Health’s kitchen: Project fosters wholesome cooking

By Tracie White

Chloe Chien, who recently earned an MD at Stanford, helps to teach a healthy-cooking class at a Menlo Park community center.

New training improves survival rates of kids suffering from cardiac arrest

By Erin Digitale

Researchers reveal more about how brain controls arm motion

By Tom Abate

Researchers at the School of Medicine and Lucile Packard Children’s Hospital Stanford have found a new way to boost the survival rates of pediatric patients whose hearts stop while they are hospitalized.

Researchers reveal more about how brain controls arm motion

By Tom Abate

Ready, set, go.

Sometimes that’s how our brains work. When we anticipate a physical act, such as reaching for the keys we notice on the table, the neurons that control the task adopt a state of readiness, like sprinters bent into a crouch.

The experimental data came from recording the electrical activity of neurons in the brain that control motor and premotor functions. The idea was to observe and understand unplanned arm movements.

The study used in-situ simulation to train our staff — we recreated scenarios from actual cases,” said Deborah Franzon, MD, medical director of the hospital’s pediatric intensive care unit and a clinical associate professor of pediatrics at Stanford. “Kids did better because our team was better prepared and better trained. It was pretty exciting for us to have this finding.”

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$100,000 awarded to develop cheap test for parasitic worms

By Kris Newby

Manu Prakash, PhD, took a photo late last year while visiting the Tororo District in eastern Uganda: It shows children sitting at the graves of two of their siblings.

Both were likely casualties of malaria or some other infectious disease, said Prakash, an assistant professor of bioengineering. The photo serves as a tragic reminder of the toll in Africa of such diseases, which Prakash is fighting through his lab's efforts to develop low-cost diagnostic tools.

The story details what Patel had been diagnosed with and when, and how she described the experience of being a fellow, Patel found out that she had 100,000 Grand Challenges Explorations award from the Gates Foundation.

The first prototypes will be used to detect the worm that causes onchocerciasis, or "river blindness," which afflicts approximately 37 million people in Africa, Yemen and Central and South America. Transmitted through repeated bites of blackflies, it is a major cause of preventable blindness.

Current diagnostic methods require the use of expensive ultrasonic equipment to determine whether parasitic worms are alive under the skin or inside lymph nodes. Prakash’s more fragal design consists of a Band-Aid-sized patch embedded with a sensor to detect minuscule electrical changes when worms wiggle under the skin or form calcified cysts. He expects that the final device will cost less than $10 and will be easier to use than current methods.

On the same trip, Prakash and Jim Cybulski, a Stanford PhD student in mechanical engineering, were testing the device (after months of field testing). They loaded the device onto a sheet of tissue that had been excised from a human for the sole purpose of allowing the device to be tested in the hands of Mohan Reddy, MD, a professor of cardiovascular medicine.

The device could not detect the presence of parasites in the sample, but Prakash said that didn’t matter. "Syphilis testing in the field," he said, "is pretty much a lost cause." Prakash said he was more interested in testing the device in areas where the parasitic worms are found. "The world needs a cheap, rapid diagnostic test," he said.

The judges said Newby’s story “has it all: a likeable protagonist, a patient hoping for a good outcome, tension between old and new ways of doing things, and a clear discussion of pressing issues. It’s both a good read and an important story.”

The story was posted at http://stanford.edu/2012fall/article3.html. Scope received an honorable mention in the social media category. The blog features commentary and reporting on the latest developments in medical research, patient care policy, clinical practice, preventive medicine and healthy living. Michelle Brandt, associate director of communications, edited the blog, overseeing contributions from members of the office and other medical center and university contributors.

“A great effort with impressive traffic,” the judges wrote. “A consistently excellent blog, with interesting and informative mix of content.”

“Scope can be read at http://scopeblog.stanford.edu.”

The awards were given by the AAMC’s Group on Institutional Advancement, which includes communications, development and alumni relations staff at academic medical centers. The awards will be presented in March at the group’s annual meeting in Salt Lake City.

By Winter Johnson

With 19 heart transplants, 2013 was the busiest year ever for the Children’s Heart Center at Lucile Packard Children’s Hospital Stanford, home to the only pediatric heart transplant program in Northern California. The success offers hope for those still waiting for this lifesaving gift.

One such patient is 4-year-old Aiden Hansen, who doesn’t let the combination of his rare, hypoplastic left heart syndrome and heterotaxy syndrome stop him from playing clothes, cars and going to music classes. When he was only 3 days old, his doctors in Santa Rosa suspected something was wrong. A series of echocardiograms and ultrasounds revealed that he had a missing ventricle, his liver and stomach were in the wrong place, and he had multiple spleens. Parents Jesse and Shifra Hansen then brought Aiden to Lucile Packard Children’s Hospital Stanford.

Aiden had his first open-heart surgery when he was 10 days old under the hands of Mohan Reddy, MD, a professor of cardiothoracic surgery and pediatric cardiac surgery at the School of Medicine. Over the years, Aiden has had three open-heart surgeries and a pacemaker implanted. Now he and his family are eagerly waiting for a donor heart.

“Providing hope for kids like Aiden is what we do,” said Michael G. Bird, MD, who received his first heart transplant from 1980 to 1981. "It was a life-changing experience." Aiden is the 19 heart transplant patient from northern California.

Patient families know that it takes a village to provide world-class, around-the-clock care, including transplants.

"We have extraordinary experience," said David Rosenthal, MD, director of the hospital’s pediatric heart failure program and professor of pediatric cardiology. Rosenthal noted that the hospital’s busiest year before 2013 was 2009, with 17 transplants.

"Teams across the hospital understand the difficulties these patients and families face," he said.

Success rates for pediatric heart transplants nationwide have risen over time. In 2013, the survival rate for transplanted patients at the one-year point was 85 percent; at three years, there is an 80 percent survival rate. At five years, 75 to 80 percent. After that, survival rates become increasingly harder to track because the treatments and protocols are constantly evolving.

"The heart failure and transplant teams at the Children’s Heart Center are the very best in the world with lifesaving heart transplants in 2013,” said Stephen Rorth, MD, MPH, director of the center and professor of pediatric cardiology. “As our program expands, we are treating more children from California and the western United States with severe heart failure each year."

By Winter Johnson is media relations manager, Lucile Packard Children’s Hospital Stanford.

Aidan Hansen, standing between parents Jesse and Shifra Hansen, needs a heart transplant.
Sidney Raffel, pioneering immunologist, dies at 102

By Bruce Goldman

Sidney Raffel, MD, ScD, former chair of Stanford's Department of Medical Microbiology — now the Department of Microbiology and Immunology — died at his Stanford campus home on Dec. 27. He was 102.

Warmly remembered as a pioneering immunologist, an even-handed administrator, beloved family man and, in his later years, an artist whose numerous paintings decorated the walls of his house, Raffel practiced medicine before the advent of antibiotics and launched his research career at a time long before it was known that antibiotics are produced by immune cells called lymphocytes. He continued to show up weekly for medical grand rounds and stayed abreast of the latest in the medical literature until he was well into his 90s.

Raffel literally wrote the book on immunology — in the 1950s, he penned *Immunology: Hyperreactivity Syndrome*, a textbook that saw several editions, the first two of which he and his former Boston-based head colleague launched their two long-standing immunology departments, Stanford's, for well over two decades. He served as acting dean of the School of Medicine from 1964 to 1965. Well liked and known as low-key and self-effacing, Raffel was an essentially serious man with a good sense of humor and a keen sense of fairness. “He always wanted to hear all sides before he made a decision,” said Nobel laureate Paul Berg, PhD, professor emeritus of biochemistry, who recalled looking up to Raffel as administrator, beloved family man and, in his later years, an artist whose numerous paintings decorated the walls of his house, Raffel practiced medicine before the advent of antibiotics and launched his research career at a time long before it was known that antibiotics are produced by immune cells called lymphocytes. He continued to show up weekly for medical grand rounds and stayed abreast of the latest in the medical literature until he was well into his 90s.

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As acting dean, Raffel “dealt with people very fairly,” said Halsted Holman, MD, professor emeritus and former director of Stanford's Department of Immunology. Holman said Raffel helped recruit to Stanford in 1950. “He was polite but firm. You knew you got your word in, but you were also going to get a direct response. I really liked him.”

Raffel was a member of the founding generation of Immunologists, American Society for Microbiology, the Society for Experimental Biology and Medicine, the New York Academy of Sciences and the California Academy of Medicine. From 1947 to 1979, he was associate editor of the *Annual Review of Immunology*, and during his career he served on the editorial boards of several other medicine-related periodicals. In 1956, he was appointed the first chairman of the National Institutes of Health’s allergy and immunology study section, which was responsible for granting grant money to researchers nationwide. He was a 1949-50 Guggenheim Fellow at the University of Basel in Switzerland, a senior fellow at the University of Edinburgh in 1961-62, and a visiting professor at the Kyoto School of Medicine in 1973 and at the University of Shiraz School of Medicine, in Iran, in 1977.

He is survived by his daughters Linda Raffel and Gail Drewes of Stanford; Polly Stanford and David Drewes of Palm Desert, Calif.; Cynthia, Meyer and David Hill of Palo Alto, Calif.; and Emily Greenberg of Washington, D.C.; 12 grandchildren; and 14 great-grandchildren. A memorial service is planned for February.

In lieu of flowers, a donation may be made to the Children’s Health Council of Stanford, 600 Clark Way, Stanford, CA, 94305, or to a charity of your choice.

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John Miller, noted pediatric rheumatologist, dies at 79

By Erin Digitale

John J. “Jack” Miller III, MD, PhD, professor emeritus of pediatrics at the School of Medicine, an immunologist at Lucile Packard Children’s Hospital Stanford and a noted leader in the study and treatment of childhood arthritis, died Dec. 11 in Palo Alto. He was 79.

At Stanford, Miller conducted extensive research on childhood autoimmune diseases, as well as on the health-care delivery and psychosocial outcomes for children with these conditions.

“He was a very, very fine scientist, working at the cutting edge of his field, but also a very caring physician and a real advocate for children with chronic rheu- matologic diseases,” said David Stevenson, MD, the Harold K. Faber Professor in Pediatrics.

Born to John J. Miller Jr., MD, and Florence Ratzell Miller on April 9, 1934, in San Francisco, Miller earned a medical degree at the University of Rochester. In 1962, after completing a residency in pediatrics at the University of Chicago, he returned to San Francisco. “He was thrilled to have his young family to Australia as a National Institutes of Health predoctoral fellow to pursue a PhD in immunology at the University of Melbourne. He then returned to Stanford and began a 35-year career at what was then Stanford Children’s Hospital (now Lucile Packard Children’s Hospital Stanford) and the School of Medicine.

In 1967, Miller established the Northern California Center for Children with Arthritis and Related Diseases at the hospital, creating a major West Coast center for the study and treatment of these diseases and a valuable resource for patients and their families.

“John was a consummate physician, a wonderful role model and a dedicated humanitarian who devoted himself to the care of children,” said Bill Benitez, MD, professor of pediatrics in neonatal and developmental medicine, who was mentored by Miller in the late 1970s and early 1980s as a medical resident.

For much of his career, Miller was Stanford’s only pediatric rheumatologist and immunologist. “We had no other recourse if Jack wasn’t available, and one consequence of that was that Jack always made himself available,” Benitez said.

Among the families Miller helped were a couple who lost a child to a form of severe combined immunodeficiency, also known as “bubble boy” disease, which was then almost always fatal. Knowing the disease was genetic, the parents asked Miller to continue caring for them, and in the early 1980s, they were expecting another baby. Miller had recently adapted an existing clinical test to diagnose SCID infants at birth by using cord blood.

“The test involved collecting cord blood and immediately getting it back to me in the lab to test for affected cells before the cells died,” said Lynne Olds, Miller’s longtime research assistant.

“He went down to King City and sat in the waiting room while the mom was in labor,” recalled Benitez. “He waited 16 hours.”

Miller arrived back at the lab at 3 a.m. with the blood sample. “Late that morning, we were able to tell the parents that the new baby was totally normal,” Olds said. “If we hadn’t both been so tired, I think the champagne would have flowed in celebration.”

“He was a full professor,” said Benitez. “For him to provide that kind of personalized service was magnificent.”

After retiring from Stanford in 1997, Miller spent time mentoring young clinicians and serving as a consultant in immunology at the Great Ormond Street Hospital for Children in London and the Hospital Infantil de Mexico in Mexico City.

In addition to his work at Stanford and abroad, Miller was an avid outdoorsman who enjoyed duck hunting, fly-fishing and spending time at the family cabin at Fallen Leaf Lake. He was a longtime partner of the San Francisco Opera and San Francisco Symphony, a devoted theatergoer and dedicated world traveler.

Miller is survived by his sons John Miller of Orange County, Daniel Miller of Berkeley, Andrew Miller of Palm Springs and Erich Miller of San Francisco; former wife Anne Miller of Berkeley; longtime partner Mayo Marsh of San Carlos; siblings Sara Wages of Berkeley and William Miller of Woodland; and three grandchildren.

Donations in Miller’s name may be made to The Childhood Arthritis and Rheumatology Research Alliance at https://www.caratgroup.org.
through learning about nutrition, using unprocessed ingredients and following healthy recipes. The classes take place in a Menlo Park community center kitchen and students go home after each session with several days worth of the food they've prepared as a team.

“Telling patients that they need to diet or lose weight is not very helpful,” Chien said. “Everybody knows this already.”

The program is called Homemade and qualifies as a Stanford Health Improvement course. University employees may use their Staff Training Assistance Program funds and hospital employees may use Educational Assistance funds to cover some of the costs, and the program has the support of primary care physicians who sometimes refer patients to the class. During the 10-week class, no one gets weighed. It’s diet-free, and having fun is encouraged, Chien said.

The program grew out of Chien’s desire to help prevent lifestyle diseases, such as obesity and diabetes.

“I had proposed to work on an obesity/diabetes project and was recruiting team members,” said Chien, who took the course while pursuing an MBA at the same time she was enrolled in the School of Medicine. Along with Rakoczy, a few other business students with a similar interest joined the project team, as well as two additional medical students who were also taking the course.

“We were all united by the same passion to effect some kind of primary care reform.” Chien said. “It never occurred to me that I would jump ship and do this full time.”

She joined a class in Menlo Park, a community center kitchen filled with adult students wrapped in aprons and wielding large knives. There was a lot of chopping — of brightly colored vegetables, greens, red peppers and garlic — sautéing, stirring and chatting.

“I smelled the class,” said Darcy Collet, a mother of three, explaining how she found out about the program. Her daughter takes dance classes down the hall.

“It smelled so good I signed up with my dad,” she said. “I do want to lose weight. In the past, I’ve lost weight too quick and put it back on. With Homemade I’ve lost 7 pounds in six weeks. And my kids love the food I bring home.”

It’s the freshness that makes everything so much more flavorful, the students said. That and the recipes and the variety. The kitchen, filled with cabbages and kale, chicken, eggs and tofu, was warm and cozy. Giant vegetable-dilled saucenpens sizzled. Blenders of protein-based smoothies whirred, and the group of about 10 students, assisted by instructors and nutritionists, kept busy cooking, laughing and talking.

Chien and Rakoczy, who also holds master’s degrees from UC-Berkeley and Stanford law schools, launched Homemade as a business in August — deciding to put their medical and law careers on hold.

“To my knowledge, everyone who has been with us for more than four weeks has lost weight without dieting,” Chien said. “They’re self-reporting improved blood sugar and blood cholesterol levels. That is thrilling for me. I know how hard it is to control those with medication. They’re eating good food, having fun and losing weight without even trying. That blew my mind.”

Both Rakoczy and Chien were motivated to develop the program by their own experiences. As a competitive ice skater, Rakoczy struggled with body-image issues and constant dieting. She wanted to empower people to adopt healthy diets.

“I tried all the fad diets, everything,” Rakoczy said. “After years of this, I learned that what really works is adopting a healthy eating lifestyle based on cooking your own food so you know what goes into it, eating whole natural foods and listening to your hunger. That’s the model we adopted.”

Chien was motivated by the senseless pain and suffering caused by preventable diseases that she witnessed first-hand while treating patients. Throughout med school I became increasingly bothered by lifestyle diseases — chronic conditions, obesity, diabetes, heart conditions,” Chien said. “Because they are so morbid, so expensive, so difficult to treat, so demoralizing yet at the same time, preventable.

During her surgery rotation, Chien was particularly struck by the foot amputations of diabetic patients that she assisted with, and further shocked when she realized these were only the beginning of future amputations because these patients were not getting better. In primary care settings, she would find herself nagging patients about weight loss over and over again, and feeling “deflated” when she left the room because the patients just looked more demotivated and demoralized.

“They’ve tried and failed, and it feels so bad to always be failing,” she said. Chien, 28, has never been obese or had a weight problem. She realized that she needed to understand the issue by talking to those who had struggled with their weight. As part of the business school course, she and Rakoczy listened to many patients with chronic diseases caused by obesity and designed their program around what they learned.

“I was totally humbled by this,” Chien said. “Most people who are overweight have tried all kinds of diets, all kinds of programs. They told us they were sick and tired of food journaling or calorie counting or no-fat rules. They’d tell us, ‘Yeah, I lost weight when I was on a diet, but once I stopped I gained it all back and more.’

The concept they came up with? Bringing enjoyment back to eating and focusing on creating healthy, tasty meals that become a way of life.

“They have helped me to learn a totally novel and promising approach to the obesity problem,” said Sang-ick Chang, MD, assistant dean for clinical affairs at the medical school and a clinical professor of medicine.

“We are promoting this project to our patients in Stanford Primary Care. It’s a fabulous example of the innovation of Stanford students.”

Christopher Gardner, PhD, associate professor of medicine at the Stanford Prevention Research Center, added, “After decades of public health messages telling people to choose a healthier diet, and largely failing, Homemade is enabling people to make those choices. What Chloe and Anna have created is inspiring.”

The two have collected testimonials from numerous course participants who report positive changes to their total well-being — from weight loss to increased energy to better sleep — since first showing up in the community kitchen.

“I joined with my husband,” said Wendy Foad, associate chief nursing officer at Stanford Hospital & Clinics, who signed up for the course in August. “He has lost 27 pounds, and I’ve lost 23 pounds, I stopped getting indigestion, and reduced the number of migraines I’ve been getting. I managed to keep off the weight all through the holidays using the skills I have learned so far.”

Foad added that most impressive was achieving all this while enjoying herself. “I don’t feel stressed about what I’m eating,” she said. “I cook it. I enjoy it. And I move on. There’s no calorie counting, journals, confessions, guilt. I have a whole new outlook on food and what I eat in a very positive way.”

In addition to her training in law and competitive ice skating, Rakoczy also brought cooking skills to the table. She and Chien have together created about 100 different recipes for the class so far. Variety is key, they said, and the recipes reflect that — from entrees like paprika chicken casseroles to side dishes like nutty Thai pumpkin soup to sweet treats like tropical mango smoothie with goji berries.

They buy fresh fruit and vegetables wholesale, saving on costs, and have recruited professional nutritionists and chefs to help teach their program.

“I do miss a lot of other parts of medicine and hope to go back to it,” Chien said. But for now, she said she’s committed to Homemade. “When I pulled out of residency applications my mentors were telling me ‘Don’t do it; you’re crazy’,” Chien said. “At the same time, they were saying ‘Can I refer my patients to you?’”

The cost of the 10-week course is $1,200, including three-days worth of take-home meals each week. (You can take home more meals for an additional cost.) For university employees, as much as $800 in STAP funds can be put toward the course fee. Similar funds are available to hospital employees through the Educational Assistance program. (STAP and EA funds do not cover the cost of the food.) A five-week course option also is available. For more information, visit http://hip.stanford.edu or http://www.homemade-cooking.com.
Researchers are tracking a silent killer in rural Bangladesh

By Rob Jordan

It’s been decades since the United States phased out the use of lead in gasoline, paint, pipes and other products because of the metal’s insidious health effects. Although lead from previous years’ exhaust has spread in soil and dust, Americans have largely rid themselves of the toxin, linked to symptoms ranging from anemia and hearing loss to heart disease and mental retardation.

In other parts of the world, however, the specter of lead poisoning still hovers. An interdisciplinary team of researchers supported by a Woods Institute for the Environment seed-grant program, called Environmental Venture Projects, is examining challenging conventional wisdom about why lead contamination lingers in one of the poorest corners of the world. Their work could lead to more rapid testing for contamination, greater public awareness and decisive regulatory action.

In some areas of Bangladesh, as many as half of the residents have high levels of lead in their blood. “If you had children or pregnant women in the United States with these levels, there would be an uproar,” said Stephen Luby, MD, professor of medicine and senior fellow at the Stanford Woods Institute and the Freeman Spogli Institute for International Studies.

Luby, who also is director of research for the Global Health, is searching for the dangerous metal’s pathways to people and ways to disrupt the status quo.

Decades of research

Luby first started thinking about lead in the developing world when he conducted research in Pakistan during the early 1990s. The results showed high levels of lead in children’s blood, likely a result of the country’s continued use of leaded fuel.

After Pakistan banned leaded gas, due in part to the study’s influence, Luby shifted his focus to nearby Bangladesh. He came across studies showing lead contamination in two rural areas. “That struck me as odd,” Luby recalled. There were few roads and almost no vehicles spewing leaded gas exhaust in the areas. Based on the evidence of higher lead levels in farmland compared with levels in nearby homes, Luby speculated that the contamination was coming from an agricultural product, possibly pesticides, and being absorbed by plants. A similar story played out in the U.S. apple industry during the late 19th century and early 20th century when the use of lead arsenate pesticides contributed to the contamination of thousands of acres and sickened many field workers.

When he floated his hypothesis to other experts in the field, Luby was met with skepticism. Responding to an email from Luby, one wrote that he was “perplexed” by the idea, while another scientist wrote he would be “very surprised” if Luby’s theory proved correct. “They thought I was crazy,” Luby said. “It was pretty direct and troubling because it came from people in Bangladesh a long time ago.”

Despite the doubts, Luby pushed on. With colleagues, he collected hundreds of blood samples from residents of agricultural areas. Luby didn’t have the funding, however, to test the samples for lead, carry out surveys and do other related work. “Then EVP came along,” Luby said. With the program’s support, Luby and his fellow project investigators — Pascaleine Dupas, PhD, assistant professor of economics; Woods senior fellow Scott Fendorf, PhD, professor and chair of environmental earth system science; and Woods senior fellow Roz Naylor, PhD, professor of environmental earth system science — planned to look for lead in blood and soil samples, examine evidence of past contamination and develop ways to test pesticides for the dangerous metal.

Interdisciplinary team

Naylor’s interest in the project was driven by a desire to learn more about the impact of lead in Bangladesh’s agriculture sector and how the use of lead-based pesticides potentially acts as a barrier to escaping poverty.

“How can a country hope to alleviate rural poverty if people in those areas are cognitively impaired [from lead poisoning]?” Naylor said.

Fendorf, a soil scientist, will focus on how to find lead in soils and how to analyze it. Naylor, an agricultural economist and director of the Center for Food Security and the Environment at the Freeman Spogli Institute, will examine market mechanisms for use and over-use of pesticides, among other analyses. Dupas, a developmental economist and fellow at the Stanford Institute for Economic Policy Research, will explore behaviors around pesticide use and how to change them.

“They will frame issues and ask questions in ways that I wouldn’t know to do,” Luby said.

Initial testing of samples has confirmed high levels of lead among residents of rural Bangladesh who have very little access to motor vehicles.

Luby hopes that once the pathway of lead contamination is confirmed, future lead identification data in Bangladesh will be published by watchdog groups and garner widespread attention. “We are set up to be able to demonstrate how these rural residents become exposed to such high levels of lead,” Luby said. He acknowledges, however, that it may require more to get the attention of powerful decision-makers. “If rice for city people is also contaminated, we will have the attention of the political class.”

Rob Jordan is a writer for the Stanford Woods Institute for the Environment.
Gone are the days when lectures were conjured through a fire hose; the student’s job is to imbibe as many facts into his/her head as possible. The modern academic physician also leads an entourage of student doctors during daily rounds. As she sloshed through the basement in his fishing boots, Petra, my stepsisiter, flashed jokes that had us laughing as we spent the afternoon clearing the basement.

This year’s Christmas adventure was learning to snowboard. Dad woke us up every morning as soon as the lights on the ski slopes turned on. Luckily, my sister, Helga, is still only 7, so she doesn’t last more than a few hours.

The second day, Petra and I almost crushed Helga when we all fell off the ski lift. We came home for lunch and my little brother, Birgir, regaled my dad and stepmom with stories of how we survived. After lunch I walked through the basement to put the helmets away and passed the buckets we’d used to clear the basement. I touched the mattress that I’d warn when Dad and I baked through the Highlands and the game of Trivial Pursuit that my stepbrother, Aegeir, always wins. I smiled thinking how this home is filled with memories of childhood and love.

And it dawned on me that I have been so busy with medical school, I forgot about my dreams outside of medicine. For I dream that I will become a surgeon, able to help heal those in need. I dream that I will work in developing countries and leave my mark upon the world. And while I have those dreams, I also dream that some day my own basement will flood and my children will laugh as they run around in the mess. I dream that my children’s children will visit me on their own for tea and cookies.

For winter quarter, I’m thankful my family continues to ground me amidst the whirlwind of Stanford medical school. I’m thankful they reminded me every time I come home that the greatest accomplishment of my life will be to raise a family of my own whose laughter rings in the memories that fill our home.

Natalia Birgisson is a first-year medical student. She is half Icelandic, half Venezuelan. She is interested in neurosurgery, global health and ethics. She loves running and baking; when she’s lucky, the two activities even out.

A recent survey published in JSTOR, the Stanford medical school magazine, asked 20 graduating students to recommend books to read during the clinical rotation in internal medicine. Surprisingly, the top four resources: MKSAP question book, USMLE World question bank, Step Up To Medicine review book, and Pocket Medicine. The top vote-getters weren’t books at all. The two most popular resources were both banks of practice questions, while the next two included a review book and a pocket handbook. (The top four resources: MKSAP question book, USMLE World question bank, Step Up To Medicine review book, and Pocket Medicine.)

“This is how our students learn the subtleties of sickness and health? What happened to textbooks?”

We had to read Harrison’s Principles of Internal Medicine every morning as soon as the lights on the ski slopes turned on. Luckily, my sister, Helga, is still only 7, so she doesn’t last more than a few hours.

The shift away from voluminous texts starts early in medical school, when the first exams come up before any of us has made it all the way through Gross Anatomy. Students opt for streamlined review books and digital resources in part because they are, well, streamlined and digital. Instead of reading about each step in the Krebs cycle, download an app with vivid pictures and animations. Instead of logging a cardiology textbook to the library, go for a run while listening to a podcast about congestive heart failure. And if Google doesn’t have the answer, consult the online version of Robbins Pathology (soon to be powered by Google).

The generational shift in learning styles is a source of concern not to at least a few senior physicians. I recall one clinician who helped us examine a patient in respiratory distress and then quipped, “There is NOT an app for that.” In another instance, an exasperated consultant asked a resident, “Do I need to draw you a picture!” — and was shocked when the resident replied (without a hint of sarcasm), “That would be great; I’m really a visual learner.”

I have also heard faculty say that trainees must “earn it to learn it.” Wading through Robbins and Harrison’s makes students confront the sheer depth and breadth of medical knowledge, and ultimately imparts a more nuanced understanding of human disease. As one surgery faculty put it, “would you really want your life in the hands of a doctor who aced his multiple-choice boards questions but hasn’t read a textbook?”

The truth is likely somewhere in between. Innovative digital resources are vital for helping students retain knowledge and simplify difficult concepts. As long as there are multiple-choice board exams, there will be demand for streamlined review books that distill high-yield content. But Harrison’s isn’t going away anytime soon, nor should it. There will always be a need for textbooks to provide comprehensive overview, and access to information. And it is certain that content-rich applications will eventually make it through those books — just maybe not during intern rotation.

Mihir Gupta is a third-year medical student. He grew up in Modesto, California and attended Harvard College. Prior to entering a career in medicine, Mihir served as co-editor-in-chief of JSTOR, the Stanford medical school student journal.

The academic diet of the 21st-century medical student

You are what you read: The academic diet of the 21st-century medical student

Basement floods, ski lifts and Christmas cookies: Life lessons from winter break

Natalia Birgisson, a first-year medical student, describes spending time with family members in Iceland over Christmas.

Mihir Gupta discusses the widespread preference among medical students today for streamlined print and digital resources, rather than the traditional tome of the discipline.

The truth is likely somewhere in between. Innovative digital resources are vital for helping students retain knowledge and simplify difficult concepts. As long as there are multiple-choice board exams, there will be demand for streamlined review books that distill high-yield content. But Harrison’s isn’t going away anytime soon, nor should it. There will always be a need for textbooks to provide comprehensive overview, and access to information. And it is certain that content-rich applications will eventually make it through those books — just maybe not during intern rotation.

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Neurons
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The activity levels of these neurons during experiments in which the monkeys made planned or unexpected arm movements.

What the researchers found is that when the monkeys knew what arm movement they were supposed to make and were simply waiting for the cue to act, electrical readings showed that the neurons went into what scientists call the prepare-and-hold state — the brain's equivalent of "ready, set" — waiting for the cue to go. Then, about 50 milliseconds later, different movements were associated with different targets. This required the monkeys to revise their movement plan.

Monkey see, monkey do

Ames said that in all three instances, the brain's awareness of the target, "perception always occurred first," then, about 50 milliseconds later, some differences appeared in the data. When the monkeys had to wait for the go command, the brain recordings showed that the neurons went into a discernible prepare-and-hold state. But in the cases where the monkeys lacked awareness of the target, the neurons did not.

Instead, roughly 50 milliseconds after the monkeys were told where to move, a change in neuronal activity signaled the command to touch the target — it came with no apparent preparation between perception and action. "Ready, set" was unnecessary. In these instances, the neurons just said, "Go!"

Applications

"This study changes our view of how movement is controlled," Ames said.

"First you get the information about where to move. Then comes the decision to move. There is no specific prepare-and-hold stage unless you are waiting for the signal to move. These nuanced understandings are important to Shenoy. His lab develops and improves electronic systems that can convert neural activity into electronic signals in order to control a prosthetic arm or move the cursor on a computer screen. One example of such efforts is the BrainGate clinical trial at Stanford, now being conducted by Food and Drug Administration supervision to test the safety of brain-controlled, computer cursor systems — "mind-controlled" communication for people who can't move their arms. In addition to advancing brain science, these new findings will lead to better brain-controlled prosthetic arms and communication systems for people with paralysis," Shenoy said.

Dean scheduled to speak at Café Scientifique forum

Lloyd Minor, MD, dean of the School of Medicine, will be the featured speaker at the next Café Scientifique at the Stanford Blood Center. Minor's presentation will be titled "Academic Medicine: Leading the Biomedical Revolution."

Workshop on best practices for communicating in health-care systems scheduled for June 20-24

A five-day workshop on communicating in health-care systems, including hospitals, medical schools and postgraduate programs, is scheduled from June 20-24 at the Li Ka Shing Center for Learning and Knowledge. The workshop welcomes clinicians and educators from every aspect of health-care fields, and will focus on best practices for communicating with patients, trainees and practitioners. It will feature keynote presentations, interactive workshops and small group sessions designed to build skills needed to practice and teach effective communication.

The work is being presented by the American Academy for Communication in Healthcare in collaboration with the School of Medicine. More information, including registration costs and deadlines, can be found at http://www.aaecom.org/ehc-rich2014.

Also participating in the experiment was Stephen Rys, MD, a consulting associate professor of electrical engineering at Stanford and a neurosurgeon at the Palo Alto Medical Foundation.

The work was funded by a Director's Pioneer Award from the National Institute of Health, National Institutes of Health, Reorganization and Plasticity to Advance Recovery and Plasticity to Achieve Injury Recovery — a program of the Defense Advanced Research Projects Agency.
Valentine discusses progress of diversity efforts

Since 2005, Hannah Valentine, MD, has led efforts to foster diversity among faculty, staff, and trainees at Stanford School of Medicine. In a recent interview with Paul Costello, chief communications officer at the school, Valentine described the progress that’s been made in the past eight years and why diversity is key to innovation and success in academic medicine. Following is an edited transcript of the interview.

1. Has the word “diversity” changed its meaning for you in the time that you’ve been senior associate dean for diversity and leadership?

VALANTINE: It has. If you look back about 10 years, diversity would usually be framed in the context of affirmative action. It would usually refer to race, ethnicity, and gender. Now, we also think about it in terms of diversity around dimensions of gender, gender identity, sexual orientation, religion and many others. The reason for being so inclusive is the pressing need to draw from our entire intellectual capital in order to be successful as a nation that leads innovation in the 21st century.

2. Why is that so critical? Talk about why the mirror needs to be so complete.

VALANTINE: Because different diversity groups bring different perspectives to solving problems. When you have different perspectives solving complex problems, you are much more likely to come up with a novel and creative solution than when you have a homogeneous team of experts.

In fact, there’s a brilliant experiment that was done by social scientist Scott Page. He took a bunch of experts in their field and had them solve a problem in a team. Then, another team was composed of a diverse group of people. The diverse teams beat out the homogeneous teams every time. That is because they bring a diversity of thinking to solving problems. If you don’t have a diverse universe, you are really not going to be at the cutting edge of innovation, research, new approaches to education — all of those missions. It’s beyond the nice thing to do. It’s beyond the equity argument. It’s an imperative for success.

3. I’ve heard you extrapolated when you hear someone say, “It’s going to take time.”

VALANTINE: I don’t think we have the luxury of time anymore. The demographic changes have defined diversity for us and clearly indicate that we must act now. We are almost too late in realizing that the demographic change in the populations of our nation and our state define how we will draw a white male with glasses. If you go to middle school, that number, surprisingly, has gone up to 75 percent. Later on, it’s even higher.

You can change these unconscious attitudes, and that will help you in making better decisions. That’s just one of the interventions we do when we talk to search committees to help them to be cognizant of the importance of gender diversity.

4. What are you most proud of when you look back over the past eight years?

VALANTINE: I’m very proud of the way we have increased considerably the representation of women at every rank — assistant, associate and full professor. We started off, in many ways behind national benchmarks and our peer institutions. Over this period of time, we’ve actually gotten to a point where our representation of women in each rank exceeds that of national figures and that of our peer institutions.

I’m also very proud of the increase in the number of underrepresented-in-medicine groups that we have graduated and hired. When I started this work in 2005, there were 34 of us underrepresented-in-medicine faculty. That means the sum total of African-American, Latino, Hispanic, and Native-American faculty. In fact, there were no Native-Americans at all. Now there are 96 of us here. As far as our Native-American representation, we’ve gone from zero to five, so you can call that a 500 percent increase, but I won’t go there. But it just shows how much we have done. If you look at our peer institutions, we’re now pretty much ahead of the pack in terms of racial-ethnic diversity amongst our faculty.

5. How have you achieved that?

VALANTINE: Through recruitment strategies and retention strategies. We brief every search committee on best practices. We remind them about this imperative of diversity and why diversity is linked with excellence. We give them tools to search in the right way and help them to really select the real problem of an unconscious bias.

For example, take the problem of unconscious bias against women in science. Everybody in society more readily associates a man and being a scientist than associates a woman and being a scientist. You can just imagine what you’re reading resumes and having to make fast decisions, you slip back to your unconscious or implicit attitudes. That leads you to select a man as a scientist than to select a woman. We remind them of that.

In fact, if you go to kindergarten schools and ask the little kids to draw a scientist, 58 percent of them will draw a white male with glasses. If you go to middle school, that number, surprisingly, has gone up to 75 percent. Later on, it’s even higher.

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4 QUESTIONS

Questions about science or policy topics

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Vinod Bhutani, MD, professor of neonatology, has received two awards: the 2013 John G. and Elisabeth H. Walker Award, from the American Academy of Pedi- atrics, in recognition of his landmark contribution in the area of bilirubin, including the development of the “Bhutani nomogram,” which predicts the risk of a newborn infant developing jaundice based on readings of serum bilirubin and hours since birth; and the 2013 Lifetime Achievement Award from the National Neonatology Forum of India.

Adam de la Zerda, PhD, assistant professor of structural biology, and Cigal Kadoch, PhD, a postdoctoral scholar in the lab of Gerald Crabtree, PhD, are in- cluded in the science category of Forbes magazine’s ‘30 under 30’ for 2014. De la Zerda, 29, who also made last year’s list, focuses on developing technologies to image the body at the molecular level and at unprecedented resolution. Kadoch, 28, studies how changes in the physical environment influences the health and well-being of populations.

Edward V. Sullivan, PhD, was promoted professor of psychiatry and behavioral sciences with tenure, effective Dec. 1. (His previous appointment was un- tenured.) His research focuses on interventions for substance abuse and psychiatric disorders. He studies, in particular, on evaluating the outcomes of professionally administered treatments and peer-operated self-help groups, such as Alcoholics Anonymous, developing health services research-related appli- cations for innovative qualitative and quantitative research methods, and analyzing national mental health policy.

LiaNNe KuriNa, PhD, was appointed assistant professor (teaching) of medicine, effective Oct. 1. Her research projects include a study of sleep among older Americans, and a study of functional disorders and disability trajectories among active-duty U.S. Army soldiers.

Keith Humphreys was appointed assistant professor of medicine, effective Oct. 1. He is interested in applying imaging technology to translate promising basic science findings into clinical applications and to gain a better understanding of coronary artery disease in men and women.

Gerald Grant, MD, was appointed associate professor of neurosurgery, effective Oct. 1. His clinical interests focus on the surgical treatment of children with pediatric brain tumors and intractable epilepsy. He is an expert in pediatric brain mapping. His research focuses on finding novel ways to modulate the blood-brain barrier to augment drug delivery to the brain to better treat pediatric brain tumors.

Minang Turakhia, MD, MAS, was appointed assistant professor of medicine, effective Oct. 1. The research program uses large-scale data sets to evaluate the quality of care, effective- ness and risk of drug, and device-based therapies for heart-rhythm disorders. He also serves as director of cardiac electrophysiology at the Veterans Affairs Palo Alto Health Care System.

Keith Humphreys

Stephen Quake

David Studdert

Cigal Kadoch

Vinod Bhutani

Adam de la Zerda