Don’t despair in face of failure, Kim tells grads

By Tracie White

Rather than focusing on his many scientific successes, Peter Kim, PhD, a biochemist known for his innovative work in developing and shepherding drugs to market, chose instead to tell the School of Medicine’s graduating class of 2016 about one of his key failures.

“arrest from the two student speakers, Lauren Popov, who was receiving a PhD in microbiology and immunology, and Murtha Alagappan, who was receiving a medical degree, Minor introduced Kim. The dean encouraged graduates, each of whom he said faced "remarkable futures,” to “always remain true to yourself and your values.”

Kim, who earned a PhD in biochemistry at Stanford in 1985, joined the faculty of the School of Medicine in 2014 as a professor of biochemistry. He is member ofChEM-H, an interdisciplinary effort focused on the chemistry of human health. ‘Up a blind alley’

Previously, Kim was president of Merck Research Laboratories, where he helped launch a vaccine targeting the human papilloma virus, the causative agent of cervical cancer, among many other products. He returned to Stanford to relaunch a career as a research scientist, he said. His research at Stanford includes efforts to create an HIV vaccine.

In 2003, as the newly installed head of Merck Research Labs, Kim believed that Merck scientists were close to finding a vaccine for HIV/AIDS. “This would not have been the ultimate HIV vaccine, but it would have been an enormous step forward,” he said. “And much of the scientific community, as well as the HIV/AIDS advocacy community, shared our optimism — and our hope.”

Under his leadership, Merck partnered with the National In-

Male, female brain activity differs during cooperative task, study finds
By Sarah C.P. Williams

Studies have long shown that when faced with a problem that must be solved by cooperating with others, males and females approach the task differently. Now, researchers at the School of Medicine have discovered how those differences are reflected in brain activity.

When the researchers asked people to cooperate with a partner and then tracked the brain activity of both participants, they found that males and females had different patterns of brain activity.

‘Up a blind alley’

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Researchers: Ramping up treatment of worm disease would be cost-effective
By Ruthann Richter

Millions of people in the developing world could be spared from lifelong disability — or possible death — from parasitic worm disease under a vastly expanded treatment program that is cost-effective, according to a new analysis led by School of Medicine researchers.

The modeling analysis suggests that current World Health Organization guidelines may need to be revised to more effectively combat parasitic worm disease, which afflicts some 1.5 million people across the globe. It points the way to a sweeping new program in which more than 1 billion doses of two low-cost drugs — often donated — could be dispensed in sub-Saharan Africa to largely knock out these infections.

Using prevalence and cost-effectiveness models, the researchers found it would be economically worthwhile to make these drugs available to schoolchildren every year in communities where as few as 5 percent are infected with schistosomiasis, as opposed to the 50 percent threshold now recommended by WHO.

Schistosoma worms are among the parasitic worms that cause diseases in millions of people in the developing world each year.

WHO. It would also be feasible to expand treatment to adults and preschool-aged children, who often aren't included in WHO guidelines, and to combine treatment in areas heavily afflicted by the two most common types of worm infections, which are caused by schistosomiasis and the soil-transmitted helminths, said Nathan Lo, a Stanford MD-PhD student and lead author of the study.

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“If we incorporate this new evidence, it would be economically worthwhile to make these drugs available to schoolchildren every year in communities where as few as 5 percent are infected with schistosomiasis, as opposed to the 50 percent threshold now recommended by WHO.”
Physician-assisted death was supported by a majority of California and Hawaii residents, regardless of their ethnicity, who responded to a survey supported physician-assisted death, regardless of their ethnicity.

The study was published online June 9 in the Journal of Palliative Medicine to coincide with the date that California’s End of Life Option Act took effect. The act was signed into law Oct. 9, 2015. Physician-assisted death is illegal in Hawaii.

“It is remarkable that in both states, even participants who were deeply spiritual (52 percent) were still supportive of physician-assisted death,” said the study. “Both genders and all racial/ethnic groups in both states were equally in support of PAD.”

“Surprisingly positive”

“The response was surprisingly positive across all ethnic groups,” said VJ Periyakoil, MD, clinical associate professor of medicine, who is the lead and senior author of the study. Those taking the survey marked their ethnicities as African American, Latino, white, Native Hawaiian/Pacific Islander or Asian.

“I was surprised that people who were deeply spiritual were still positive overall,” she added.

To conduct the study, researchers developed an online survey asked participants to respond, true or false, to whether they believed it is acceptable to allow a physician to prescribe medication, at the request of a terminally-ill patient, in order to end that person’s life.

“We wanted a broad question that didn’t specify what kind of medication, that didn’t say oral pills or self-administered, none of that,” Periyakoil said. Participants were also asked: “How important is your faith/spirituality to you? (Unimportant, somewhat important, important and very important.)”

Participants responded to the online survey, which was housed and stored on a secure Stanford server. Data was collected from July through October 2015.

Among the 1,095 responses from California and 819 from Hawaii, the majority — both in California (72.5 percent) and Hawaii (76.5 percent) — were supportive of PAD.

“Older participants were more supportive of PAD compared with their younger counterparts in both states,” the study said. “Persons who reported that spirituality was less important to them were more likely to support PAD in both states. For those who said religion/spirituality was very important to them, about 52 percent were in favor of PAD, the study found.

“The act of deliberately hastening death is not supported by most religions. ... Thus it is not surprising that in our study participants who reported faith to be important to them were less in support of PAD,” the study said.

Need for cultural sensitivity

Periyakoil, an expert on end-of-life care and director of the Stanford Palliative Care Education and Training Program, stressed that it’s important for physicians in California to prepare for the new law. In addition to training in end-of-life conversations and being aware of cultural differences, physicians need to be honest with their patients, Periyakoil said.

“Just be upfront,” she said. “Tell patients, ‘Listen, this is a very hard topic for all of us.

In particular, primary care physicians will inevitably be faced with questions from patients, she said. Periyakoil said it takes a tremendous amount of courage on the part of the physician to approach the question of the patient’s faith/spirituality.

“The study provides evidence that patients of various ethnicities and religious backgrounds will be seeking information from their physicians on the issue, many of them at what may be the most vulnerable time in their lives, she said.

“We stress that requests from diverse patients have to be approached with great cultural sensitivity,” the researchers wrote in the study.

The study asserted that because of the number of complex provisions in the law — such as the requirement that medication must be self-administered by a mentally competent patient — it will actually affect only a tiny fraction of seriously ill patients.

This has been borne out in Oregon, which in 1997 became the first state to pass an assisted-suicide law.

“Only a small sliver of the population will be eligible for PAD, more than likely only a portion are likely to utilize this option, and no one ethically opposed would likely do so,” the study said. “For example, of the 54,160 Oregonians who died in 2014, only 155 received a lethal prescription and 105 utilized it.”

Although long-debated in California, the issue of physician-assisted death gained momentum after Britney Maynard, a 29-year-old Californian who was terminally ill, decided to move to Oregon in 2014 to end her life rather than suffer the pain and debilitation caused by brain cancer.

“At California is a highly populous majority-minority state, we are soon going to learn how diverse racial and ethnic groups respond to legalizing physician-assisted death,” Periyakoil said. “In order to alleviate suffering for all seriously ill patients, it is extremely important that we also provide excellent palliative care early in the illness process.”

Periyakoil’s teaching module on physician-assisted death, which is posted on the medical school’s website, is designed to be used as a discussion aid for both patients and physicians. It is available at http://palliative.stanford.edu/physician-assisted-death.

The other Stanford co-authors of the paper are Hel ena Kraemer, PhD, professor emerita of bioinformatics in psychiatry, and analytic Eric Neri.

Periyakoil’s work is supported by the Veterans Administration Palo Alto Health Care System and the National Institute on Minority Health and Health Disparities.

Stanford’s Department of Medicine also supported the work.}

Stanford Medicine X conference focuses on how to realize moonshot ideas

By Tracie White

On the heels of co-hosting a precision medicine workshop at the White House earlier this month, organizers of Stanford Medicine X, an annual conference for health care innovation, have announced the agenda for the upcoming fall conference.

This year’s conference is being dubbed Medicine X Week because the offerings have expanded and will take place over seven days. The largest of its kind, the conference for the past six years at Medicine X.

Medicine X Week will focus on how to realize moonshot ideas for improving health care.

“We’re taking the moonshot thinking and the inspirational thoughts that Med X is known for and tying it to how to implement these ideas into the world,” said Lawrence Chu, MD, associate professor of anesthesiology, perioperative and pain medicine at Stanford. Chu is the project director of the conference. “The whole idea is that change is something each of us can be responsible for and create.”

‘Everyone Included’

Geared toward researchers, patients, providers, designers, technologists and policy leaders, Medicine X aims to provide a framework for health-care innovation, implementation and transformation based on principles of mutual respect and inclusivity, Chu said.

This framework, known as “Everyone Included,” a trademark of Stanford Medicine X, was co-developed with a diverse group of health-care stakeholders over the past six years at Medicine X.

“What we have learned over the years is that people value most from this conference is its inclusivity,” Chu said. “We bring together researchers, patients and policy leaders to work on problems that matter in health care, to look at emerging technologies from a patient-focused viewpoint, and to create new ideas to solve problems.

“101 days is just not enough to do all this,” he added. “We’ve expanded to a week to create more opportunities for collaborations, for co-creations and participation.”

Keynote speakers will be Susannah Fox, chief technology officer for the U.S. Department of Health and Human Services, who will discuss building a nation of innovators; Lindred Green, PhD, assistant professor of organizational behavior at Stanford, who will talk about flattening the hierarchy in health-care systems; Jonathan Bush, CEO and president of Athenahealth, who will discuss bringing the “network effect” to health care; and LaVerne Council, chief information officer at the U.S. Department of Veterans Affairs, who will discuss technological innovation at the VA.

The following events will take place during Medicine X Week:

• MedXMakers Community Event: a free event open to the public that brings the “network effect” to health care.

• Health Care Safety Design Challenge: a daylong event that focuses on the question, “How should we respond to medical errors?”

• IDEO Design Challenge: a daylong event that focuses on developing solutions by redesigning the healthcare system.

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Send letters, comments and story ideas to John Santford at 723-8309 or at jsanford@stanford.edu. Please also contact him to receive an e-mail version of Inside Stanford Medicine.

Stanford Medicine X is a joint venture of the Stanford School of Medicine, Stanford School of Engineering and the Stanford Medical Center.


Inside Stanford Medicine
Researches identify possible drug target for common skin disease

**By Krista Conger**

Psoriasis is one of the most common human skin diseases. People with severe cases sometimes resort to immunosuppressive treatment to quell the skin scaling, itching and joint arthritides that are hallmarks of the disorder. But long-term administration of the medication can leave them vulnerable to infection and other unwanted side effects.

Now, researchers at the School of Medicine have identified a new molecular target for potential therapies. A small protein in the skin called Rac1, which is involved in wound repair, appears to link well-known environmental triggers of the disease with a genetic predisposition to the condition. It also sheds light on the interplay between the skin and the immune system that is responsible for disease flare-ups.

"Normally there's a quiet, ongoing conversation between the epidermis and our immune system as they work together to fight disease such as infections," said Peter Marinkovich, MD, associate professor of dermatology. "In psoriasis, this has escalated into an uncontrollable shouting match that results in abnormal cellular proliferation, scaling and inflammation with no real effective therapies other than long-term immunosuppression."

Targeting a protein in the skin, rather than quelling the immune system, could be a potential game changer for many patients and clinicians.

A paper describing the research was published online June 13 in the *Journal of Clinical Investigation*. Marinkovich is the senior author, and postdoctoral scholar Matt Winge, MD, PhD, is the lead author.

**Itchy, scaly patches of skin**

About one of every 50 people in the world has psoriasis, which is a genetic disease characterized by itchy, scaly patches of thickened skin across the body. Many also experience pain and associated arthritis in nearby joints. It can occur at any age, and the severity of the condition can wax and wane throughout a person's life.

Psoriasis flare-ups can be triggered when skin is damaged and the epidermal cells become hypersensitive to growth signals. That's why many people struggle with the disease process. That meant considering environmental triggers known to trigger it, said Marinkovich. "We'd like to understand all the steps between these gene defects and Rac1 activation. Then we can try to identify drugs that can down-regulate the cause of abnormal Rac1 activation in psoriasis. The availability of a cream or topical application could completely change the way we treat psoriasis in the clinic."

Other Stanford co-authors of the study are former visiting scientists Bungo Ohyama, MD, PhD, Wei Li, MD, and Teruhiko Makino, MD, PhD; former research assistant Clara Dey; former graduate student Lisa Bener, PhD; postdoctoral scholar Naaani Ezahini-Chimeh, MD; former medical students Allison Trioung, MD, and Diane Wu, MD; former postdoctoral scholars Daniela Starcevic, PhD, and Elizabeth Waterman, PhD; research assistant Ngon Nguyen; and professor of dermatology Paul Khavari, MD, PhD.

"Psoriasis is one of the most prevalent skin diseases in the world," said Marinkovich. "But it's been difficult to study due to the complex interplay between genetic and environmental influences. Now we've learned that targeting Rac1 activation in the skin, rather than the immune system's role in the disease, may be a way to treat the disease without needing to suppress the immune system."

Marinkovich and his colleagues plan to continue their study of what causes Rac1 activation in the epidermis.

"The study is the first to find a molecule linking genetic susceptibility to the disease with the environmental causes known to trigger it," Marinkovich said. "We'd like to understand all the steps between these gene defects and Rac1 activation. Then we can try to identify drugs that can down-regulate the cause of abnormal Rac1 activation in psoriasis. The availability of a cream or topical application could completely change the way we treat psoriasis in the clinic."

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The study was supported by the U.S. Department of Veterans Affairs, the National Institute of Arthritis and Musculoskeletal and Skin Diseases, the National Psoriasis Foundation, the European Union’s Seventh Framework Program, the Swedish Society of Medicine and the Fernstrom Foundation.

Stanford’s Department of Dermatology also supported the work. **Lisa Freeman to serve as senior adviser for clinical affairs**

Elizabeth (Lisa) Freeman has been appointed the School of Medicine’s senior adviser for clinical affairs. She will begin June 27.

Freeman was previously the director and CEO of the U.S. Department of Veterans Affairs Palo Alto Health Care System, where she was responsible for administrative and clinical programs, including planning for facilities. Reporting to Norman Rink, MD, senior associate dean of clinical affairs, Freeman will oversee projects that enhance Stanford Medicine’s focus on precision health and that improve quality, safety and efficiency.

"Lisa Freeman was welcomed into the position because of her deep experience in performance improvement, promotion of cost efficiency and attention to what really matters to patients," Rink said. "We hope to profit from her long and distinguished career to make Stanford Medicine safer, better and more efficient. Her devotion to patients over many years makes her the perfect fit."

Freeman said she is looking forward to joining Stanford after working closely with School of Medicine leaders through her work at the VA.

"I am very excited about the opportunity to focus on specific areas of improvement and innovation in both patient care and patient experience and to partner with the world-class Stanford staff in doing so," Freeman said. "My hope is to use my experience and expertise to further their efforts."

Freeman earned a bachelor’s degree from the University of Notre Dame in civil engineering and a master’s degree in business administration from Louisiana Tech University.

She has held several leadership and administrative positions within the Department of Veterans Affairs, including chief information officer and network director for the VA Southwest Healthcare Network in Phoenix; director of operations at the VA Sierra PacificNetwork in San Francisco; and project manager and senior resident engineer for the VA Office of Construction in Washington, D.C.

For more information about the conference and registration details, visit http://medicinex.stanford.edu. **Lisa Freeman**

(Courtesy of Stanford Medicine)

**Med X continued from page 2**

**Lisa Freeman to serve as senior adviser for clinical affairs**

**By Krista Conger**

design-based approach to help organizations innovate. This will take place Sept. 15 at IDEO’s headquarters in Palo Alto.

- Health Care Innovation Summit: a one-day event on Sept. 15 to explore how to address health-care costs.
- Behavior design workshop: an event led by behavior design expert Kyra Bobińska-Gale and actress Debra Winger on how to use my experience and expertise to further their efforts.
- Shark Tank: a special session will address the opioid crisis, policing patient privacy and the future of President Obama’s Precision Medicine Initiative.

For more information about the conference and registration details, visit http://medicinex.stanford.edu. **Lisa Freeman**

(Courtesy of Stanford Medicine)
The research was funded by the Doris Duke Charitable Foundation, the Mount Sinai Hospital-University Health Network AMO Innovation Fund and the Stanford University Medical Scholars Program.

By Sara Wykes

Ledbetter had the surgical wound on her nose patched with a skin flap from her forehead.

This spring, just in time for Ledbetter's surgery. Stanford Health Care founded the first academic medical center in the western United States to begin treating the Mohs disease, which is named after the technique developed by Wisconsin surgeon Frank uniting the outer layer of skin — removing it is often a multistage process that takes a few days as patients and doctors wait for tissue analysis. Without the finesse of a layer-by-layer surgery called Mohs, which is used universally for other forms of skin cancer, removal of early-stage melanoma can produce large wounds and disfiguring scars.

Edyth Ledbetter attends a follow-up appointment with dermatologic surgeon Tyler Holmig, who removed melanoma in situ from her nose using a technique called Mohs surgery.

Worms continued from page 1

we can start to consider elimination of this as a public health problem," Lo said. "Substantial populations are not receiving treatment under current guidelines that could benefit under a cost-effective program."

A prevalent ailment

Based on the analysis, it would make economic sense to increase treatment for schistosomiasis by six times the current estimated need and twice current estimates for soil-transmitted helminth infections in sub-Saharan Africa, said Jason Andrews, MD, assistant professor of medicine and the senior author of the study.

"These worms cause an array of health effects from anemia, malnutrition and growth stunting to infertility, cancer of the urinary tract and liver cirrhosis," Andrews said. "Mass drug administration of the scale we've recommended would be economically worthwhile to treat school-age children by 2020. However, the WHO guidelines were written a decade ago and it's unclear whether current funders will be involved in delivering the treatment, not in the pills themselves."

"It makes sense to work together to treat multiple diseases when they are in a single setting," Lo said. "If you have health-care workers who go into a village to do one treatment, they will have back to the village for a different treatment, and the second visit just costs as much."

If these proposed recommendations for sub-Saharan Africa were followed, it would require a 10-fold increase in treatment for Schistosoma infections — from about 120 million to more than 750 million doses annually — and a doubling of the number of doses for helminth infections from 335 million to nearly 660 million a year, the researchers estimate.

Question of affordability

The scientists did not calculate the cost of the total proposed program, and it’s unclear whether current funders would be willing to increase their support. These programs are currently funded by the U.S. Agency for International Development, local ministries of health and various nonprofits, as well as pharmaceutical companies that donate the drugs.

In scaling up treatment, it would also be important to be mindful of the potential for drug resistance, although the proposed guidelines meet the best practices for avoiding the emergence of resistance, Lo said. He said resistance with these drugs has been documented in animals, though not in human populations.

The other Stanford co-author of the paper is Eran Bendavid, MD, assistant professor of medicine. Researchers in Switzerland, Canada and the Ivory Coast also contributed to the study.

The research was funded by the Doris Duke Charitable Foundation, the Mount Sinai Hospital-University Health Network AMO Innovation Fund and the Stanford University Medical Scholars Program.

Edyth Ledbetter attended a follow-up appointment with dermatologic surgeon Tyler Holmig, who removed melanoma in situ from her nose using a technique called Mohs surgery.

Dermatology. “That study added to the growing body of evidence that shows the incredible usefulness of this immunohistochemical marker in frozen-section analysis in Mohs for in situ melanoma,” said surgeon Tyler Hollmig, MD, clinical assistant professor of dermatology at the School of Medicine. “We are incredibly excited about those results and about Stanford Health Care’s ability to now offer this new technique to our patients.”

Proceeding carefully

Hollmig and his Stanford Medicine colleagues have proceeded carefully because the new processing and analysis is technically difficult. “We wanted to do things the right way,” he said. Stanford Health Care’s dermatopathology service became a crucial partner for the advanced training needed for the new procedure.

The procedure is based on a technique developed by Wisconsin surgeon Frederic Mohs in the 1930s. Mohs sur- gery begins with the removal, like a plug, of the most visible center of the cancer. Then, the surgeon will remove tissue around the center, in layers about 3 millimeters thick. That tissue is sliced into micron-thin pieces, stained, frozen and examined within minutes. The incremental removal of tissue means that no more will be removed than is necessary. When the cancer is near the eyelid, for instance, the precision of Mohs keeps wounds and scars, or reconstructive sur- gery, to a minimum. Hollmig said he and fellow derma- tologic surgeon See MOHS, page 5
Tale of Sofia Montoya’s survival a testament to power of CPR

By Joan Semeria

“I did something amazing yesterday!” exclaimed So- fiá Montoya. “I climbed to the top of the play structure and I was unresponsive. Her friends ran for help. A school staff member, who found that Sofia had no pulse, called for help. A firefighter walked her through the steps. Hearing the call over the radio, a deputy’s deputy in the area quickly arrived. They took over CPR until the Moss Beach Fire Department got to the school. Firefighters continued CPR and used a defibrillator twice to get Sofia’s heart to start beating again.

It was quickly determined that Sofia needed to be treated at a trauma center, so she was transported by ambulance to the Half Moon Bay airport, where Stanford’s Life Flight helicopter was waiting.

“White as a sheet”

“The moment I first saw her, she was lying on a backboard with a collar on. She was white as a sheet, not moving or breathing very well,” said Shara Griffis, RN, the flight nurse who was on board with Sofia.

During the 10-minute flight to the hospital, Sofia again stopped breathing. Griffis inserted a breathing tube in her mouth. Griffis knew that Sofia’s brain was in danger of not getting sufficient oxygen — a primary concern when someone has to be resuscitated.

At Packard Children’s, Sofia went through a series of diagnostic tests to determine why she had gone into cardiac arrest. The hospital’s Children’s Heart Center team diagnosed Sofia with long QT syndrome, a disorder of the heart’s electrical system that causes fast, chaotic heartbeats resulting in fainting spells, seizures or, in some cases, sudden death. Long QT syndrome can be caused by a genetic mutation and is often inherited. So- fiá’s family members have since all gone through genetic testing to see if they carry the same mutation.

Once Sofia was stabilized, pediatric cardiologist Scott Ceresnak, MD, surgically placed an implantable device to see if they carry the same mutation.

“Sofia’s story is a perfect example of all the pieces coming together,” said Lynda Knight, MSN, RN, di- rector of the REVIVE Initiative for Resuscitation Excellence at Stanford Children’s Health. “This scenario is what we train for, starting with bystander CPR. Evidence shows that if a bystander performs CPR, the outcome will be better.” She said paramedics take four to eight minutes on average to arrive at the scene, and that each minute someone in cardiac arrest goes without chest com- pressions reduces that person’s chance of survival by 10 percent.

In 2013, Knight led an observational study that demonstrated the effectiveness of sending parents of children who had high-risk diagnoses home with a video-based, self-instructional CPR kit called CPR Anytime. Parents reported that they felt empowered by their knowledge of CPR, and most shared the kit with at least two other fam- ily members or friends. Since the program began, 10 children have received CPR from members of families that were given the kit. Nine of those children survived with favorable neurological outcomes. Now all infants and children born at or admitted to Packard Children’s are sent home with the kit. To date, more than 6,500 families have received the free CPR kits, with an esti- mated impact of 19,000 community members becoming trained in CPR.

Understanding the difference between treating car- diorespiratory events in children and adults is especially critical for first responders. That’s why Knight devel- oped the Pediatric Advanced Workshop with Simula- tion program to train firefighters in pediatric CPR by using scenarios based on real cases of critically ill and injured children. The REVIVE American Heart Asso- ciation Training Center, located at Packard Children’s, also trains an additional 1,000 health-care professionals annually in pediatric advanced life support.

Shawna Montoya, Sofia’s mother, acknowledges that her daughter would not be alive and healthy and alive today if she had not received quality CPR.

Although Sofia has some memory loss, she is mak- ing amazing strides every single day,” said Montoya. “I’m so thankful for everyone who was part of her re- covery and for the support of our community. My mis- sion now is to promote CPR training because obviously it can save a life. My daughter is living proof of that.”

A video about a young Stan- ford neurosurgeon’s imminent death from cancer earned the top award in a national competition.

The video, “A strange rela- tivity,” received a Gold Award in the long video category in the 2016 Circle of Excellence Awards program sponsored by the Council for the Advance- ment and Support of Education. The video was an online com- mission to an essay by the late Paul Kalanithi, MD. In the April 2015 issue of Stan- ford Medicine magazine.

The video, and the essay, Kalanithi described how his perception of time changed as a neurosurgeon-to-tumor patient facing a terminal diagnosis. The essay and video were published just a few weeks before he died of lung cancer.

The video was produced by Mark Hanlon, video editor. It features high school teachers from a school in a low-income neighborhood.

The judges for the competition called the video “superb on many levels.” They praised it as a 911 tale of cancerous tissue now available, patients can have their life and improved her outcome.

Paul Kalanithi holds his daughter in a screen shot from Mark Hanlon’s video “A strange relativity,” which won a Gold Award in the long video category in the 2016 Circle of Excellence Awards program sponsored by the Council for the Advancement and Support of Education.

Mansour Aasi, MD, a clinical professor of derma- tology at Stanford, expect to use the procedure to treat the increasing number of people diagnosed with melanoma. The new technique is well-suited for patients whose melanoma is in areas where sparing tissue is most critical — the head, neck, hands, feet and genitalia. With speedy analysis of cancerous tissue now available, patients can have a tumor removed and any needed wound repair completed in one day.

Ledbetter, who lives in Lodi, said she appre- ciated that. Her melanoma had spread through half of one side of her nose. After removing the mucus membranes, Hollmig built Ledbetter a new nose with a procedure called a paramedian fore- head flap. The flap is a section of tissue about a half-inch deep and 5 inches long surgically sepa- rated away from the forehead. One edge remains attached to the forehead, just above the eyebrow; the rectangular remainder is turned downward toward the nose to cover the area where cancer has been removed.

For three weeks, the flap grafts the nose wound. Then, the flap is separated completely from the forehead, and its top edge sewn to the top of the nose. Although the flap procedure is complicated, the one-day operation left Ledbetter to arrive at the Outpatient Center in Redwood City at 8 a.m., Feb. 17, and head home at 4:45 p.m. Two months later, her healing was not considered complete, but she has boasted that her friends “can’t tell I’ve had surgery.”

“Hearing that from a patient is my best reward,” Hollmig said.

Video about terminally ill surgeon wins award

Sumaira Aasi, MD, a clinical professor of derma- tology at Stanford, expect to use the procedure to treat the increasing number of people diagnosed with melanoma. The new technique is well-suited for patients whose melanoma is in areas where sparing tissue is most critical — the head, neck, hands, feet and genitalia. With speedy analysis of cancerous tissue now available, patients can have a tumor removed and any needed wound repair completed in one day.

Ledbetter, who lives in Lodi, said she appre- ciated that. Her melanoma had spread through half of one side of her nose. After removing the mucus membranes, Hollmig built Ledbetter a new nose with a procedure called a paramedian fore- head flap. The flap is a section of tissue about a half-inch deep and 5 inches long surgically sepa- rated away from the forehead. One edge remains attached to the forehead, just above the eyebrow; the rectangular remainder is turned downward toward the nose to cover the area where cancer has been removed.

For three weeks, the flap grafts the nose wound. Then, the flap is separated completely from the forehead, and its top edge sewn to the top of the nose. Although the flap procedure is complicated, the one-day operation left Ledbetter to arrive at the Outpatient Center in Redwood City at 8 a.m., Feb. 17, and head home at 4:45 p.m. Two months later, her healing was not considered complete, but she has boasted that her friends “can’t tell I’ve had surgery.”

“Hearing that from a patient is my best reward,” Hollmig said.

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“Hearing that from a patient is my best reward,” Hollmig said.
Kim’s story was not, of course, just about failure. It was an inspirational tale of how failures in the world of science add to the greater body of scientific knowledge — and how his story of failure changed the course of his life, eventually leading him back to Stanford.

“On the day that we stopped the clinical trial, I wrote a letter to all Merck employees explaining the disappointing news,” he said. “Although the answer is not what we desired, we had completed an incredibly important experiment.”

In as much as the results were deeply disappointing, we had succeeded in finding an approach that didn’t work. And that failure would lead researchers to search for other ways to succeed.

“Now that I am back in academia, I am among those continuing the search. Why? Because today more than 36 million people are living with HIV/AIDS — that is one out of every 200 people on Earth. The quest for this vaccine simply must continue until it succeeds.

Expect to confront failure, but don’t let it defeat you,” Kim added. “Remember, as you leave this place, know that you carry with you the hopes of all those — yet unknown to you or them — in whose lives you will make a real difference. Carry this, not as a burden, but as an opportunity and a privilege.”

Graduates and friends of the graduates traveled from across the country, and around the world, to attend the day’s ceremonies. The class of 2016 was awarded 49 master’s degrees, 87 medical degrees and 94 doctorates. Twenty-six of the graduates received MD-PhD degrees.

The words of the student speakers reflected the strong emotions of the day. They recounted the scholarship, hard work and perseverance that brought the graduates their diplomas, but also how their journey has left a lasting emotional mark.

“Expect to confront failure, but don’t let it defeat you.”
Cooperation
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cooperate more when they’re being watched by other women; that men tend to cooperate better in large groups; and that a pair of men might cooperate better than a pair of women, in a mixed-sex pair the woman tends to be more cooperative.

Theories have circulated about why this is, but the brain science behind them has been scarce. “A vast majority of what we know comes from very sterile, single-subject models,” said Scott Klein, MD, a physician at East Valley Clinic, who received the Outstanding Community Clinic Preceptor—Clinical Instruction Award. “There are a lot of constraints in those models, and the theory behind them is not perfect.”

“Within same-sex pairs, increased coherence was correlated with better performance on the cooperation task,” Baker said. “However, the location of coherence differed between male-male and male-female pairs.”

Surprisingly, though, male-female pairs did as well as male-male pairs at the cooperation task, even though they didn’t show coherence. Since the brains of males and females showed different patterns of activity during the exercise, more research might shed light on how sex-related differences in the brain inform cooperation strategy — at least when it comes to this particular type of cooperation.

An exploratory study

“This study is pretty exploratory,” Baker said. “This certainly isn’t proving cooperation exists. There could be other cooperative tasks, for instance, in which female-female pairs best males. But the researchers noted they hadn’t measured activity in all parts of the brain. ‘There are a lot of parts of the brain we didn’t assess. Reiss said researchers are trying to find all the interbrain coherence may have been present in other regions of the brain that weren’t examined during the task.’

As they continue to study what the brain underlies cooperation, the scientists’ results could help explain how cooperation evolved in humans — and how cooperation was selected for differently in males and females — as well as inform methods that use biofeedback to teach cooperation skills.

“There are people with disorders such as autism who have problems with social cognition,” said Baker. “We’re absolutely hoping to learn enough information so that we might be able to design more effective therapies for them.”

Other Stanford authors are research associate Xu Cui, PhD; former postdoctoral scholar Pascal Vrticka, PhD; and Manish Sagar, PhD, and Hadi Hosseni, PhD, both instructors in psychiatry and behavioral sciences.

The study was funded by the Albert Yu and Mary Bechmann Foundation.

The Stanford’s Department of Psychiatry and Behavioral Sciences also supported the work.
Colorectal cancer is the second leading cause of death from cancer in the United States, after lung cancer; yet many Americans are still loath to be screened for the disease.

Guidelines released by the U.S. Preventive Services Task Force strongly recommend that adults ages 50 to 75 be screened for colon cancer, and suggest adults ages 76 to 85 make individual decisions about whether to be screened, depending on their overall health and prior screening history. The recommendation and several accompanying editorials were published online June 15 in JAMA. The recommendation from the independent body of national experts in prevention and evidence-based medicine also emphasized that colonoscopy is one of many screening options available.

Douglas K. Owens, the Henry J. Kaiser, Jr., Professor and director of the Stanford Center for Health Policy and Center for Primary Care and Outcomes Research, was a member of the task force when the guidelines were developed and co-authored the recommendation. He discussed the screening guidelines with writer Beth Duff-Brown.

1 What is the most significant finding of this final recommendation?

OWENS: The good news is that evidence convincingly shows screening for colorectal cancer works. The task force strongly recommends screening adults 50 to 75 for colorectal cancer, as it reduces the risk of dying from the disease. Unfortunately, one-third of people in that age group have never been screened. So we are missing an important opportunity to prevent deaths from colorectal cancer.

2 How should people decide which screening method is best for them?

OWENS: What really matters is that people get screened. There are several options that are effective, so we recommend that people discuss the options with their clinician. There are direct visualization tests, like colonoscopy, and stool-based tests, like fecal immunochemical testing. Each test has different strengths and limitations, and people may prefer one approach over another. For example, colonoscopy can be done every 10 years, but FIT testing should be done every year. But the real message is, choose an approach in consulta-
tion with your clinician and get screened.

3 The task force found that once adults reach age 76, the benefits of screening become smaller and the potential for harm is greater. What should older Americans consider in deciding whether to be screened?

OWENS: We recommend individual decision making for patients ages 76 to 85. The benefits are smaller among this age group, and the harms of screening go up with age. Still, some people in this age group will benefit from screening.

People most likely to benefit are those who have not been screened before; people who are healthy enough to undergo treatment for colorectal cancer, should it be found; and people who do not have other diseases or conditions that limit their life expectancy substantially.

4 African-Americans have the highest incidence of colorectal cancer among all racial and ethnic subgroups. Should this group consider more frequent screenings?

OWENS: The task force recognizes the burden that colorectal cancer has on African-Americans, who are at higher risk of being diagnosed with and dying from the disease than other racial/ethnic subgroups. We don’t know why this is — more research is needed in this area. The task force did not find enough evidence to conclusively support that making a different recommendation specific to African-Americans would result in a greater net benefit for this population. So our recommendations are intended to apply to all racial/ethnic groups. More robust efforts are needed to ensure that at-risk populations actually receive the screening tests and the follow-up treatments or interventions they need, as people are dying unnecessarily from this disease.

5 What data did the Task Force use to come to its conclusions?

OWENS: We commissioned a comprehensive, systematic review of the available evidence on the benefits and harms of colorectal cancer screening. The task force also commissioned a modeling study from the Cancer Intervention and Surveillance Modeling Network to help it better understand different screening strategies, such as the optimal age to start or stop screening, and the length of time between screenings. The evidence is convincing that screening reduces the risk of dying from colorectal cancer.

OF NOTE

Reprints on significant honors and awards for faculty, staff and students.

SANJAY BASU, MD, PhD, assistant professor of medicine, received a Junior Investigator Recognition Award from the American College of Physicians at a May meeting in Washington, D.C. The award recognizes outstanding papers by residents or researchers who have completed their training within the past three years. Basu is being honored for “Medicare Chronic Care Management Payments and Financial Returns to Primary Care Practices: A Modeling Study,” published Oct. 20, 2015, in the Annals of Internal Medicine.

BERNARD DANNENBERG, MD, the David Vies Indiana Pediatric Emergency Medicine and a clinical professor of pediatrics, received the 2016 Martha Bushore-Fallis Advanced Pediatric Life Support Award from the American Academy of Pediatrics. The award recognizes an individual who has worked to further the goal of early recognition and stabilization of life-threatening children through the auspices of the Advanced Pediatric Life Support Program.

GARY NOLAN, MD, was promoted to associate professor of biochemistry, effective Jan. 1. His research focuses on the modeling and design of noncoding RNA and RNA-protein complexes through computer algorithms, rapid biochemical approaches and internet-scale collaborations.

WENDY FANTL, PhD, assistant professor of obstetrics and gynecology, received the Ellen Weaver Award from the Northern California Chapter of the Association for Women in Science at a May meeting. The award recognizes women with distinguished scientific achievements who have excelled in helping other women in their careers. Fantl’s research focuses on characterizing ovarian cancer at the single-cell level.

PAUL GEORGE, MD, PhD, was appointed assistant professor of neurology and neurological sciences, effective Jan. 1. He is a vascular neurologist and bioengineer whose research focuses on the application of biomaterials and stem cells for stroke recovery and on developing new techniques to improve stroke diagnosis.

GORDON LI, MD, was promoted to associate professor of medicine, effective Jan. 1. His research focuses on the development of treatments for brain tumors and improving techniques for brain tumor surgery.

MARY LOUGH, PhD, RN, received the Clinical Nurse Specialist of the Year Award from the National Association of Clinical Nurse Specialists. Lough is a clinical nurse specialist in critical care at Stanford Health Care and a clinical assistant professor of medicine at the School of Medicine. The award is presented each year to a nurse who has made a significant contribution to nursing and exemplifies the qualities of an exceptional nurse in patient care, nursing and health-care delivery systems.

ICHUCHUKWU MEGWALU, MD, was appointed assistant professor of otolaryngology-head and neck surgery, effective Jan. 1. He treats thyroid and parathyroid disorders, head and neck tumors, sinusitis and chronic ear disorders. His research focuses on outcomes and health services, particularly health literacy and health disparities.

GARRY NOlAN, PhD, the Rachford and Carla A. Harris Professor and professor of microbiology and immunology, received a $3.66 million grant to examine the chronic effects of Ebola infection from the U.S. Food and Drug Administration’s Medical Countermeasures Initiative. The project, a partnership with several other institutions, will use immunopathology to study differences among Ebola survivors experiencing a variety of symptoms.

LAURENCE STEINMAN, MD, the George A. Zimmernann Professor and professor of neurology and neurological sciences and of pediatrics, has been awarded the 2016 MERIT Award in Translational Medicine by the Feinstein Institute for Medical Research. The award honors researchers who have made discoveries that improved human health and who have advanced therapeutic treatments and understanding. Steinman was recognized for his research in neurology, particularly on multiple sclerosis.

RANAK TRIVEDI, PhD, was appointed assistant professor of psychiatry and behavioral sciences, effective Jan. 1. She is also an investigator at the Center for Innovation to Implementation at the Veteran’s Affairs Palo Alto Health Care System. Her research focuses on improving the psychosocial well-being of chronically ill patients, with an emphasis on developing self-management programs that engage both patients and their family caregivers. She is also examining the treatment and assessment of mental illness in primary-care settings.

Douglas Owens on colorectal cancer screening

Douglas K. Owens