, N.C.
- Reilly, James
- Hospital of the University of Pennsylvania
- Smith, Jessica
- Duke University Medical Center, N.C.
- Thomas, Michael
- Duke University Medical Center, N.C.
- Weaver, A. Charlotte
- Northwestern McGaw/NNH/VAMC, Ill.
- Yang, Mary
- Kaiser Permanente-Santa Clara, Calif.
- Yehlert, Hans
- University of Rochester/Strong Memorial Hospital, N.Y.
- Zite, Christa
- University of Maryland Medical Center

### Internal Medicine—Pediatrics
- Weiser, Larnamia
- University of Connecticut Health Center

### Internal Medicine—Primary
- Collbran, Jessica
- Johns Hopkins/Bayview Medical Center, Md.
- Coppola, Francesca
- Hospital of the University of Pennsylvania
- Harper, Sarah
- George Washington University, Washington, D.C.
- Higginbotham, Jeffrey
- Johns Hopkins/Bayview Medical Center, Md.

### Internal Medicine—Women's Health
- Goldberg, Laura
- UPMMC Medical Education Program
- Kohli, Susan
- UPMMC Medical Education Program

### Maxillofacial Surgery
- Cui, Pei Y.
- UPMMC Medical Education Program
- Janowicz, John
- UPMMC Medical Education Program

### Neurosurgery
- Mai, Jeffrey
- University of Washington

### Obstetrics/Gynecology
- Achilles, Sharon
- UPMMC Medical Education Program
- Kraus, Daniel
- Duke University Medical Center, N.C.
- Lantman, Eric
- Kaiser Permanente-San Francisco, Calif.
- Modirrooz, Melanie
- St. Barnabas Medical Center, N.J.
- Negri, Elizabeth
- University of Washington Affiliated Hospitals
- Price, Lectina
- Kaiser Permanente-Los Angeles, Calif.
- Sherman, Andrea
- University of California, Davis Medical Center-Sacramento

### Ophthalmology
- Chrastil, Drew
- UPMMC Medical Education Program
- Fernandes, Sandra
- Georgetown University/Winthrop University, Washington, D.C.
- Patel, Arvi
- Wilms Eye Hospital, Pa.

### Orthopaedic Surgery
- Badani, Neil
- University of California, San Diego Medical Center
- Blankenhorn, Brad
- Rhode Island Hospital/Brown University
- Budzis, Matthew
- Milton Hershey Medical Center/Penn State, Pa.
- Hecker, Daniel
- University of North Carolina Hospitals, Chapel Hill
- Kiehney, Thomas
- UPMMC Medical Education Program
- Limmer, James
- University of Michigan Hospitals-Ann Arbor
- Murdock, Ryan
- University of Maryland Medical Center
- Svol, John
- Duke University Medical Center, N.C.
- Other
- Fay, Jonathan
  (Venture Capital)

### Otolaryngology
- Bosley, Brooke
- Georgetown University Hospital, Washington, D.C.
- Ko, Min
- Case Western University Hospital, Ohio
- Varca, Jennifer
- UPMMC Medical Education Program

### Pediatrics
- Bhutta, Omar
- University of Washington Affiliated Hospitals
- Cheng, Yu-Tsun
- UCLA Medical Center, Calif.
- Cheli, Susan
- Children's Hospital of Los Angeles, Calif.
- Claus, Cheryl
- Children's Hospital Med. Center-NECOM, Ohio
- Dragomir, Thomas
- Children's Hospital Med. Center-NECOM, Ohio
- Gottshall, Emily
- University of North Carolina Hospitals, N.C.
- Harbiong, Josephine
- Children's Hospital of Los Angeles, Calif.
- Himbauch, Adam
- Children's Hospital of Philadelphia, Pa.
- Hesk, Cynthia
- Children's National Medical Center, Washington, D.C.
- Kilpatrick, Megan
- Children's Hospital of Pittsburgh
- Lamb, Jennifer
- Children's Hospital of Pittsburgh
- Patel, Beeta
- University of California, Irvine Medical Center
- Ruiz, Marcel
- Children's Hospital of Oakland, Calif.
- Shykeh, Michael
- Children's Hospital of Pittsburgh
- Silvestri, Sara
- Children's Hospital of Pittsburgh
- Wheeler, Kathryn
- University of Washington Affiliated Hospitals

### Plastic Surgery
- Mahajan, Ashish
- University of Wisconsin Hospital and Clinics

### Psychiatry
- Basinski, James
- University of Washington Affiliated Hospitals
- Curtis, Erin
- University of Wisconsin Hospital and Clinics

Girgis, Rupy
- New York-Presbyterian Hospital-Columbia
- Harris, Jennifer
- Brown University
- Igwe, Aminu
- University of California, San Diego Medical Center
- Javaherian, Traz
- UPMMC Medical Education Program
- Kambampati, Vikram
- Case Western University Hospital, Ohio
- Keener, Matthew
- UPMMC Medical Education Program
- Ketter, Jessica
- UPMMC Medical Education Program
- Lin, Kimberly
- Harbor-UCLA Medical Center, Calif.
- Vas, Steven
- Duke University Medical Center, N.C.
- Womack, Laura
- Cambridge Hospital/CHAM, Mass.
- Westmoreland, Samuel
- UPMMC Medical Education Program
- Williamson, Genevieve
- UPMMC/Fletcher Allen, Vt.

### Psychiatry/Family Practice
- Brent, Elizabeth
- Tripler Army Medical Center, Hawaii

### Radiology—Diagnostic
- Chen, Joseph
- University of Maryland Medical Center
- Chang, Margaret
- Boston University Medical Center, Mass.
- Green, Douglass
- University of California, San Diego Medical Center
- Harrington, Chrissone
- University of Arizona Affiliated Hospitals
- Ketchum, Neal
- UPMMC Medical Education Program
- Net, Jose
- Jackson Memorial Hospital, Fla.

### Research
- Chen, Gil
- UPMMC/Western Psychiatric Institute and Clinic
- Gauvin, Madeline
- Brigham & Women's Hospital, Mass.

### Surgery—General
- Aziz, Abdulhameed
- Barnes-Jewish Hospital, Mo.
- Bhayani, Neil
- Howard University Hospital, Washington, D.C.
- Chen, Ming
- UPMMC Medical Education Program
- Danka, Melissa
- Duke University Medical Center, N.C.
- ILassieur, Ryan
- University Hospital of Cincinnati, Ohio
- Porembka, Matthew
- Barnes-Jewish Hospital, Mo.
- Ram, Ravi
- SUNY RIC, Brooklyn, N.Y.

### Urology
- Colen, John
- Baylor College of Medicine-Houston, Texas
- Perkis, Hugh
- University of Southern California
- Richard, Jacob
- Wake Forest University School of Medicine, N.C.
- Sienke, Michelle
- Johns Hopkins Hospital, Md.
CLASS NOTES

‘40s William Miller (MD ’48), a practicing physician in Pittsburgh for the past 50 years, is thought to be the School of Medicine’s oldest living African American alumnus. In 2004, he received the Lifetime Achievement Award at the Minority Alumni Reunion, a four-day annual event. Miller was raised in Pittsburgh’s Hill District, and he opened a private practice there in 1950. At the time, Miller’s practice was one of about 10 in the Hill; now his is the only private practice in that neighborhood. Miller never considered leaving Pittsburgh, especially the Hill. “This is my home. It’s been my home since I was 3 years old,” he says. He plans to phase out his practice and retire in Pittsburgh.

Fred J. Payne (MD ’49) was tracking down viral diseases in Mauritius, an island east of Madagascar, in 1960. At the time, he was with the World Health Organization (WHO), serving as the leader of a diarrheal diseases advisory team. Payne and the rest of the team were trying to prove that infection, not malnutrition, was the source of diarrhea in many developing countries. On the island, Payne and his team identified a connection between the environment and health and determined an unknown virus was at fault. WHO set up a series of surveys for the next five years, which confirmed the team’s research. Years later, in 1978, Payne began working for the Fairfax County Health Department in Virginia, just before the emergence of HIV in the United States. Although Payne and the other health department physicians did not know what was causing HIV, they suspected it was a virus. Payne now is with the Children’s AIDS Fund in Washington, D.C., which supports the treatment of children with AIDS in Africa.

‘60s Lois Pounds Oliver (MD ’65) retired from teaching and medicine after her husband, Tim Oliver (former chair of pediatrics), became ill and died. Yet the one-time Pitt med dean of student affairs can’t seem to leave academia. She volunteers at Duke University’s gardens and chapel and takes classes, too. She has enrolled in a series of writing classes there—her assignments have turned into a memoir. Her classmates in an ethics class included other senior citizens from Duke’s Institute for Learning in Retirement but also undergrads. She especially had fun comparing views on sex and dating with her classmates.

If you’ve had a hard time tracking her down, that may be because she lasted no Stuffy Science | John Larosa

On a whim, John LaRosa (MD ’65), president of SUNY Downstate Medical Center in Brooklyn, began studying cholesterol and metabolism with a mentor at the National Institutes of Health in the ’60s because that investigator was unlike the other stuffy and preoccupied scientists he had met on interviews. Luckily, he found cholesterol and metabolism to be just as fascinating as his initial interest, infectious diseases.

Forty-some years later, LaRosa, winner of the Medical Alumni Association’s 2005 Hench Award, is internationally recognized for his work on statins. Even with his formidable administrative duties, he’s still an active researcher. He led a five-year study of the impact of administering intensive doses of the lipid-lowering drug atorvastatin; the study followed 50,000 people from the United States, Canada, Australia, Europe, and South Africa. Study results, published in April in The New England Journal of Medicine, suggest that lowering cholesterol below currently recommended guidelines offers significant additional benefit in preventing both heart attacks and strokes.

Looking back on a lifetime of effort to help people maintain or lower their cholesterol levels, LaRosa realizes that half the problem is getting people to adhere to a regimen. “Fifty percent of people on prescription stop taking their medicine because they feel okay,” he says.

During his six-year tenure at SUNY Downstate, he has established major biotechnology initiatives and doubled extramural research funding. Before joining SUNY Downstate, LaRosa was chancellor of Tulane University Medical Center in New Orleans.

If LaRosa could have an alternate profession, he says it would be music. He plays jazz piano and has performed in New York and New Orleans. He even formed a band called Generation Gap with his kids.

“It unstiffens you, makes you look human. But I don’t really care about all that. I’m just glad that I’ve had the chance to play with some really great musicians,” he says. —Nita Chawla
A patient suffering from a mild stroke came to Lawrence Wechsler (Res ’80) and a colleague in 1988. Wechsler was a young neurologist recently returned to Pittsburgh after several years of additional training at Massachusetts General Hospital. Instead of giving the man a blood thinner, aspirin, or another oral drug that needed hours to take effect, the doctors inserted a microcatheter into an artery in the man’s leg, then threaded it to the clot threatening the brain where they administered a new clot-busting drug, urokinase. Wechsler and his colleague would be among the first doctors anywhere to report on using urokinase to dissolve clots this way. (There’s still interest in this interarterial therapy today.) The patient went home a day later. Encouraged by the patient’s recovery, Wechsler needed hours to take effect, the doctors inserted a microcatheter into an artery in the man’s leg, then threaded it to the clot threatening the brain where they administered a new clot-busting drug, urokinase. Wechsler and his colleague would be among the first doctors anywhere to report on using urokinase to dissolve clots this way. (There’s still interest in this interarterial therapy today.) The patient went home a day later. Encouraged by the patient’s recovery, Wechsler

In 1966, Elvis L. Barnes (Pathology Resident ’66–’67) took a break from his medical education to help out at Darnall Army Community Hospital in Fort Hood, Texas. The sprawling military post desperately needed doctors during the Vietnam War. Barnes was chief of pathology and laboratory director. At the base, there were frequent accidental deaths, caused by episodes like soldiers drowning or being hit by cars. Barnes performed autopsies to determine whether drug or alcohol use contributed. As an anatomic pathologist, Barnes now analyzes tissue from patients undergoing surgery, specifically for head and neck cancers. “We’re like the doctors who guide the surgeon’s hand,” says Barnes, who determines the type of tumor and whether or not the surgeon completely removed it during surgery. He is at UPMC Presbyterian.

While in Vietnam as a battalion surgeon, Michael Landay (MD ’66, Internal Medicine Resident ’69–’70) met a superb radiologist who inspired him to switch fields. Since 1975, Landay has practiced at the Parkland Memorial Hospital and taught at the University of Texas Southwestern Medical Center at Dallas. He was recently named the Jack Reynolds Professor of Radiology.

In the late 1970s, when James Cottrell (Pediatric Anesthesiology Resident ’70) worked at New York University, he was frustrated by the lack of textbooks on neuro-anesthesiology. Too much blood in the brain can be devastating—and young anesthesiologists needed a reference to avoid such mistakes during brain surgery. So he wrote one of the first textbooks on neuro-anesthesiology and later founded the Journal of Neurosurgical Anesthesiology. (He is still editor in chief.) Cottrell is now chair of the anesthesiology department at SUNY Downstate Medical Center in Brooklyn, where he teaches and researches ways to prevent perioperative strokes. He is also interested in how deep anesthesia can cause cognitive dysfunction and cell death.

One day during his critical-care fellowship, a colleague told Ernesto Pretto (Critical Care Fellow ’83–’85) about a doctor named Peter Safar. Pretto had never heard of this doctor, but his friend assured him that Safar was conducting exciting research. So Pretto called Safar to see whether he could work in his lab. It was only after Pretto started—at what is now Pitt’s Safar Center for Resuscitation Research—that he learned Safar was a giant in critical care medicine and the “father of CPR.” Pretto is now chief of the division of solid organ transplant at Jackson Memorial Hospital in Miami. Pretto is creating an animal model to study how doctors can better care for both donors and recipients of organ transplantation. Many donated organs are marginally efficient because of trauma that the donor undergoes during illness. Pretto believes that if doctors were to treat both the donor and recipient with antioxidants, for example, the organ would be healthier and perform better in the recipient. Pretto also earned a Master of Public Health, studying under Lewis Kuller, while at Pitt.

When she was 13 years old, Sylvie Blumstein (MD ’91) visited an old cemetery in Boston. She still remembers the many crumbling headstones of young women and the tiny tombstones beside them for the babies who, like their mothers, didn’t survive childbirth. Blumstein believes that moment had something to do with why she became an ob/gyn—so she could protect the lives and safety of women and their children. She is a clinical assistant professor at Stanford University, where she directs the med student clerkship program. Blumstein prepares her students for what she calls the “go get ‘em field of obstetrics and gynecology, where one second you’re sipping a cup of coffee and the next all hell is breaking loose.”

Ken Robinson (MD ’94) specializes in emergency medicine and is now the clinical director for air medical transport at Hartford Hospital. In addition, he teaches at the University of Connecticut’s School of Medicine and researches clinical issues surrounding air transport safety. He’s investigating the dexterity of doctors who wear Nomex Gloves (which racecar drivers use to prevent burns) under their surgical gloves.

After graduating from med school, Seth Borquaye (MD ’94) returned to his native Ghana—a country he’d left in 1981—to volunteer. It soon became an annual event. Borquaye has recently turned these self-funded trips into Ghana Visions Foundation, which funds and supports improvements in public health and education for the people of Ghana. In three years, Ghana Visions restored classrooms and gave students much-needed books and supplies. The foundation also offers health-care services and recently received approval to perform surgery in the local hospitals. It has formed an orphanage that currently houses eight kids whose ages range from 18 months to 20 years. Borquaye is an ob/gyn in Hinesville, Ga. —Nita Chawla, Jen Diasioso, Meghan Holohan, Erica Lloyd

Stay in touch, view alumni photos, or post a Class Note at www.medschool.pitt.edu/alumni
Members of the Class of ’55 at the senior class luncheon, from left: Roy Titchworth, Robert Eisler, Vincent Albo, Alfred Perfett, Charles R. Wilson Jr., Joseph DeCenzo, Anthony Bruno, and Samuel Aronson.

The Class of ’55 originated the annual musical revue now known as Scope and Scalpel, and the members of the class have since evolved into the backbone of the Medical Alumni Association. They were out in full force for their 50th reunion in May. Roy Titchworth seemed to be enjoying the fact that he has become a little more retired each year. Formerly chief of radiology at three Pittsburgh-area hospitals, he also has held a political appointment as chair of the Allegheny County Board of Health since 1969. That came to an end last year, but the service he and other board members provided to the community are among his proudest accomplishments. They successfully pushed for greater pollution controls on the steelworks in Clairton and helped form a nonprofit—Tobacco Free Allegheny, which administers grants to local groups helping people to quit using tobacco and live healthier lives.

Amid all the reminiscing about med school, Vincent Albo took a few moments to mull over four decades in hematology. After a pediatrics residency at Children’s Hospital of Pittsburgh, he went to Los Angeles for a hematology fellowship. Many kids the hospital staff cared for had leukemia, which was a death sentence then. He joined Pitt’s faculty as a junior investigator on a National Cancer Institute grant in 1961. Two years later, he was the principal investigator and continued the work until 1992. All those years, he did the slow, steady work of science—testing new drugs, testing old drugs in new ways, and devising new treatment protocols, which gradually helped turn the numbers on childhood leukemia around. Today, most children survive. (And many of their parents find shelter and support at Ronald McDonald House; in 1975, Albo orchestrated the opening of the house here in Pittsburgh.)

Robert Berk attended the musical put on by his graduating class—he thinks he may have been an usher—but he was probably too busy studying to take part. These were the habits that won him a few awards in med school, including Most Likely to Succeed. He recalls Davenport Hooker’s attempts to intimidate first-year students, too: Look at your classmates on either side of you. One of them won’t be here next year. Berk had a long career in radiology, researching better ways of imaging the gall bladder. He was chair of radiology at the University of California, San Diego, and left to become the full-time editor in chief of the American Journal of Roentgenology. He’s now the journal’s editor emeritus. —CS

IN MEMORIAM

’30s
Edward M. Schultz
MD ’32
March 20, 2005
Robert L. Loeb
MD ’34
June 6, 2005
Philip L. Becker
MD ’37
April 21, 2004

’40s
Amor Francis Pierce
MD ’41
October 3, 2004
Randolph W. Linhart
MD ’43A
April 10, 2005

’50s
Jean Kaiser Migliorato
MD ’50
June 3, 2005

Seymour M. Weisman
MD ’50
April 11, 2005
Charles A. Provan
MD ’54
April 13, 2005

’60s
Dalton L. Hoffman
MD ’62
September 18, 2004
Clarence D. Leiphart
Res ’62
February 6, 2005

’70s
David M. Lobur
MD ’78
May 12, 2005

Felix “Bebe” Miller
October 5, 1928–April 25, 2005

It must have been two o’clock in the morning when one of the final frantic Scope and Scalpel rehearsals wrapped up, but the time didn’t matter to Felix “Bebe” Miller (MD ’55, Res ’62). He insisted that Susan Dunnmire (MD ’85, Res ’88), as the new faculty adviser, needed to take the students to Ritter’s diner. In fact, he couldn’t understand why she’d want to go home. In 15 years as faculty adviser for this annual production (1964–78), Miller had found that sitting together at Ritter’s brought the class closer and made everyone feel a part of the team. The way people around him were treated was important to Miller. (At the same time, he wasn’t afraid to speak his mind.)

Miller completed an ob/gyn residency at what is now Magee-Womens Hospital, and practiced in Pittsburgh for more than 30 years. The University has probably never had a booster quite like him. (Miller had a Pitt chemistry degree, and one of his two sons, Andrew, is an MD ’91.) As a popular longtime Pitt clinical professor, Miller was a draw at reunions. He started the tradition of the senior-class picnic for med students. (If Dean Levine ever flipped a burger for you, it was because Bebe handed him a spatula.) He also chaired the Chancellor’s Circle—a group of major University donors. No wonder one of his retirement gifts was an appointment book accompanied by a watch.

Memorial contributions may be made to the Hillman Cancer Center or to the Gwen and Bebe Miller Scope and Scalpel Award, care of the Medical Alumni Association. —CS

Rebecca Frances Drew Taylor
April 30, 1917–March 22, 2005

Everyone in Scaife Hall knew Penna Drew. She didn’t have a shy bone in her body, and the fact that she smoked a pipe made her stand out, too. But many of her charges—more than 15 years’ worth of Pitt med students—remember her for how well she knew them. As the associate dean of student affairs from 1975 to 1984, Rebecca Frances Drew Taylor looked after and spoke up for her students.

Robert E. Lee (MD ’56), emeritus professor of pathology, recalls how she picked up on people’s needs, like if students felt they were in trouble or were ill. “You can call that a trifle, but if you’re a student, it’s not a trifle,” he says.

Drew Taylor, a clinical professor, received her medical degree in 1942 in Montreal, where a friend dubbed her “Penna” because of her home state. The name stuck, even after she returned to her native Pittsburgh, where she received master’s degrees in public health and creative writing at Pitt. She remained a clinical professor in the School of Medicine until 2000. —CS
The man in Mary Carrasco’s office was tall and burly, like an NFL lineman. He was also the father of her patient—a boy who was clearly the victim of periodic beatings. When Carrasco confronted him with the evidence, the man crumpled and began to sob. He never knew he was angry until he found his fist in the wall, he said. He wanted to be a better father. He just did not know how to control his temper or stop criticizing his son for being interested in art and music instead of athletics.

After seeing many parent-child relationships like this, Carrasco began to develop ways to protect children and help parents.

“I never thought I’d end up being interested in child abuse,” she says 20 years later in her office, peering from behind rimless, oval spectacles. It’s a busy day, with patients being walked to their exam rooms outside. Her stethoscope and a few other tools of the trade are set on the table during these few minutes between appointments.

“I came to it by realizing I couldn’t provide adequate care to the children I was seeing without somehow addressing broader issues of prevention and parenting,” she says.

Carrasco (Pediatrics Fellowship ’78) just returned from Boston, where she received the 2005 Ray E. Helfer, MD Award for her contributions to child-abuse prevention. She directs the international and community health program at Mercy Hospital and contributed to the core programs that led to Pittsburgh’s being noted on ABC World News Tonight as a national model for child welfare systems. These include family-support centers (she created the first in Allegheny County) and child-advocacy centers.

Her work with Pittsburgh families started with a positive parenting program that addressed a spectrum of issues: disciplining children, drug and alcohol treatment, assistance getting Medicare coverage, and even looking for jobs. Though it had a rocky start (the first parenting class was attended by only herself and other staff members) and some negative side effects for Carrasco (“finding funding is what made me go gray,” she laughs, twirling a lock of her short hair), the program has been so successful that it has been duplicated time and again. Allegheny County now has 27. These programs teach parenting skills to those who may never have experienced positive parenting themselves.

Carrasco’s philosophy is that prevention is the most important goal, but she also has implemented changes in intervention and treatment on behalf of abused kids. The advocacy center she started at Children’s Hospital of Pittsburgh is one of the first to enlist victim advocates and child-welfare workers as well as forensic experts to gather testimony for prosecutors. A team offers counseling and medical treatment in one location. Carrasco opened a similar center at Mercy.

Her beeper goes off. The phone rings a second later, and she answers it, huffing out a concerned, “Okay, I’ll be there.” A kid is tearing up an exam room, she explains. She apologetically hurries out the door, then pivots. In her rush, she forgot her medical supplies. She laughs at herself, waves, and heads off to find out why a child acts up at the doctor’s office.

Carrasco came to believe that she couldn’t give adequate care to kids without helping parents, too.
Where to begin with this patient? “So, what seems to be the problem today?” Allow us to introduce Wound Man, who appears in various guises in medieval medical texts. In this case, he is a sort of pictorial table of contents on the cover a German manuscript called The Fieldbook of Wound Surgery (Strasbourg, 1530).

We had several experts take a crack at translating the epigraph. Our favorite: Although I am beset by blows and stabs, Rotting, wounded pitifully, Yet I hope God, artful medicine, and [this author] will cure me.

For another look at the Wound Man and a tale of medicine’s emergence from the Dark Ages, attend the next presentation of the C.F. Reynolds Medical History Society. Norman Gevitz, medical historian at Ohio University, will discuss “‘A Corrosive Plaster for Vices’: Medical Ethics in New England, 1620–1720,” on Sept. 29 in Scaife Hall.

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AUGUST 14
3 p.m.
Scaife Hall, Auditorium 6

NLM EXHIBIT—CHANGING THE FACE OF MEDICINE: CELEBRATING AMERICA’S WOMEN PHYSICIANS
AUGUST 24–OCTOBER 14
Falk Library of the Health Sciences
For information:
Patricia Weiss
412-648-2040
pwf@pitt.edu

ARIZONA HEALTH SCIENCES ALUMNI RECEPTION
SEPTEMBER 16
Tucson, Ariz.
Hosted by Bruce Coull (MD ‘72)
Randy Juhl, PhD, Speaker
For information:
Norma Wilson
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EASTERN PA. HEALTH SCIENCES ALUMNI RECEPTION
SEPTEMBER 21
Lancaster Country Club
Randy Juhl, PhD, Speaker
For information:
Norma Wilson
412-647-4726
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HEALTH SCIENCES ALUMNI RECEPTION
SEPTEMBER 22
Seven Springs Mountain Resort
Champion, Pa.
Cohosted by David Borecky (MD ’53) and the Office of Alumni Relations, Schools of the Health Sciences
For information:
Norma Wilson
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TEXAS ALUMNI RECEPTION
SEPTEMBER 30
Dallas, Texas
Steven Kanter, MD, Speaker
Hosted by Sheldon Weinstein (MD ’63)
For information:
Norma Wilson
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NEW JERSEY HEALTH SCIENCES ALUMNI RECEPTION
OCTOBER 10
Hackensack, N.J.
Hosted by Mary Ann Michelis (MD ’75)
For information:
Norma Wilson
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OCTOBER 20–23
Pittsburgh v. Syracuse
Saturday, October 22

ROSS H. MUSGRAVE LECTURESHIP
OCTOBER 28
5 p.m.
Magee-Womens Hospital Auditorium
Luis O. Vásconez, MD, Speaker
OCTOBER 29
10 a.m.
Scaife Hall, Auditorium 6
Surgery Grand Rounds

MARSHALL S. LEVY MEMORIAL LECTURESHIP
NOVEMBER 10
5 p.m.
UPMC Shadyside Hospital
West Wing Auditorium
Roland W. Moskowitz, MD, Speaker

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Naples, Fla.
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Pittsburgh, Pa.

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