



Icahn School
of Medicine at
Mount
Sinai

Department of
**Graduate Medical
Education**
News and Views

FALL 2019

icahn.mssm.edu

See Highlights From Our Medical School Inside >>>

MESSAGE FROM

I. MICHAEL LEITMAN, MD

Dean for Graduate Medical Education, Professor of
Surgery and Medical Education

Each year, 2,500 residents and fellows rotate through the Icahn School of Medicine at Mount Sinai's 230 robust graduate medical education programs within Greater New York City, and develop their skills as health care practitioners in the nation's largest residency and fellowship program. They practice in inner city and suburban settings; in a dozen municipal, tertiary, and quaternary care hospitals—including eight that compose the Mount Sinai Health System—the James J. Peters VA Medical Center in the Bronx; numerous ambulatory locations; and the Rikers Island Prison Complex. They serve a patient population that is among the nation's most culturally and economically diverse.

Alongside Mount Sinai's dynamic clinical setting is an academic medical center that is focused on innovative biomedical research. In fiscal 2019, the Icahn School of Medicine at Mount Sinai received

continued on page 2 >



Student Research Begins on Day One

“We get them on their first day of school,” Mary Rojas, PhD, says with a smile. Dr. Rojas, Director of the Medical Student Research Office at the Icahn School of Medicine at Mount Sinai, is referring to her role in ensuring that all incoming MD students begin to look for a fulfilling research project to pursue on their first day of class. The starting point is often Dr. Rojas’ office where students discuss their interests and search a database of more than 500 faculty members throughout the Mount Sinai Health System to find a mentor.

Among Mount Sinai’s class of 2019, 123 graduates published their work in more than 300 peer-reviewed journals, and 23 received Distinction in Research Awards for their work as first authors in journals that had an impact factor of at least 2.

“Our philosophy is that there is so much about research that helps the students keep up with medicine,” Dr. Rojas says. “We want our students to be able to evaluate studies. That thinking process enhances medical education.”

Dr. Rojas encourages the students to think carefully about the quality of the research projects they are interested in, who their mentors will be, and to make sure they have the time to complete the studies—



Mary Rojas, PhD

usually within 18 months. Due to their busy schedules, the students are encouraged to join research projects that are already underway and to set aside time during the summer between their first and second years. Every March, Mount Sinai holds a special student research day where the students present their work.

Approximately one-third of Mount Sinai’s medical students take an additional scholarly year to pursue their research. Two students are currently working in Bethesda, Maryland, as National Institutes of Health (NIH) Medical Scholars. A third student, who was also accepted at the NIH, opted for a Sarnoff Fellowship, instead.

Mount Sinai students also participate in the commercial sector. One student has received a patent for his work in developing technology that improves joint replacement surgery. His research includes designing algorithms that

generate patient-specific 3D models of the proximal femur and pelvis in patients with severe osteoarthritis. Another student has helped devise a product that can be used for routine eye exams.

“The students see opportunities everywhere to make health care better,” Dr. Rojas says.

➤ MESSAGE FROM THE DEAN | I. MICHAEL LEITMAN, MD *(continued from page 1)*

\$393 million in funding from the National Institutes of Health (NIH), ranking No. 12 among U.S. medical schools. Individually, our departments of Neuroscience, Microbiology, Pharmacology, Genetics, and Anatomy and Cell Biology rank among the top six in NIH funding.

Mount Sinai’s culture of innovation extends throughout education, as well. In July, our Department of Graduate Medical Education rolled out its combined internal medicine and pediatrics residency program with four residents—the only program of its kind in New York City. The combined four-year program operates under our Internal Medicine and Pediatrics departments and is aimed at reducing health care inequities that exist within the city’s underserved populations. Graduates of the program will be board-eligible in internal medicine and pediatrics and able to provide

high-quality, specialty medical care to all age groups, from infants to the elderly.

Before we created our combined internal medicine and pediatrics program, we met with community health care workers and community leaders and incorporated their feedback. In a city teeming with high-quality health care practitioners, we understood that New York City, particularly upper Manhattan, was actually a “primary care desert” that was not delivering continuity of care.

Residents in the new program will rotate through Settlement Health, a combined internal medicine and pediatric clinic in East Harlem, where the Icahn School of Medicine is located. The residents will also see patients in Mount Sinai’s innovative hospital at home program—which treats acutely ill patients with congestive

heart failure, cellulitis, and chronic obstructive pulmonary disease in their homes—and in the Visiting Doctor’s Program, which provides quality care to the frail and elderly who are unable to leave their homes. The residents will also learn the fundamentals of transgender care, and caring for homeless, incarcerated, and refugee populations; and patients with opioid abuse and other substance abuse disorders.

In addition to training a new generation of clinicians, Mount Sinai’s goal is to inspire future educators, leaders, and policymakers. Soon, Mount Sinai will be launching a clinical genomic screening program for preventive health that will be accessed in our primary care settings. When this happens, our medical students and residents will be there at the beginning of what promises to be a transformation in preventive health.

Making a Difference in Neurosurgery

Long-term survival and neurological outcomes are challenging for patients with chordomas, rare cancerous tumors that occur along the spine, from the base of the skull to the sacrum. In the August 2019 issue of *Neurosurgery*, first author Corey Gill reviewed the emerging therapeutic targets in chordomas and wrote that the mutational differences in these tumors may be due to their location.

Mr. Gill—a third-year medical student at the Icahn School of Medicine at Mount Sinai who is also enrolled in the school's Patient-Oriented Research Training and Leadership (PORTAL) program, which includes a fifth year of study and results in a dual MD/Masters Degree in Clinical Research—has co-authored more than 42 peer-reviewed papers, to date. Moreover, he has secured funding for his research at the local, regional, and national levels. He says the school's highly selective PORTAL program, which students apply to in their first year and provides formal training in how to run a clinical trial and run statistical analysis using actual patient data, drew him to Mount Sinai.

"I'm planning to be a neurosurgeon," Mr. Gill says. "My research has been focused on brain tumors. The process of understanding why someone gets a brain tumor and why it spreads to the brain, and the sort of technology that we have at our fingertips to study those questions, has been amazing. One day I hope to run clinical trials for brain tumor patients."

The collaboration between Mount Sinai's large and respected Neurosurgery and Genomics departments has been



Student Corey Gill, right, with his mentor, Raj K. Shrivastava, MD

extremely beneficial to his research, he says. His mentor, Raj K. Shrivastava, MD, Professor of Neurosurgery, and Otolaryngology, has been the senior author on several studies Mr. Gill has contributed to, including a comparative genomic analysis of driver mutations in meningiomas that was published last spring in *Oncotarget*.

"Medical school is a stressful time and to have the support of someone who's really invested in you and who you look up to is incredible," says Mr. Gill. "Together we've been studying brain tumors and understanding the genomics and the underlying DNA problems in these tumors. We've been able to be very productive and hopefully, make an impact on patients with brain tumors."

Mr. Gill thinks the Mount Sinai Health System's diverse patient population makes his work even more meaningful. He received his undergraduate degree in Anthropology from Boston University where he studied different cultures and different religions. "I came to understand that everyone has a different set of values. That may impact how someone seeks medical care and the sort of treatment options that will work for them," he adds. "At Mount Sinai, you really get an opportunity to connect to different people and learn from them. What you read in a textbook or see on a PowerPoint slide may not always translate to the patient."

Making a difference in the lives of patients also resonates with him, personally. In third grade, Mr. Gill was diagnosed with type 1 diabetes, and he credits the compassionate team of doctors and medical staff with helping him and his family get through a period of uncertainty and disappointment.

"So I figured out what I could still do and help make a difference in the world," he says. "And that's medicine."

“

Medical school is a stressful time and to have the support of someone who's really invested in you and who you look up to is incredible. Together we've been studying brain tumors and understanding the genomics and the underlying DNA problems in these tumors."

—Corey Gill

Studying Immigrants At the U.S. Border

In the summer of 2018, Sarah MacLean, a third-year medical student at the Icahn School of Medicine at Mount Sinai, was part of a research team that spent two months at a U.S. family immigration detention center in the Southwest. The group interviewed 425 mothers from Honduras, El Salvador, and Guatemala about their eldest child's behavior. In addition, a subset of 150 children was directly interviewed and completed the UCLA Post-Traumatic Stress Disorder (PTSD) Reaction Index. All of the children ranged in age from 4 to 17.

"Overall, we found high rates of distress in these children," Ms. MacLean told a reporter from National Public Radio, when she was interviewed in June 2019, following the release of the team's study in *Social Science & Medicine*, in which she was first author. Mount Sinai's study was one of the first large empirical studies examining the mental health of children in U.S. immigration detention. Craig L. Katz, MD, Clinical Professor of Psychiatry, Global Health, and Medical



Study author Sarah MacLean

Education, served as a faculty mentor and author, and Elizabeth Singer, MD, MPH, Assistant Professor of Medical Education and Emergency Medicine, and Director of the Mount Sinai Human Rights Program, was a study co-author, along with others.

According to the authors, "Previous studies documenting the mental health of children in U.S. immigration detention, though compelling, have been largely qualitative and anecdotal, or have been from the perspective of lawyers in the field. Given the significant environmental factors that may contribute to the development of psychological difficulties in these children, we sought to understand the current state of mental health in this population."

The children's symptoms, Ms. MacLean said, "included wanting to cry all the time, wanting to

be with their mom, conduct problems, such as fighting with other kids, or having temper tantrums." They also had problems with peers, "such as not having a lot of friends or only wanting to interact with adults."

The researchers found that 49 percent of the children who had been forcibly separated from their mothers for a period of time prior to their detention, and 32 percent of the children in detention, overall, showed high rates of emotional problems. Among the subset of 150 children, the researchers found 17 percent had a probable diagnosis of PTSD, versus a lifetime prevalence of 4.7 percent among U.S. adolescents. An additional 18 percent of the



Medical Students Help Lead Human Rights Program

Elizabeth Singer, MD, MPH, often tells the medical students she teaches in the Mount Sinai Human Rights Program that the patients they care for are "the lucky ones" because they were able to survive the abuses they faced in their home countries. Their resilience has allowed them to make the journeys and tell their stories.

Dr. Singer is Director of the Human Rights Program, which provides pro-bono forensic medical evaluations, mental health assessments, links to social services, and continuity of medical care to asylum seekers in the United States. The program, co-led by faculty and students and staffed by health professionals from various disciplines, including psychiatry, pediatrics, obstetrics and gynecology, and emergency medicine, provides holistic care and serves nearly 200 clients a year from more than 60 countries, with the majority coming from Latin America, the Caribbean, and sub-Saharan Africa.

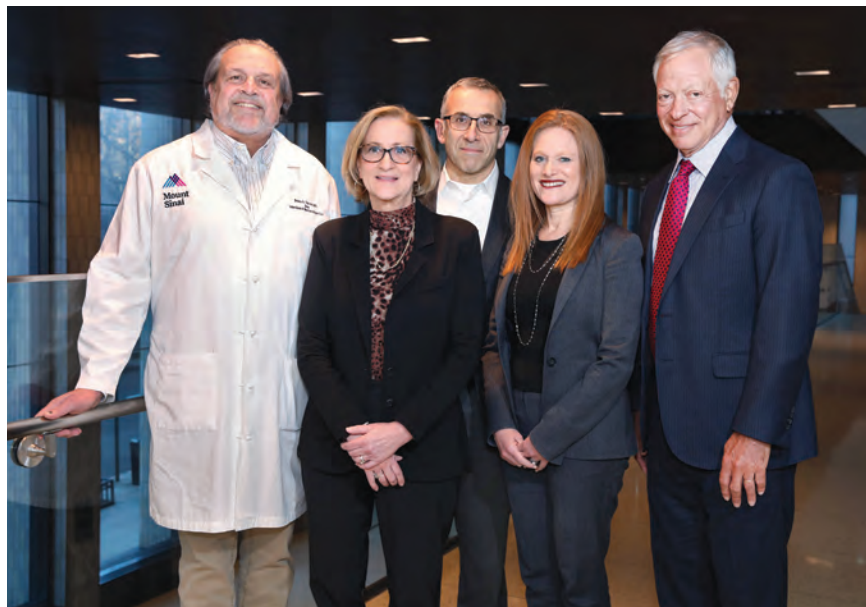
"We are very careful to say that we do not have a political agenda. We are looking to objectively document the medical and psychological findings that survivors of torture possess," says Dr. Singer, who is also an Assistant Professor in the departments of Medical Education and Emergency Medicine at the Icahn School of Medicine at Mount Sinai.

Most of their patients join the program in the forensic evaluation stage, after they have already filed a legal asylum claim. At this point, attorneys often seek out documentation of the medical or psychological trauma that patients have undergone, through medical affidavits, which may accompany the legal evidence. In addition to serving the survivors of human rights abuses, the program's dual mission is to educate medical students.

Dr. Singer says approximately 18 U.S. medical schools have similar, student-led programs, while other existing programs are faculty-led. She credits the Icahn School of Medicine at Mount Sinai's Dean for Medical Education, David Muller, MD, for creating an environment that supports student endeavors that deliver high-quality care to



Innovative Program to Give Students Debt Relief



From left: Dennis S. Charney, MD; Phyllis Schnepf, Senior Associate Dean for Education and Research Administration; David Muller, MD, Dean for Medical Education; Valerie Parkas, MD, Senior Associate Dean of Admissions and Recruitment; and Donald J. Gogel, Chair of the Mount Sinai Boards of Trustees Education Committee.

Medical students with financial need will receive substantial debt relief from a new program at the Icahn School of Medicine at Mount Sinai, which launched during the 2019-2020 academic year. The program, the Enhanced Scholarship Initiative (ESI), enables qualifying students who are enrolled in the medical school for four years to graduate with a maximum total debt of \$75,000, compared with the national median of \$200,000.

An estimated 40 percent of students attending the Icahn School of Medicine—those with “demonstrated need”—will benefit from the program, with aid covering tuition, housing, meals, and other expenses, such as travel and books. Demonstrated need is the difference between the cost of attending the school and the resources that each student and their family have available to pay that cost. Students who qualify will take out a loan of no more than \$18,750 per year, funded by a combination of institutional and federal loans.

Dennis S. Charney, MD, Anne and Joel Ehrenkranz Dean, Icahn School of Medicine at Mount Sinai, and President for Academic Affairs, Mount Sinai Health System, says the program is an important part of the school's effort to promote equity and diversity in medical education, and well-being among its students.

David Muller, MD, Dean for Medical Education and the Marietta and Charles C. Morchand Chair in Medical Education at the Icahn School of Medicine at Mount Sinai, says, “We want to channel our resources to students with the greatest need so they can move on to healthy, productive careers.” He also points out that overwhelming debt has been correlated with an increase in stress, burnout, and depression.

The initiative was made possible by members of the Mount Sinai Boards of Trustees, led by Donald J. Gogel, Chair of the Boards' Education Committee. “This is a tremendously important moment for our students with financial need and their ability to reduce the debt incurred from attending medical school,” says Mr. Gogel. “For the Mount Sinai Boards of Trustees, this issue is a very important area of focus, almost a moral imperative. We believe that the new scholarships will increase our students' freedom and flexibility in the choice of where and how they will practice medicine, conduct research, or teach once they graduate.”

detained children had three of the four criteria for PTSD. Ms. MacLean described their behavior as “having flashbacks of trauma or nightmares about the trauma; having negative alterations in their mood; or feeling depressed or sad.”

Another key finding was that younger children, ages 4-8, showed higher rates of conduct problems, hyperactivity, and total difficulties that fell within the “abnormal” range, compared with the older children in the detention center.

The authors suggested that the children's trauma be observed as a continuum, involving their pre-immigration, migration, and post-migration experiences, including their detention in the

United States. “We can't say conclusively that immigration detention or separation itself is causing emotional problems in the children,” says Ms. MacLean. “But our results highlight that these children are suffering and deserve trauma-informed mental health care.”



In Texas, families wait to board a bus that will take them to their immigration hearings.

underserved communities and believing that this work is “very substantial.”

Patients are often referred to the Mount Sinai Human Rights Program through legal and nonprofit social organizations, as well as through Mount Sinai's student-run, physician-supervised free clinic, the East Harlem Health Outreach Partnership (EHHOP), which provides primary care to uninsured adults in East Harlem. Yasmin S. Meah, MD, EHHOP's Program Director, and Associate Professor of Medicine, (Medical Education, Geriatrics and Palliative Medicine), says the Human Rights Program is particularly important in light of today's immigration climate. “It is critical to train medical students so they can take the essential lessons they learned through the program and apply that to their every day work,” she says. Dr. Singer encourages the students to listen to their patients and “bear witness.” She says, “It's important to listen in an active way.” As an Emergency Medicine physician, this work “has made me a better clinician.”

Icahn School of Medicine
at Mount Sinai

The Mount Sinai Hospital

Mount Sinai Beth Israel

Mount Sinai Brooklyn

Mount Sinai Queens

Mount Sinai South Nassau

Mount Sinai St. Luke's

Mount Sinai West

New York Eye and Ear
Infirmary of Mount Sinai

©2019 Icahn School of Medicine at
Mount Sinai | Marketing &
Communications



Icahn
School of
Medicine at
Mount
Sinai

Debt Relief Eases Career Choices



Student Ali Antoine

Last spring, as Ali Antoine was entering her third year at the Icahn School of Medicine at Mount Sinai, she was ecstatic to learn that she would be a recipient of Mount Sinai's new Enhanced Scholarship Initiative (ESI). She called her friends and her boyfriend, saying, "You can't imagine what just happened." With the ESI, Ms. Antoine's annual debt for education would drop from roughly \$50,000 to approximately \$18,750.

"The Enhanced Scholarship Initiative really relieved the burden of my finances and changed my frame of mind," she says. "A lot of people going to medical school feel they can do anything, but the burden of debt really narrows the choices for them. The Enhanced Scholarship allowed me to go into my third-year rotations with an open mind and not be limited by wondering whether I can do this and still live the life I want with the paycheck I'm going to get considering the loans I will have."

The Mount Sinai Health System holds significance for Ms. Antoine. It was where her late mother was treated for multiple sclerosis and came to appreciate the care she received, and it is where Ms. Antoine is creating a new chapter of her life, as she trains to become a knowledgeable and caring physician. Today, she is considering a

career in primary care, specializing in obstetrics and gynecology.

"Now that I'm on the wards and clinics, I aim to be the awesome doctor that my mom had," Ms. Antoine says. "Those doctors were super intelligent and super personable, and they seemed happy to be there and happy to help the patient."

When Ms. Antoine was applying to medical school, she lived across the street from the Mount Sinai campus in East Harlem, in an apartment building run by the New York City Housing Authority.

"Medical school can really become one of those things that only people who can afford it can go to," she says. "I lived in East Harlem for a bit. It is really important to reflect the people you are serving. A lot of people in my class want to work in communities where they came from and in the communities that have the greatest needs. The ESI will support Mount Sinai's mission of developing a diverse set of doctors who will address the needs of diverse communities across America. It will benefit wherever our students choose to go afterwards."