



**Mount  
Sinai**

# inside

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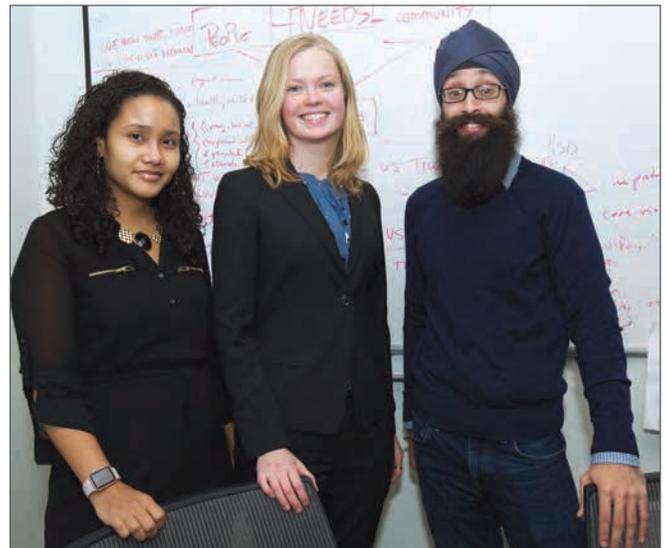
## New Report From Mount Sinai and the United Nations Outlines Ways to Improve U.S. Health Outcomes

The United States spends more money on health care than any other country, yet has poorer outcomes with shorter average life expectancies (78.8 years, per capita) than peer nations, such as Japan and Spain, with 83.4 years and 83.2 years, respectively. Furthermore, a child born in poverty in Detroit has a life expectancy that is six years shorter than a child born in similar circumstances in New York City. And someone born on the Upper East Side of Manhattan has a life expectancy that is nine years longer than a person born ten blocks away in East Harlem.

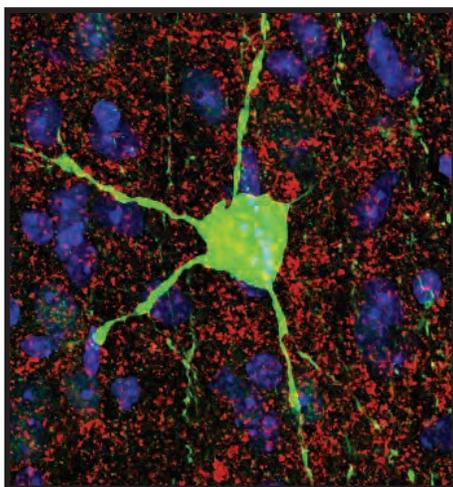
Mending this uneven patchwork of U.S. health outcomes will require a new model of care that embraces the use of community health workers (CHWs), non-clinical workers who provide underserved patients with the continuum of care they need, according to a new report from The Arnhold Institute for Global Health at the Icahn School of Medicine at Mount Sinai and the Office of the UN Secretary General's Special Envoy for Health in Agenda 2030 and for Malaria. The report recommends creating a pilot program in Newark, New Jersey, a city with many non-English speaking residents that lags behind the rest of the state in health outcomes.

CHWs come from the same communities as their patients and serve as the primary mechanism that enables patients to live healthier lives. They can

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Prabhjot Singh, MD, PhD, Director of The Arnhold Institute for Global Health, right, with, from left: Hilda Mejias, a Health Coach in Harlem, and Anna Stapleton, Program Manager for Policy at The Arnhold Institute for Global Health.



A scan of tissue from a mouse brain shows an inhibitory neuron (green) in the basal forebrain, which projects directly to the lateral habenula, a circuit that controls aggression.

## Study Shows Motivation to Bully is Regulated by Brain Reward Circuits

A team of researchers at the Icahn School of Medicine at Mount Sinai has conducted a pioneering study of mice behavior and the structure of the brain demonstrating that in some cases, aggressive social interaction—bullying—activates a primary brain reward circuit that makes the activity pleasurable. The study, led by Scott Russo, PhD, Associate Professor of Neuroscience, appeared in the journal *Nature* in 2016.

Significantly, it was the first time that researchers discovered that specific neural mechanisms between the basal forebrain

and lateral habenula mediate the motivation to engage in or avoid this aggressive behavior. Furthermore, they showed that manipulating activity in this circuit alters the activity of brain cells and, ultimately, aggression behavior.

The team used a conventional mouse behavioral model whereby adult mice were placed together with a younger subordinate mouse for three minutes each day for three consecutive days while researchers closely watched their behavior. They determined that with specific conditioning, about 70 percent of mice exhibited aggressive behavior, tending

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# The Late Mount Sinai Trustee Patricia S. Levinson Is Honored for Her Community Support

More than 100 friends and members of the Mount Sinai Health System paid tribute to the late Patricia S. Levinson at a ceremony in November, when Mount Sinai's Center for Multicultural and Community Affairs (CMCA) was renamed in her honor.



Patricia S. Levinson

Established in 1998, the newly renamed Patricia S. Levinson Center for Multicultural and Community Affairs seeks to eliminate health care disparities and improve the health of all populations through a diversified workforce, research, and policy.

Mrs. Levinson, a Mount Sinai Trustee for 34 years, “was CMCA’s most passionate advocate,” said Kenneth L. Davis, MD, President and Chief Executive Officer of the Mount Sinai Health System, who spoke at the event. “Her advice, counsel, and generosity were legendary, and she was a tremendous ally and resource for the Health System.”

In addition to helping found the CMCA, Mrs. Levinson served as its first Advisory Board Chair. She also endowed multiple scholarships and fellowships at the Icahn School of Medicine at Mount Sinai, and supported educational programs among underrepresented middle school, high school, and college students.

Gary C. Butts, MD, Dean for Diversity Programs, Policy, and Community Affairs at the Icahn School of Medicine at Mount

Sinai, told the attendees that he first met Mrs. Levinson in the early 1990s. “Who would have thought that chance encounter would have resulted in a special personal and professional friendship that was pivotal in supporting my career and our work in CMCA,” he said. “This is a very special honor to have our CMCA acknowledged and named in Pat’s memory.”



From left: Gary C. Butts, MD; Robert A. Levinson, husband of the late Patricia S. Levinson; and Kenneth L. Davis, MD

## › New Report Outlines Ways to Improve U.S. Health Outcomes *(continued from page 1)*

serve as educators, for example, explaining the relationship between diabetes, blood sugar, high-sugar foods, and insulin in a way patients understand, or link patients to neighborhood exercise groups or food pantries that provide health-conscious meals. Such programs have been successful in South America, sub-Saharan Africa, and Southeast Asia.

“A growing body of evidence tells us that social, economic, genomic, and cultural factors can impact an individual’s ability to build and maintain health, and community health workers have the ability to help bridge that gap between medical advice and a patient’s ability to comply,” says Prabhjot Singh, MD, PhD, Director of The Arnhold Institute for Global Health, and the report’s senior author. Dr. Singh co-founded the One Million Community Health Worker Campaign with Jeffrey Sachs, an author and well-regarded sustainable development leader, whom The Arnhold Institute for Global Health is hosting as a visiting fellow through 2018.

Claire Qureshi, MBA, Vice President of Frontline Delivery, Office of the UN Special Envoy for Health in Agenda 2030 and for Malaria, co-wrote the report with Dr. Singh. “We’ve seen the health impact

and economic value of CHWs in countries around the world and fundamentally believe that working with them as part of integrated primary care is a better way to practice medicine,” says Ms. Qureshi. “With careful construction of the right care models, including the organizational and financial infrastructure needed to support them, CHWs can contribute enormously to patients, communities, and health systems alike.”

While CHWs have existed in the United States for decades, they have struggled to gain widespread acceptance. The services they provide have not been reimbursed by public or private health insurance plans, which are based on traditional fee-for-service payments made to hospitals and clinics. In this old model of health care, there has been little incentive to pay for the preventive and maintenance support provided by CHWs, and little consideration given to the support patients need to comply with the medical advice they receive.

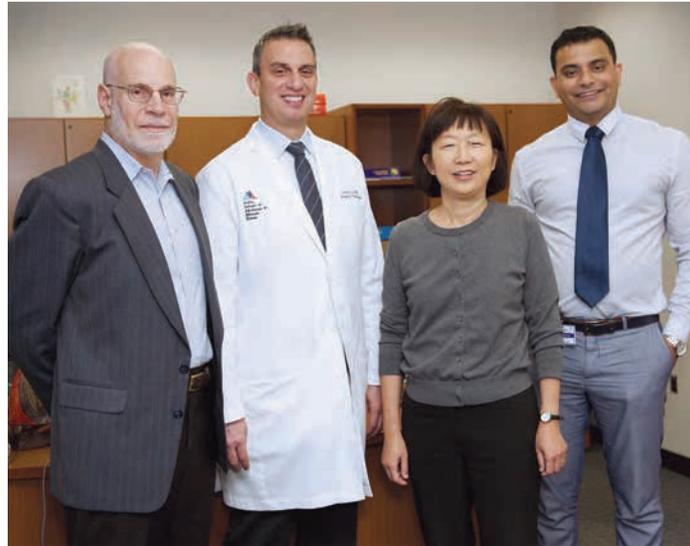
But that is changing. The country’s new emphasis on keeping populations healthy and out of the hospital is creating fertile ground for robust, sustainable CHW programs to emerge, according to the report.

# An Effort to Improve Clinical Trial Enrollment

Clinical researchers in the Division of Nephrology and The Charles Bronfman Institute for Personalized Medicine are leading a new initiative within the Mount Sinai Health System to dramatically accelerate the prescreening process to identify eligible candidates for clinical trials.

The Icahn School of Medicine at Mount Sinai is the first academic institution in the nation to partner with Clinithink, a software developer that has designed a tool known as CLiX ENRICH, a set of algorithms capable of quickly processing large volumes of quantitative and qualitative data from electronic medical records, including physician notes.

Traditionally, researchers spend weeks or months manually sifting through medical records to locate highly eligible patients for potential trial enrollment, a process



From left: Stephen Ellis, Senior Director, Informatics, The Charles Bronfman Institute for Personalized Medicine; Steven Coca, DO; Judy Cho, MD, Ward-Coleman Chair in Translational Genetics, and Director, The Charles Bronfman Institute for Personalized Medicine; and Girish N. Nadkarni, MD.

that increasingly requires submission of qualitative data that can only be extracted through careful analysis of physician notes. “This software ultimately creates

customizable lists of patients sorted into tiers, starting from the most eligible patients to least eligible,” says Steven Coca, DO, Associate Professor of Medicine (Nephrology) and executive sponsor of program evaluation.

In a recent proof-of-concept demonstration for an ongoing trial of a drug for patients with diabetic kidney disease, CLiX ENRICH found 97 highly eligible patients in less than three weeks compared with just six patients found over three months using standard methods.

Says Girish N. Nadkarni, MD, Assistant Professor of Medicine (Nephrology) and lead investigator for the CLiX ENRICH evaluation: “Typically, the problem is not enrolling patients quickly enough. Now, our problem is having sufficient number of staff to enroll all of the eligible patients.”

## ➤ Motivation to Bully is Regulated by Brain Reward Circuits *(continued from page 1)*

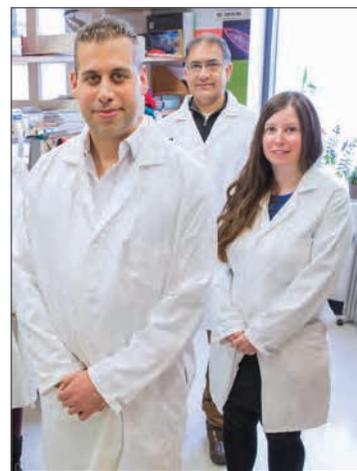
to bully or attack the subordinate mouse, while 30 percent showed no aggression at all. They also observed behavior suggesting that the aggressive mice found the ability to subordinate others rewarding, while the non-aggressive mice developed an aversion to aggression stimuli.

By studying brain activity, the researchers found that the aggressive mice, when given the chance to bully, exhibited increased activity in the basal forebrain neurons that reduce activity in the lateral habenula, an area of the brain that would normally encode an aversion to aggressive stimuli. Conversely, they found that non-aggressive mice exhibited reduced basal forebrain activation and a subsequent increase in lateral habenula neuronal firing, which makes the aggression stimuli aversive.

Researchers then directly manipulated the activity of the neurotransmitter that has a role in this circuit. “When we artificially

induced the rapid neuron activation between the basal forebrain and lateral habenula, we watched in real time as the aggressive mice became docile and no longer showed bullying behavior—it was very dramatic,” says Dr. Russo. “Our study is unique in that we took information about the basal forebrain-lateral habenula projections and then actually went back and manipulated these connections within animals to conclusively show that the circuits bi-directionally control aggression behavior.”

Over the years, Dr. Russo says there have been only limited studies on aggression, even though aggression can be a major part of human illness. This research, while promising, is still in its early stages. “It could take 10 years before we have



From left: Scott Russo, PhD, with researchers Hossein Aleyasin, MD, PhD, and Caroline Menard, PhD, postdoctoral fellows in the Department of Neuroscience.

anything ready for testing in humans, but this is a critical first step,” Dr. Russo says. “Targeting shared underlying deficits in motivational circuitry may eventually provide useful information for the development of novel therapeutic drugs for treating aggression-related neuropsychiatric disorders.”

The Mount Sinai research team included investigators from the Fishberg Department of Neuroscience, The Friedman Brain Institute, the Graduate Program in Neuroscience, the Department of Pharmacological Sciences, and the Mount Sinai Institute for Systems Biomedicine.

## Around the Health System

### Film Tracks a Mount Sinai Leader's Global Heart-Health Mission

*The Resilient Heart*, a new feature-length documentary on the work of Valentin Fuster, MD, PhD, Director of Mount Sinai Heart and Physician-in-Chief of The Mount Sinai Hospital, was presented on Wednesday, December 14, at the New York Academy of Medicine. Nearly 300 people attended the screening of the film, which explores the history of cardiovascular disease, its evolution into a global epidemic, and how research, global health initiatives, and policy are aiding populations worldwide. The film tells this story through Dr. Fuster's day-to-day work. Led by the Emmy-Award-winning director Susan Froemke, a film crew traveled with Dr. Fuster for a year as he pursued projects with partners in Colombia, Spain, Kenya, and Grenada, as well as Harlem and other parts of the United States. Along the way, the film shows firsthand the impact one doctor and his team can have when the mission is to improve lives through research-based cardiovascular education, mentoring, and gentle inspiration. Dr. Fuster



Valentin Fuster, MD, PhD, in the documentary *The Resilient Heart*.

says in the film, "If I have the chance to think in my last hour, I want to be sure that I can say, 'Yes, I have done something that's not for me, but for someone else.' And to me that is a critical issue." *The Resilient Heart* will be shown during the Tribeca Film Festival in April.

### Honoring Many Contributions to the Field of Gastroenterology

Friends, family, faculty, and staff gathered in December to recognize David B. Sachar, MD, and his wife Joanna S. Sachar, for their many contributions to the field of gastroenterology and to celebrate the naming of a conference room in their honor at the Susan and Leonard Feinstein Inflammatory Bowel Disease Clinical Center on The Mount Sinai Hospital campus.



From left: David B. Sachar, MD; Joanna S. Sachar; and Bruce E. Sands, MD, the Dr. Burrill B. Crohn Professor of Medicine and Chief of the Division of Gastroenterology, Icahn School of Medicine at Mount Sinai.

For nearly 50 years, Dr. Sachar, a Clinical Professor at the Icahn School of Medicine at Mount Sinai, has

contributed to inflammatory bowel disease (IBD) research and patient care, and served as a mentor to generations of medical students, residents, and fellows. He served as the founding director of the Burrill B. Crohn Research Foundation, and helped lay the foundation for Mount Sinai's Feinstein IBD Clinical Center. Dr. Sachar's significant impact on the field of IBD was recognized in 2014, when he received the lifetime achievement award from the Crohn's and Colitis Foundation of America.

### Mount Sinai West Recognizes World AIDS Day

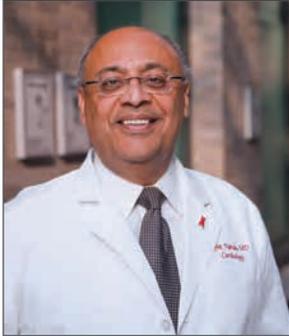
In observance of World AIDS Day, the Mount Sinai Health System held two events in recognition of the disease's multifaceted impact and the importance of HIV research, prevention, and treatment. In a special HIV grand rounds program, the Mount Sinai Institute for Advanced Medicine hosted Kenyon Farrow, U.S. and Global Health Policy Director with the Treatment Action Group, for an in-depth discussion of racial justice in HIV prevention and treatment. Following the discussion was a performance by Barbara Walsh, Broadway veteran and Tony nominee. The Health System also hosted a free screening of *Memories of a Penitent Heart*, a documentary written and directed by Cecilia Aldarondo, PhD, about her uncle, Miguel Dieppa, an aspiring actor and playwright who died of AIDS in the 1980s. The film was followed by a panel discussion moderated by Terri L. Wilder, MSW, Director of HIV/AIDS Education and Training at the Mount Sinai Institute for Advanced Medicine.



Kenyon Farrow addressed racial justice in HIV care.

# A Leader in Imaging, With a Like-Minded Team, Scans Mummies Around the World for Clues to Heart Disease

At the intersection of medicine, archaeology, and the plot of an Indiana Jones movie lies a course of study pursued by Jagat Narula, MD, PhD, MACC.



Jagat Narula, MD, PhD, MACC

Dr. Narula's highly eminent day jobs include serving as the Chief of Cardiology at Mount Sinai St. Luke's and Mount Sinai West; Director of Cardiovascular Imaging for the Mount Sinai Health System; Philip J. and Harriet L. Goodhart Professor of Medicine, Icahn School of Medicine at Mount Sinai; and Editor-in-Chief of *The Journal of the American College of Cardiology: Cardiovascular Imaging*. But for more than six

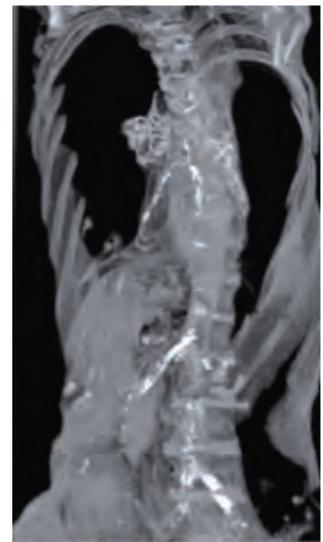
years, he has also traveled the world studying mummies with the Horus Group, named for the Egyptian god of the sky and the hunt. The multidisciplinary research group includes cardiologists, radiologists, pathologists, geneticists, basic scientists, anthropologists, and archaeologists. "We call ourselves the paleocardiologists," Dr. Narula says, "just talking about the old or ancient stuff." Their studies, which have been published in journals like *The Lancet* and *Global Heart*, began with a simple question: Is heart disease—atherosclerosis, or the hardening and narrowing of the arteries—a disease of the modern age and industrialization?

The group has now studied more than 100 Egyptian mummies in Cairo and Berlin using a CT scanner and has found that a third of them showed vascular disease up to 3,500 years ago. The hardening of the arteries was identified by the calcium that had deposited in their arteries. "Now that kind of throws you off, as to why mankind suffered from heart disease so long ago," Dr. Narula says. "But then you start finding out about their lifestyles. These mummies were from the elite of Egypt. These are the people who used to be carried on palanquins; there was no exercise for them." They consumed meat frequently and feasted on bird eggs; agriculture was well developed, and food was available all day, every day. In essence, the Egyptian elite lived like modern humans—though riding in sedan chairs, not SUVs—and their cardiovascular health paid the toll.

Next the group studied the mummies of 70 Peruvians from the Andes foothills who were buried 1,000 years ago and had been naturally preserved. "You are now looking at folks who are not sedentary like the Egyptians; 50 percent of them are vegetarians, and 50 percent of them consume leaner meat, such as alpaca." In this hardy population, the team still found that one-fifth had atherosclerosis. At first, Dr. Narula says, the researchers wondered, "Does that mean we are doomed to have this disease?" But they noticed mummies with black lungs that resulted from long exposure to the smoke of cooking fires. The team made similar observations in five sets of mummified remains in the Aleutian Islands. People in that society kayaked, hunted, and ate fish and meat, but they lived in subterranean households that were warmed with fires and had minimal ventilation through the ceiling, so they



The sarcophagus of a 3,500-year-old mummy was opened at the Egyptian Museum in Cairo.



A computed tomography (CT) calcium scan of a mummy, right, showed white calcium deposits, indicating vascular disease of coronary arteries and the lower part of the aorta.

were exposed to "indoor pollution." He maintains that atherosclerosis, today or thousands of years ago, is a result of risk factors.

In their next project, in March, the Horus Group will study mummified remains in Torino, Italy. "During the day we work, and in the evenings and mornings we sit down and discuss the data," Dr. Narula says. "It's a very congenial group of about 15 people." But the mission is a serious one. Dr. Narula sees the study of mummies as a "very convincing" way to promote global cardiovascular wellness and the awareness of risk factors, including cholesterol, smoking, hypertension, diabetes, obesity, and stress. "Mummy research shows us that the risk factors remain the basis for heart disease," Dr. Narula says. But heart disease is not inevitable: "Prevention or taking care of risk factors should take care of disease."

## **“Go Red” Community Heart Health Fairs**

In recognition of Heart Month in February, Mount Sinai Heart will sponsor community heart health fairs that will provide screenings for blood pressure, total cholesterol, triglyceride level, and body mass index.

Experts will also lead educational demonstrations focused on nutrition and diet, diabetes, stress management, smoking cessation, yoga, and other relaxation techniques.

### **Community Heart Health Fairs will take place on:**

**Friday, February 3  
11 am - 2 pm**

**Mount Sinai Downtown-  
Union Square**  
10 Union Square East  
Second Floor, Atrium

**Mount Sinai Brooklyn**  
3201 Kings Highway  
Upper Lobby

**Mount Sinai St. Luke’s**  
1111 Amsterdam Avenue  
at 114th Street  
Babcock Lobby,  
First Floor

**Mount Sinai West**  
1000 Tenth Avenue  
Main Lobby

**The Mount Sinai Hospital**  
1468 Madison Avenue  
Guggenheim Pavilion,  
Lobby

**Friday, February 3  
5 - 7 pm**

**Mount Sinai Queens**  
25-20 30th Avenue  
Ambulatory Pavilion  
Fifth Floor

**Wear  
Red Day**

**Friday,  
February 3**

*Wear red  
to show your  
support!*



## **Mount Sinai Transformation update**

**The Mount Sinai Health System plans to open a new primary, pediatric, and specialty care practice in Stuyvesant Town-Peter Cooper Village in the fall that will serve both communities with accessible, high-quality health care.**

The new practice, located at 516-518 East 20th Street, will operate with extended weekday and weekend hours, and will accept walk-in and scheduled appointments. Specialty care services will be offered on a rotating basis.

The Stuyvesant Town-Peter Cooper Village practice will be part of the new Mount Sinai Downtown network, a model of care that is focused on keeping people healthy and serving patients in the most appropriate settings that are closer to where they live and work. Mount Sinai Downtown is a comprehensive system of hospitals and expanded and renovated outpatient facilities at three major sites, with more than 35 operating and procedure rooms and an extensive network of 16 physician practice locations with more than 600 doctors, stretching from the East River to the Hudson River below 34th Street.

*For additional information on Mount Sinai’s downtown transformation, go to: <http://www.mountsinaihealth.org/locations/downtown>*

### **ATTEND An Upcoming Epic Validation Session: Your Feedback Matters!**

See live demonstrations of the Epic medical record system at Mount Sinai St. Luke’s and Mount Sinai West by attending one-hour sessions that depict common and integrated hospital workflow scenarios. Clinical staff are encouraged to participate in this collaborative process and attend as many relevant sessions as possible to provide feedback.

**Sessions are scheduled over the following two weeks:**

**WEEK 1: Monday, January 30 - Friday, February 3**

**WEEK 2: Monday, February 6 - Friday, February 10**

For calendar information, including dates and times, visit <http://intranet1.mountsinai.org/EpicSLWinpatient/home.asp>. For questions, email [EpicSLWinPatient@mountsinai.org](mailto:EpicSLWinPatient@mountsinai.org).