Novel biomedical study seeks participants

By Krista Conger

Leslie Purchase describes herself as kind of a data devotee. So last spring, when she heard about the Project Baseline study — one of the largest, most comprehensive efforts to understand the basic underpinnings of health and disease — she jumped at the chance to participate.

“This is an effort to understand how anything at the human body work,” said Purchase, 41, a former physician and mother of three who volunteers with the non-profit Rotaplast International. “It’s an opportunity to help inform health and wellness on a scale that’s never before been attempted, and I think it’s a pretty easy way to do something good for the world.”

The study is an ambitious endeavor, with a potentially transformative payoff. Launched in April after years of designing and planning by Verily, an Alphabet company, in partnership with Stanford Medicine and the Duke University School of Medicine, it aims to understand the molecular basis of health by repeatedly collecting vast amounts of biomedical data from as many as 10,000 participants over the course of at least four years. Stanford Medicine recently enrolled its 100th participant in the study.

Observe how a person’s health data changes over time, regardless of whether they remain healthy or fall ill, could provide the first comprehensive atlas of what it means to be “well” at all stages of life, or help researchers learn the subtle signals given off by the body at the earliest stages of cancer, heart disease or other disorders.

The scope of the effort, and its potential to eventually change how medicine is practiced by enabling physicians to proactively monitor a person’s health and provide preemptive medical care — a concept known as precision health — has captured the imagination of researchers and participants alike.

Purchase, a resident of Mill Valley, is a particularly valuable participant. Leslie Purchase of Mill Valley was among the first to enroll in Stanford’s portion of Project Baseline. The watch on her wrist helps keep track of her activity.

New children’s hospital, Project Baseline highlighted at State of Stanford Medicine

By Ruthann Richter

The importance of a diverse community and the politics of health care were among the topics that dominated the State of Stanford Medicine on Oct. 24.

During the lunchtime town hall meeting, the medical center’s three leaders also highlighted new facilities, including the planned opening of the expanded Lucile Packard Children’s Hospital Stanford, and the integrated strategic planning process, which aims to better align the priorities of the medical school, Stanford Health Care and Stanford Children’s Health.

Lloyd Minor, MD, dean of the School of Medicine, kicked off the event by introducing several new initiatives at the school, including Stanford’s participation in Project Baseline, a partnership with Duke University and Verily, an Alphabet company, that aims to understand the molecular basis of health by collecting vast amounts of biomedical data from as many as 10,000 participants, including 5,000 in the Bay Area, over the next four years (see story above).

“We should be able for the first time to get information about the predisposing factors for diseases,” Minor told some 350 faculty and staff at the Li Ka Shing Center for Learning and Knowledge, where the event was held. “We’re really hoping the conclusions will empower and drive our efforts in precision health — to understand the determinants of health, as well as the determinants of disease, and therefore be able to predict and prevent disease.”

Minor also emphasized the importance of a diverse campus community, saying that broad representation and inclusion remain one of the school’s high priorities. The newly established Diversity Center of Representation and Empowerment, at Lane Medical Library, and recent Stanford-sponsored meetings, including a conference in the spring on race, policing and public health, are helping to shine a light on the issues of diversity and inclusion and the search for solutions.

This year, 25 percent of the entering classes of both doctoral students in the biosciences and medical students are comprised of young donors plasma from young donors.

Researchers have found a positive association between the frequency of marijuana use and the frequency of sexual intercourse.

Regular marijuana use linked to more sex, according to new study

By Bruce Goldman

The jury’s still out on rock ‘n’ roll. But the link between sex and at least one drug, marijuana, has been confirmed. A study by investigators at the School of Medicine indicates that, despite concerns among physicians and scientists that frequent marijuana use may impair sexual desire or performance, the opposite appears more likely to be the case.

The findings, published online Oct. 27 in the Journal of Sexual Medicine, are based on an analysis of more than 50,000 Americans ages 25-45. And they’re unambiguous.
Ann Arvin, dean of research, to step down after 12 years

By Lisa Lapin

Ann Arvin, MD, has announced that she will step down as the vice provost and dean of research at Stanford by the fall of 2018. She will have served for 12 years in the role.

A professor of microbiology and immunology, Arvin will return to research and teaching, Provost Persis Drell, PhD, will appoint a search committee in the coming weeks and begin the process of finding a successor.

“It has been my great privilege to work with our faculty and students as they pursue Stanford’s long and valued tradition of research and scholarship in the disciplines while also addressing major societal challenges,” said Arvin, who holds the Lucile Salter Packard Professorship in Pediatrics. “My primary objective has been to support the remarkably collaborative spirit that enables Stanford researchers to cross the traditional disciplinary boundaries in the pursuit of solutions to the most fundamental research questions, and to the most pressing problems of the global community. I am grateful to Stanford’s many knowledgeable, talented administrators, and especially our VP DoR team, who were indispensable to this effort. Having the chance to help optimize our university’s research ecosystem in a way that empowers the most promising ideas in an environment that facilitates their success has been a deeply rewarding experience.”

Arvin has made faculty and staff her chief priority to engage with faculty directors to optimize the contributions of Stanford’s 18 university-wide interdisciplinary laboratories, centers and institutes, encompassing the life and physical sciences, humanities and social sciences. She placed an equal focus on the day-to-day implementation of Faculty Senate policies that embody core principles and shared values, including openness in research, academic freedom and the responsible conduct of research.

Advocate for sound federal research policies

Throughout her service, Arvin has also represented the university nationally to advocate for sound federal research policies, serving most recently on two National Academy committees to reduce the burden of research regulations and foster research integrity at universities. “Stanford has been extremely fortunate to benefit from Ann’s deep understanding of the issues facing researchers, her strategic vision for new research avenues, and her dedicated and extensive national service in helping to resolve funding agencies develop regulations and policies,” Drell said. “Ann is one of the most respected research administrators in the country, and she has been a tremendous advocate for enabling research here at Stanford. It is a demanding job and we are all in her debt.”

The core mission of the research office is to facilitate the many diverse faculty-led research programs, which led to more than $1.2 billion in external support at Stanford and SLAC National Accelerator Laboratory in 2016, through the work of seven administrative offices, to work with the Office of Research Administration. Major objectives have been helping to provide state-of-the-art shared facilities that are essential for contemporary research — from research computing and nanosciences to digital humanism at the Stanford Center at Peking University, and most recently the Stanford-SLAC cryo-electron microscopy facility — and supporting the faculty and research staff of all seven schools.

Ann has viewed her role as that of a supporter of all Stanford’s research enterprise, with an emphasis as an advocate to assure our researchers thrive and can easily collaborate,” said Stanford President Marc Tessier-Lavigne, PhD. “She understands that research success lies with our innovative, creative faculty, and she has done remarkable work in enabling them to work together, across disciplines, and to be successful even within a challenging environment for research funding.”

During her tenure, five interdisciplinary institutes were launched or became established programs, including the Woods Institute for the Environment, the Precourt Institute for Energy, the Stanford Center for Longevity, the Stanford Woods Institute, and Chemistry, Engineering & Medicine for Human Health (ChEM-H), Spectrum, the Stanford Center for Clinical and Translational Research and Education, was established with the School of Medicine; and the Center for Advanced Study in the Behavioral Sciences joined Stanford. During this time, Bio-X, the Freeman Spogli Institute for International Studies, the Stanford Institute for Economic Policy Research, the Stanford Precourt Institute for Energy, the Chan Zuckerberg Initiative, and the joint SLAC-Stanford Institute for Materials & Energy Sciences, Photon Ultralast Laser Science and Engineering Institute, and Kavli Institute for Particle Astrophysics and Cosmology have continued to expand their innovative programs.

These success stories are due to dynamic faculty directors and the commitment of the president, provost, and school deans and associate deans for research, as well as the development of resources to support the inter-disciplinary centers and institutes and their dedicated volunteer advisory councils, Arvin said.

“A visionary leader”

“Ann has been a visionary leader of interdisciplin ary themes at Stanford,” said Carla Shatz, PhD, director of the Stanford Institute for Neurosciences and professor of neurobiology. “She recognized the power and benefit of creating opportunities for research and training across the university long before many other institutions and she helped transform the way scientific research is being done.”

Arvin has also guided key research support enterprises, including the Office of Environmental Health and Safety; the Export Control Office; the Office of Science Outreach; the Research Compliance Office, which oversees research involving human subjects and animals; and the Office of Technology Licensing. The Office of International Affairs was created under her purview.

During Arvin’s tenure, new web-based tools have also been developed to aid research, including an online system for financial interest disclosures; the DoResearch system that supports data sharing, software, and hardware; and the expansion of Stanford Profiles to share the research and scholarly interests and publications of faculty and trainees.

Prior to assuming her role as vice provost and dean of research, Arvin served as associate dean of research from 2001 to 2006, and was chief of the infectious diseases division at the Department of Pediatrics and Lucile Packard Children’s Hospital from 1984 to 2006. Arvin received her bachelor’s degree in philosophy from the University of California, Berkeley and her medical degree from the University of Pennsylvania in 1972. She completed her pediatric residency at the University of California-San Francisco, and subspecialty training in infectious diseases at UCSF and Stanford.

Professorship in Pediatrics. “My passion is transforming the way we as physicians diagnose and treat diseases like PTSD, autism, anxiety and opioid use,” said Nina Vasan, MD, a psychiatry resident and MBA student at Stanford, and founder and director of Brainstorm. “Brainstorm wanted to capture this potential by identifying promising VR/AR applications and working with entrepreneurs to develop their ideas into successful ventures.”

Six teams made the finals in October. The winning high school team presented a virtual reality game which simulates what it’s like to have schizophrenia and a team of researchers from the Medical College of Wisconsin that designed a video game for promoting awareness of the tools for overcoming addiction. The teams came from across the country to appear before a panel of judges at the ‘Tech and the Brain’ Conference: Learning Knowledge. The event was part of Stanford’s annual Innovations in Psychiatry and Behavioral Health conference.

The winner of the competition was a research team from Simon Fraser University in Canada that is investigating the use of neurosensors connected to a virtual reality system designed to help determine what can trigger a relapse in a recovering addict.

Eight interdisciplinary team members hail from across Stanford and the nation, is a special initiative of Laura Roberts, MD, professor and chair of the Department of Psychiatry and behavioral sciences at Stanford.

The initiative provides courses and educational programs for students and other relevant events supporting the growth of entrepreneurial ideas in the field of brain health and mental illness.

“We wanted to bring the Silicon Val ley-style of problem-solving to psychiatry,” Vasan said. “Our goal is to bring together pioneering people and create innovative technology and companies that will transform the way brain and behavioral health is addressed.”
Multidisciplinary care team prevails against heart defect in newborn

By Erin Digitalle

Marlo Greenfield was halfway through her pregnancy when she and her husband, David, received bad news: Their eagerly awaited daughter had a congenital heart defect. The fetal aorta and left side of the heart were smaller than normal, ultrasound scans indicated. At first, the couple was told the problem might resolve on its own, but over the next several weeks of Marlo’s pregnancy, follow-up scans did not show enough catch-up growth. The Greenfield’s, who had recently moved to the Stanford area to be close to the Johnson Center for Pregancy and Newborn Services at Lucile Packard Children’s Hospital Stanford, held their breath. “It was very scary information to hear when we were hoping for a healthy baby,” Marlo said. “But we were told it could resolve.” When Marlo was 32 weeks pregnant, the couple was referred to the Johnson Center for Pregancy and Newborn Services at Lucile Packard Children’s Hospital Stanford, helping them feel more confident about what was coming.

Assessing heart with echocardiogram

“Knowing we would be at one of the best hospitals in the nation, with doctors and nurses that strictly deal with children and pregnant women, was reassuring,” David said. "There’s a certain amount of catch-up growth that occurs in the first few days of life,” Rhine said. "If the baby’s heart isn’t growing enough, you can go through weeks and months of cardiac intensive care without the heart getting any bigger. Both hospital leaders concurred that the formalized council will help the medical entities advance and plan together. "The revisions to the charter and the appointment of Randy Livingston as chairman will greatly enhance communication and alignment,” said Christopher Dawes, president and CEO of Stanford Children’s Health. In September, the 20-member advisory council held its first meeting of the 2017-18 academic year. The members of the advisory council include the dean and three department chairs from the School of Medicine; the chief board chairs and members of the board of directors of Stanford Health Care and Lucile Packard Children’s Hospital Stanford; current and former members of the Stanford University Board of Trustees; the university liaison for Stanford Medicine; and Stanford’s general counsel. The advisory council will:

- Review and advise on the comprehensive strategic plan for Stanford Medicine that is being developed and conduct periodic reviews of progress relative to the plan.
- Serve as a sounding board to Stanford Medicine leadership and govern those who are responsible for senior operational issues, such as land use, financial plans, and ensuring compliance with and issues of common interest to Stanford Medicine and Stanford University.
- Coordinate development of, and periodically review and comment on, Stanford Medicine’s collaborative capital plan, financial projections and financial performance, including an integrated review of financial performance on a quarterly basis.
- Conduct ad hoc reviews of specific issues and exceptional matters, such as the costs of existing and/or transitioning to the new hospitals.
- Livingston will retain his existing roles as vice president of business affairs and chief financial officer while assuming his new role as university liaison for Stanford Medicine.
- As university liaison, Livingston is responsible for extending collaboration and ensuring coordination on nonacademic matters between the university and Stanford Medicine.

Physicians in the hospital’s Fetal and Pregnancy Health Program assessed Kennedy’s heart with a detailed fetal echocardiogram. They recommended that Kennedy undergo a palliative surgery known as the Norwood procedure. In a five-hour procedure, Katsuhide Maeda, MD, clinical associate professor of cardiothoracic surgery, performed the Norwood procedure on Kennedy. “It was very scary information to hear when we were hoping for a healthy baby,” Marlo said. “But we were told it could resolve.” When Marlo was 32 weeks pregnant, the couple was referred to the Johnson Center for Pregancy and Newborn Services at Lucile Packard Children’s Hospital Stanford, helping them feel more confident about what was coming.

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Clinical trial finds blood-plasma infusions for Alzheimer’s safe, promising

By Bruce Goldman

School of Medicine investigators have reported success in an early-phase clinical trial examining the safety, tolerability and feasibility of administering infusions of blood plasma from young donors to participants with mild to moderate Alzheimer’s disease. There were also some signs suggesting improvements in participants’ conditions.

Results from the PLASMA trial, short for Plasma for Alzheimer’s Symptom Amelioration, were presented Nov. 4 at the 10th annual Clinical Trial on Alzheimer’s Disease conference in Boston by Sharon Sha, MD, a clinical associate professor of neurology and neurological sciences at Stanford and the trial’s principal investigator.

Sha noted that the finding of safety wasn’t surprising, given that blood-plasma infusions have long been in widespread use for other indications and are considered extremely safe. More surprising, she said, were hints of recipients’ improvement on tests of functional ability: the capacity to perform basic tasks essential to independent daily life, such as remembering to take medications and being able to pay bills and prepare one’s own meals.

The PLASMA trial was designed to test a hypothesis advanced by Tony Wyss-Coray, PhD, Stanford professor of neurology and neurosciences and a senior research career scientist at the Veterans Affairs Palo Alto Health Care System, whose research has shown that factors in the blood of young mice can rejuvenate the brain tissue and improve cognitive performance in old mice.

Larger studies needed

Sha, the clinical core co-leader of the Stanford Alzheimer’s Disease Research Center and the medical director of the Stanford Neuroscience Clinical Trials Group, cautioned that these assessments were based on caregiver reports and that the number of participants in the study — 18 — was small. Further studies on larger numbers of participants will be necessary before conclusions about efficacy can be reached, Sha said.

The trial took place at Stanford Hospital and was sponsored by Alkahest, a privately held biotechnology company headquartered in San Carlos, California. Alkahest holds intellectual property associated with the treatment regimen. Wyss-Coray, a co-founder of the company and chair of its scientific advisory board, continues to work full-time at Stanford. He was not involved in the clinical study.

The trial proceeded in two stages. In the first stage, nine participants with mild to moderate Alzheimer’s disease were given four weekly infusions either of plasma — the liquid, cell-free part of blood — obtained from donors 18-30 years old, or of placebo (a saline solution). Neither the participants nor those administering the infusions knew which of the two infusions any given participant was getting. Then, after a six-week “washout” period, the regimens were reversed: those initially receiving plasma got four weekly infusions of placebo, and vice versa.

“If those participants served as their own controls,” said Sha. “Multiple tests and questionnaires ascertained mood, cognition and functional ability of the participants were administered to the study’s participants and their caregivers before and after the first four-week infusional period, and again before and after the second four-week infusional period.

The total time despising between a participant’s first and final visits, including a preliminary screening and a final visit, approached six months. The participants needed to make nearly a dozen round trips to Stanford, accompanied by their caregivers. So, to reduce the travel burden, the investigators decided to modify the trial for their next group of nine participants. These newcomers all received young-donor plasma infusions, and they and their caregivers, as well as the administrators, all knew it. This change cut the time between the first and final visits to 10-12 weeks for the second group of participants, and required commensurately fewer trips. These participants, like the first group, received the full battery of mood, cognition and functional-assessment measures.

Only a single instance of a trial-related adverse event followed — excessive itching occurred. Sha said this wasn’t entirely unexpected, as it can arise as a side effect of infusing any blood product. Another participant had a stroke, but this was considered unrelated to the treatment; the participant had received only four infusions.

See PLASMA, page 5

New study finds drawbacks to robot-assisted kidney removal

By Krista Conger

Robot-assisted laparoscopic surgery to remove a patient’s entire kidney requires slightly longer operating times and results in increased costs compared with the use of traditional laparoscopic surgery, according to a large, multiyear analysis conducted by researchers at the School of Medicine.

However, the two approaches have comparable patient outcomes and lengths of hospital stay, the study showed. Laparoscopic surgery is a minimally invasive procedure in which surgical operations are done through small incisions. The removal of the entire kidney is called a radical nephrectomy.

Although the laparoscopic procedure has been standard of care for a radical nephrectomy for many years, we saw an increase in the use of robotic-assisted approaches, and by 2015 these had surpassed the number of conventional laparoscopic procedures, said Benjamin Chung, MD, PhD, associate professor of urology. “We found that, although there was no statistical difference in outcome or length of hospital stay, the robotic-assisted surgeries cost more and had a higher probability of prolonged operative time,” he said.

The discrepancy may be due to the time needed for robotic operating room setup or due to a surgeon being in the earlier part of his or her learning curve, resulting in a subsequent increase in operating room and instrumentation costs, the researchers speculated.

Chung is the senior author of the study, which was published Oct. 24 in JAMA. The lead author is former Stanford visiting scholar In Gab Jeong, MD, PhD.

The dexterity of robots

Surgical robots are helpful because they offer more dexterity than traditional laparoscopic instrumentation and use a three-dimensional, high-resolution camera to visualize and magnify the operating field. Some procedures, such as the removal of the prostate or the removal of just a portion of the kidney, require a high degree of delicate maneuvering and extensive internal suturing that render the robot’s assistance invaluable. But Chung and his colleagues wondered whether less technically challenging surgeries, such as the removal of a whole kidney, may not benefit as significantly from a robot’s help.

The researchers analyzed data from 416 hospitals across the country from 2005 to 2015. They found that in 2003 about 65 percent of patients with kidney tumors that necessitated the removal of the entire organ underwent an open surgical procedure. About 34 percent had their kidney removed using a laparoscopic procedure, and only the remaining 1.5 percent of cases were conducted with robot-assisted surgery. By 2015, the proportion of patients who underwent the open procedure had decreased to about 5 percent, but the use of robot-assisted laparoscopic surgery for this remaining group of patients had surpassed that of traditional laparoscopic surgery, 27 percent vs. 25 percent.

When they pooled the data across the years, the researchers found that among nearly 24,000 patients, almost 19,000 underwent a traditional laparoscopic procedure and about 5,000 underwent a robotic-assisted procedure. They found that 46.3 percent of those patients whose surgeon used the robot had a total procedure time of more than four hours. In contrast, about 28.5 percent of the patients whose surgeons used the conventional laparoscopic procedure were in the operating room for more than four hours.

On average, the total hospital cost (including the cost of supplies, room and board, medications, and operating room time) for the robot-assisted procedure exceeded that of the traditional laparoscopic procedure by about $6,270 per patient. The researchers calculated that the increased cost may be due to longer times spent in the operating room and the disposable instruments upon which surgical robots depend.

Why use robotic assistance?

The increase in robot-assisted surgery for many procedures may be due to a variety of factors, the researchers said. The technology clearly benefits patients for certain types of surgeries. In other situations, there may be an expectation on the part of the hospital or the surgeon themselves to justify the large initial investment in purchasing the robot by using it for many types of procedures. And, regardless of the procedure, use of the robotic platform can assist the surgeon in many ways to make the operation more comfortable for the surgeon.

For example, robotic-assisted surgery can be more technologically advanced.

Chung noted that the study covers a time period when many physicians were just learning to use the robots for this type of procedure; as time passes, it’s possible the operating time will decrease and that the cost differences between the two procedures will narrow. But for now, the study suggests that robot-assisted surgery isn’t always the right choice.

“There is a certain incentive to use very expensive equipment,” said Chung. “And it is easy to be cognizant as to how our health care dollars are being spent. Although robotic surgery has some advantages, are those advantages enough in this type of case to justify an increase in cost?”

Other Stanford authors of the study are former research scholar Hyung Han, MD, PhD; and former visiting scholars Jae Heon Kim, MD, PhD, and Deok Hyun Han, MD, PhD.

Stanford’s Department of Medicine supported the work.

N O V E M B E R 6, 2017

INSIDE STANFORD MEDICINE

Robot-assisted surgeries for kidney removal have been on average less cost-effective and more lengthy than traditional laparoscopic nephrectomies, according to a new study.
Technology invented by researchers ties brain circuits to alertness

By Bruce Goldman

Stanford investigators have for the first time tied several brain circuits to alertness.

The findings enhance scientists’ understanding of the forces driving alertness. A brain state that’s essential to survival, by showing that diverse cell types throughout the brain together produce this state.

That link ties to alertness defects ranging from sleep deprivation to depression, says Karl Deisseroth, a Howard Hughes Medical Institute investigator, professor of bioengineering, of psychology and of psychiatry and behavioral sciences at Stanford, and his colleagues describe how they manipulated activity in this brainwide circuit, and recorded.

A study published online Nov. 2 in Cell, Karl Deisseroth, a Howard Hughes Medical Institute investigator, professor of bioengineering and of psychiatry and behavioral sciences at Stanford, and his colleagues describe how they manipulated activity in this brainwide circuit, and recorded.

In a study published online Nov. 2 in Cell, Karl Deisseroth, a Howard Hughes Medical Institute investigator, professor of bioengineering and of psychiatry and behavioral sciences at Stanford, and his colleagues describe how they manipulated activity in this brainwide circuit, and recorded.

By the second group of participants, the investigators wanted to explore the activity of the brain’s neuromodulatory circuitry. Distinct from the neurotransmitter systems, some 10 percent of neurons in the brain act by releasing a chemical at a synapse. Rather than excite or inhibit, they instead add nuance by secreting substances that render excitatory and inhibitory neurons more or less likely to fire under various circumstances.

Different types of neuromodulatory neurons have distinguished not only by the different kinds of substances they secrete, such as dopamine, acetylcholine, serotonin, and but also by various biological markers, such as proteins that appear in or on one but not another neuromodulatory cell type.

The behavioral alertness of one group of participants was monitored by measuring electroencephalography signals, while the other group was observed by recording activity in the brain.

For their experiments, Deisseroth’s team observed almost lockstep with one another, suggesting that a zebrafish’s brain and determine which types of neurons were tied to alertness. Guided by their findings in zebrafish, the researchers then targeted the equivalent neuronal populations in the much more complex brains of mice. At test, mice’s reaction times, they trained the mice to lick in response to a particular tonic challenge; when the mice did so, they were rewarded with a drink of water.

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Marijuana
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“Frequent marijuana use doesn’t seem to impair sexual motivation or performance. If anything, it’s associated with increased coital frequency,” said the study’s senior author, Michael Eisenberg, MD, assistant professor of urology. The lead author is Andrew Sun, MD, a resident in urology.

Hint of a causal connection

The study does not establish a causal connection between marijuana use and sexual activity, Eisenberg noted. But the results hint at it, he added. “The overall trend we saw applied to people of both sexes and all races, ages, education levels, income groups and religions, every health status, whether they were married or single and whether or not they had kids.”

The study is the first to examine the relationship between marijuana use and frequency of sexual intercourse at the population level in the United States.

“Marijuana use is very common, but its large-scale use and association with sexual frequency hasn’t been studied much in a scientific way,” Eisenberg said.

According to the National Institute on Drug Abuse, more than 20 million adult Americans are current marijuana users. With the drug’s legalization for medical or recreational use in 29 states, that number is climbing. But despite marijuana’s growing status as a recreational drug, its status as a procreation drug remains ambiguous: On one hand, there are reports of erectile dysfunction in heavy users, and rigorous studies have found reduced sperm counts in men and women. On the other hand, experiments conducted in animal models and humans indicate that marijuana stimulates activity in brain regions involved in sexual arousal and activity.

Looking at survey responses

To arrive at an accurate determination of marijuana’s effect on intercourse frequency, Eisenberg and Sun turned to the National Survey of Family Growth, sponsored by the federal Centers for Disease Control and Prevention. The survey, which provides data pertaining to family structures, sexual practices and child bearing, reflects the overall demographic features of the U.S. population. Originally conducted at regular intervals, the survey is now carried out on an annual basis. It explicitly queries respondents on how many times they’ve had intercourse with a member of the opposite sex in the past four weeks, and how frequently they’ve smoked marijuana over the past 12 months.

The investigators compiled answers to those questions for all years since 2002, when the survey first began collecting data on men as well as women. They included data from respondents ages 25-45 and excluded a small percentage (fewer than 3 percent) of respondents who had failed to answer one or more relevant questions.

In all, Eisenberg and Sun obtained data on 28,176 women averaging 29.9 years of age and 22,943 men, whose average age was 29.6. They assessed differences in individuals’ self-reported patterns of marijuana use over the previous year and their self-reported frequency of heterosexual intercourse over the previous four weeks.

Some 24.5 percent of men and 14.5 percent of women in the analysis reported having used marijuana, and there was a positive association between the frequency of marijuana use and the frequency of sexual intercourse. This relationship applied to both sexes: Women denying marijuana use in the past year, for example, had sex on average 6.0 times during the previous four weeks, whereas that number was 7.1 for daily pot users. Among men, the corresponding figure was 5.6 for nonusers and 6.9 for daily users.

In other words, pot users are having about 20 percent more sex than pot abstainers, Eisenberg noted.

Positive association is universal

Moreover, Eisenberg said, the positive association between marijuana use and coital frequency was independent of demographic, health, marital or parental status.

In addition, the trend remained even after accounting for subjects’ use of other drugs, such as cocaine or alcohol. This, Eisenberg said, suggests that marijuana’s positive correlation with sexual activity doesn’t merely reflect some general tendency of less-inhibited types, who may be more inclined to use drugs, to also be more likely to have sex. In addition, coital frequency rose steadily with increasing marijuana use, a dose-dependent relationship supporting a possible active role for marijuana in fostering sexual activity.

Nevertheless, Eisenberg cautioned, the study shouldn’t be misinterpreted as having proven a causal link. “It doesn’t say if you smoke more marijuana, you’ll have more sex,” he said.

Stanford’s Department of Urology supported the work.

Medicine
continued from page 1

people from underrepresented groups, he said. That compares with 12 percent of PhD students and 14 percent of medical students in 2012.

“So it’s really wonderful to see the time and effort and devotion really coming to benefit in terms of the students we’re attracting,” Minor said. “We’re building an affirming community that is inclusive and representative of everyone.”

Christopher Dawes discussed some of the features of the expanded Lucile Packard Children’s Hospital Stanford that will open in December.

Chris Dawes, president and CEO of Stanford Children’s Health, discussed the new children’s hospital, which is tentatively scheduled to open Dec. 9. The new facility, driven by the vision of the late Lucile Packard and her daughter, Susan Packard Orr, incorporates a high level of sustainability, extensive open spaces, a sanctuary for spiritual reflection and technologies to put children at ease while they undergo challenging procedures, he said.

Soft floors, wood paneling in rooms, ubiquitous flower boxes, children’s play areas and many other amenities are designed to make the hospital as child- and family-friendly as possible, he said.

“We wanted to create a place that not only would cure disease but also a facility that would be nurturing and would feel comfortable to young children and their families,” he said. “We wanted to make sure we had a facility that was not ‘institutional.’”

The current hospital, which will be called the West Building, ultimately will be revamped as a mother and baby center, with private rooms serving obstetric patients and their infants, he said.

David Entwistle, president and CEO of Stanford Health Care, highlighted Stanford Medicine’s integrated strategic plan, in which the two hospitals and the medical school are working in concert to determine their future direction and how best to go there.

Planning the future

Stanford Medicine has been seeking feedback from faculty and staff and received 5,700 responses so far. Thirteen working groups have been created to focus on specific areas, such as digital health, precision health and translational medicine, he said. The collaborative effort is an example of how the three organizations are breaking down barriers and trying to overcome what has been a siloed culture, he said.

“Our first initiative is to try to prevent these changes from happening,” said Dawes. “We need to continue to fighting aggressively any changes to Medicaid and at the same time prepare ourselves to be more cost-efficient.”

Given today’s unpredictable political environment, Minor said it’s more important than ever to build a strong community at Stanford Medicine.

“In these times of enormous uncertainty in our country, it’s important that we do what we can to build our community and affirm in our actions the values we have for each other,” he said. “I think that’s really, really important to enable us to be successful internally but also to show the world what a cohesive, highly functioning community can do.”
What do children and families affected by PANS/PANDAS experience?

THIENEMANN: Parents often describe children as turning into somebody completely different overnight. A child who was functioning just fine might suddenly feel like they had been “possessed” by something. They may be tearful and unable to separate from their parents. They may suddenly develop vocal or motor tics. The child may suddenly be afraid for fear they will choke, or fear that the food is poisoned, contaminated or spoiled. They may say they smell awful or express fear of vomiting. Again, this appears out of nowhere. It’s like being hit by a train. Most often, the child will miss some school and at least one parent has to take a leave from work. It’s extremely anxiety-provoking because a normally functioning child suddenly can’t go to school, can’t sleep, can’t eat or be apart from parents, and is也就 some evidence, but overall we have to bridge the gap for these patients. For some aspects of treatment we practical evidence to say definitively “this is what you do.”

4. Why were the PANS/PANDAS treatment guidelines needed?

THIENEMANN: Right now, there isn’t enough solid, empirical evidence to say definitively “this is what you do” for these patients. For some aspects of treatment we have evidence, but overall we have to bridge the gap between our current clinical experience and knowledge, and the clinical studies. We are continuing to collect evidence, but many children will be identified with and the clinical studies. We are continuing to collect evidence, but most children with PANS/PANDAS have evidence, but overall we have to bridge the gap for these patients. For some aspects of treatment we practical evidence to say definitively “this is what you do.”

5. What other changes do we need next for PANS/ PANDAS patients?

THIENEMANN: Early identification. When someone comes to their doctor with sudden behavioral change, emotional change, suddenly has tics or suddenly stops eating, this disease should automatically be on the differential diagnosis list. It is highly anxiety-provoking to the family and it’s very hard on the family. Ideally, for the future, I see a day when we have med-psych units for these patients in the same way that we now have excellent med-psych units for eating disorders. We would need hospital staff who specialize in addressing the psychiatric problems and family stress that can follow with PANS/PANDAS, as well as people who can diagnose and treat the more traditional medical problems.

For the last five years, a group of clinicians at the Stanford School of Medicine and at Lucile Packard Children’s Hospital Stanford have focused on what happens when the immune system attacks a child’s brain. In Pediatric Auto-Immune Neuropsychiatric Syndrome, which is believed to stem from symptoms like a viral infection, children suddenly develop uncontrolled, persistent sleep, eating and behavioral problems. Some children have evidence, but many children will be identified with and the clinical studies. We are continuing to collect evidence, but overall we have to bridge the gap for these patients. For some aspects of treatment we practical evidence to say definitively “this is what you do.”

The psychiatric portion of the guidelines recognizes that the child and family are really suffering. The child needs psychiatric treatment to help with symptoms. We have to manage the child’s symptoms. If the child needs medical treatment, get MRIs, take medications, so the family can sleep, and the child can sleep. We also need to help in the family and understand what might be going on, what they can anticipate from treatment, how to interact with each other and understand the illness, and how to in- teract with the child’s school.

Unfortunately, a lot of the tools in psychiatry are medications for OCD, depression, ADHD, tics — that don’t work the same way on an acutely inflamed nervous system as they would on garden-variety, idio- pathetic childhood mental illnesses. When medications are used, usually for family and patients, the guidelines suggest beginning with one-fourth of the typical starting dose of medication and increasing the dose very slowly. There can be complex interactions between medications, and between the medications and other changing variables related to where a child is in the illness and concomitant treatments. It makes treatment complicated.

5. What are some of the gaps in how our health care system is set up to treat these children?

THIENEMANN: Unfortunately, we lack a good place to hospitalize these kids. We put them in a pediatric hospital when they’re unpredictably agitated or ragged, it doesn’t work. Pe- diatric hospitals are not set up for kids who may run out of the hospital or hit someone. Little sounds bother PANS/PANDAS patients, so the constant beeping of monitors doesn’t help, and lights bother them, so they don’t want to be in a hospital setting. It can be very difficult on hospital staff.

Psychiatric hospitals are also hard for these patients to tolerate. They have a brain inflam- mation problem, not a behavioral problem, so typical behavioral interven- tions aren’t helpful. And in psychiatric settings, parents don’t get to stay with their children. For many other pediatric psychiatric diagnoses, the parents may be an integral part of the problem, and some of the process of diagnosis is seeing how the child acts away from parents. But most PANS/PANDAS patients have terrible separation anxiety as part of their illness, and it’s very hard on them to be away from their parents. Psychiatric hospitals also are usually not comfortable working up an infection or giving intravenous treatment, which is required for some of the immune therapies used for this disease, so the children’s medical needs can’t always be met in a psychiatric setting.

Often, there is no place other than home to treat children with PANS/PANDAS, which can be really hard on the family. Ideally, for the future, I see a day when we have med-psych units for these patients in the same way that we now have excellent med-psych units for eating disorders. We would need hospital staff who specialize in addressing the psychiatric problems and family stress that can follow with PANS/PANDAS, as well as people who can diagnose and treat the more traditional medical problems.

Margo Thiennemann on guidelines for treating an alarming psychiatric disease in children

"It’s important that we enroll a broad spectrum of participants."
The changes at the center are spurred in part by studies showing that biosciences graduates are increasingly taking nonacademic jobs. A recent study by the National Institutes of Health showed that almost 80 percent of research-trained professionals in biomedical nationwide are employed outside academia. At Stanford, those numbers aren’t quite so dramatic, but they’re trending in that direction, Eberle said.

Alumni survey results

A survey of Stanford alumni with PhDs in the biosciences found that a majority are pursuing careers outside academia, a major shift over that past decade, Eberle said.

The survey examined career trends for biosciences alumni between 2010 and 2015 and found that 52 percent of all respondents were pursuing nonacademic careers. About 30 percent were working in biotechnology. Other areas of work included government, consulting and finance.

BioSci Careers assists more than 2,000 trainees per year in identifying and preparing for future careers in academia, health care, biotechnology, entrepreneurship, data science, education, nonprofit organizations, government, law, finance, government policy and science communication, Eberle said.

“We’re here to help trainees make good career decisions based on fact and self-awareness rather than assumptions and fears,” Eberle said. “Our goal is to help trainees develop their many transferrable skills.”

More information is available at biosciCareers.stanford.edu. and

Stanford receives grant to create center for support of cancer immunotherapy

The School of Medicine is one of four institutions to receive a grant from the National Cancer Institute to establish a center for the Immune Monitoring and Analysis of Cancer. Together, the centers will form a network of laboratories to support adult and pediatric immunotherapy trials by analyzing patients’ immune phenotype and function and performing deep tumor profiling.

The grant provides the Stanford center approximately $12.5 million over five years. It will be held by Holden Maecker, PhD, professor of microbiology and immunology, and director of the Stanford Human Immune Monitoring Center; and Sean Bendall, PhD, assistant professor of pathology.

Other recipients of the CIMAC grants are the Dana-Farber Cancer Institute, the Icahn School of Medicine at Mount Sinai and the MD Anderson Cancer Center at the University of Texas.

The grants were announced by the National Cancer Institute as part of its $215 million Partnership for Accelerating Cancer Therapies effort, which is a public-private collaboration between the National Institutes of Health and 11 biopharmaceutical companies. The partnership is part of the NIH’s Cancer Moonshot. and

OF NOTE

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

Serigne Pasca

Assistant professor of psychiatry and behavioral sciences, MD, a postdoctoral scholar in psychiatry and behavioral sciences, MD, PhD, a research scientist in neurobiology, and ANCA PASCA, MD, a postdoctoral scholar in neurobiology, were named 2017 STAT Wunderkinds by STAT News, an online biomedical news organization. Liddelow examines the role of astrocytes in central nervous system injury and neurodegenerative disease, with the goal of developing new therapies. Pasca has developed a model of a preterm brain to study neurodevelopmental problems in preterm babies.

SERGIU PASCA, MD, assistant professor of psychiatry and behavioral sciences, and GRÉGORY SCHERRER, PhD, PharmD, associate professor of anesthesiology, perioperative and pain medicine and of neurosurgery, were named 2017 New York Stem Cell Foundation Robertson Investigators. The awards, which include $1.5 million in seed funding for each recipient, recognize early career scientists whose innovative research has the potential to lead to improved therapies. Pasca, one of three stem cell investigators to receive the award, develops new approaches for studying human brain development and examining the mechanisms of neuropsychiatric disorders. Scherrer, one of three neuroscience investigators getting the award, is working to eliminate the brain’s interpretation of pain as unpleasant and identify new ways to treat pain more efficiently and safely than currently done with opioids.

COURTNEY PEDERSEN, MARGOT ROBINSON and HANNAH WILD, who are medical students at Stanford, were awarded 2017 Benjamini H. Kean Travel Fellowships in Tropical Medicine from the American Society of Tropical Medicine and Hygiene. The fellowship provides airfare and $1,000 in living expenses for clinical training or a research project in an area affected by tropical diseases. Pedersen’s project examined the prevalence and impact of atopic diseases among children under the age of 5 and their families in rural Bangladesh. Robinson’s project evaluated pediatric tuberculosis screening strategies in a community with a high TB rate in South Africa. Wild traveled to Ethiopia’s remote Omo Valley to design and test methods for monitoring the health status of nomadic pastoralists.

JOHN RATLIFF, MD, was promoted to professor of neurosurgery, effective July 1. His research focuses on quality improvement, decreasing complications in spine surgery and improving surgical treatment of intramedullary spinal cord tumors. He is the vice chair of neurosurgery and co-director of the Division of Spine and Peripheral Nerve Surgery.

MATA ROBBINS-SLATER, MD, PhD, was appointed assistant professor of health research and policy, effective Sept. 1. Her research interests include maternal and child well-being, family structure and behavior, and policies targeting disadvantaged populations in the United States and other developed countries.

ERIC SIBLEY, MD, PhD, associate professor of pediatrics and assistant dean for academic advising, received the 2017 Distinguished Service Award from the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition. The award honors society members who have made major contributions to the field. He investigates the spatiotemporal regulation of genes expressed in the intestine and associated with nutrient assimilation.

MANJULA TAMURA, MD, was promoted to professor of medicine, effective Aug. 1. Her primary interest is in improving the quality of end-stage renal disease care among older adults. Her work aims to describe outcomes in older patients and to compare the effectiveness of different management strategies on these outcomes.

CAPUCINE VAN RECHM, PhD, was appointed assistant professor of pathology, effective Sept. 1. Her work focuses on understanding the effects of chromatin modifiers on cancer development and progression with the goal of developing therapies.

WILLIAM WELS, PhD, the William M. Hume Professor, professor and chair of structural biology and professor of photon science and of molecular and cellular physiology, and GEORGE SKINNOT, PhD, professor of molecular and cellular physiology and of structural biology, were named Innovation Fund Investigators by the Pew Charitable Trusts. This new program promotes collaborative research between alumni of the Pew scholars and fellows programs. Each partnership award provides $200,000 over two years. Wels and Skinnots plan to determine the 3-D structure of a signaling complex in the Wnt pathway, which is involved in cellular development and cancer.