

# Columbia Public Health

SAFER CARS FOR ALL  
Road  
Warriors

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A CALL TO ACTION  
Health Equity

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FUTURE FOCUSED  
SMS at 50

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## CLIMATE IN CRISIS

FIGHTING THE MOST URGENT PUBLIC HEALTH  
EMERGENCY OF OUR LIFETIME

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## Columbia<sup>2019-2020</sup> Public Health

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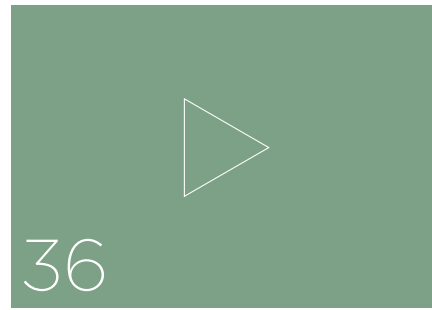
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# Toward a more just world

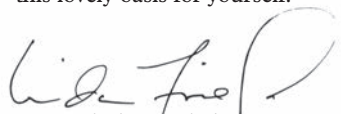
We often say that our work at the Columbia Mailman School is guided by a bold vision: to build a healthy and just world. What do we mean by “just”? It’s a world in which all people—regardless of their identity, income, or where they live—have equal opportunity and access to health. This issue of our magazine looks at how we can use public health science for social good and build that just world.

The impact of climate change on human health is one of the most urgent and complex public health crises we will face in our lifetime—one with implications for generations to come. Our cover story explores our work to understand, anticipate, and mitigate the impact of climate change, and to ensure “climate justice” for those who are the most vulnerable.

Our 2019 commencement speaker, the Honorable Al Gore, former vice president of the United States, has been raising awareness of the climate crisis for decades. On page 18, we discuss his recent work, including co-founding the Climate Reality Project, and more.

We also celebrate the 50th anniversary of our Sociomedical Sciences department, which tackles health inequity in innovative ways, and we learn more about the exciting work of the Global Health Justice and Governance program, which investigates the systemic causes of health disparities.

If you haven’t been to campus recently, you can see exciting changes in the photos below. In Spring 2019, in partnership with New York City, the Columbia University Irving Medical Center created Haven Plaza, approximately 60,000 square feet of open green space for the entire community to enjoy between 169th Street and Fort Washington Avenue. I hope you’ll visit us soon to see this lovely oasis for yourself!

  
Dean Linda P. Fried, MD, MPH





One of the School's two High Performance Computing data centers.

## Counting on it

Computer science is playing a powerful new role in public health

**ALTHOUGH OBSCURED IN THE CLOUD, DATA SCIENCE UNDERGIRDS OUR EVERY GOOGLE SEARCH AND AMAZON ORDER.** Lately, Columbia Mailman School scientists have been harnessing cutting-edge data-analysis tools to answer research questions beyond the reach of typical methods—using weather forecasting techniques to predict influenza outbreaks, for example.

Now a new initiative aims to further elevate the School's data science game in partnership with the Columbia University Data Science Institute (DSI), a university-wide effort to support the gathering and interpreting of data for social good. Beginning this fall, postdoctoral fellows at Columbia Mailman School will be eligible for a program that provides training in areas such as machine learning—a branch of artificial intelligence—and network science, which could be used to shed light on the human microbiome.

“Data science gives us new tools to analyze complex challenges such as climate change that present multiple overlapping threats to human health,” says Gary Miller, PhD, Columbia Mailman School's vice dean for Research Strategy and Innovation who laid the groundwork for the DSI partnership.

Before students learn how to “train” a computer model to look for patterns and connections in the data, they talk about ethics. Hidden biases could exacerbate disparities in health outcomes if the system was modeled incorrectly.

There are already signs of accelerating interest in data science. A two-semester course offered through Biostatistics is among the most popular electives for master's students. “Each year, more students arrive here having some familiarity with data science,” says Miller, “and all of them want to learn more.”

### HONORS

#### Celebrating Wafaa El-Sadr, MD, MPH, infectious-diseases trailblazer



The New York Academy of Medicine awarded its 2018 Stephen Smith Award for Distinguished Contributions in Public Health to Wafaa El-Sadr, MD, MPH, University Professor of Epidemiology and Medicine, and the founder and global director of ICAP at Columbia University. El-Sadr was honored for her leadership in combating HIV and other global health threats, and strengthening health systems worldwide.

El-Sadr, who holds the Dr. Mathilde Krim-amfAR Chair in Global Health at the Columbia Mailman School, is an international expert on the prevention and man-

agement of HIV, tuberculosis, and other infectious diseases. For over three decades, she has advocated for communities most impacted by HIV and championed a collaborative, multidisciplinary approach to confronting the epidemic. She leads ICAP's portfolio of projects in more than 30 countries; under her leadership, ICAP, which has 2,000 employees and celebrated its 15th anniversary last year, has become a global leader, addressing major public health challenges including maternal and child health, women's health, and non-communicable diseases.

Dean Fried presented the award on behalf of the Academy. "I have the honor of working with Wafaa every day," she said. "She is focused and passionate about ensuring health for all and strengthening partnerships to deliver HIV services and care to marginalized populations. She believes that everyone is deserving of health and has demonstrated that it is possible."

### **Constance A. Nathanson awarded Guggenheim Fellowship**

Constance A. Nathanson, PhD, professor of Sociomedical Sciences, has been named a 2019 Fellow of the John Simon Guggenheim Memorial Foundation. Nathanson is one of 168 honorees, from more than 3,000 applicants, for the prestigious award recognizing individuals who have demonstrated exceptional capacity for productive scholarship in the arts and sciences. The award funds Nathanson's project, "Blood, Politics, and Death: Reflections on the Social Production of Crisis," which will explore health crises and institutional and ideological change in public health in France. Nathanson has more than 40 years of experience conducting research on the sociological dimensions of health and health policy.

### **Barbara Barlow recognized with ACS/Pfizer Award**

Barbara Barlow, MD, professor emerita of Surgery in Epidemiology received the 2018 American College of Surgeons/Pfizer Domestic Surgical Volunteerism Award for her work to prevent injuries to the children of Harlem and across the U.S. Barlow founded and directs the Injury Free Coalition for Kids at Columbia Mailman School.



## A quiet crisis

Loneliness is damaging our happiness and health

**IT'S ONLY HUMAN TO FEEL LONELY. AMONG OLDER ADULTS, HOWEVER, LONELINESS IS EPIDEMIC.** According to AARP, one in three Americans aged 50 to 80 reports feeling lonely. And lonely seniors are more likely than their non-lonely peers to die prematurely. By one estimate, being lonely is as unhealthy as smoking cigarettes.

"Too often loneliness and social isolation are brushed aside as an inevitable part of aging, not the serious but preventable issues they are," says Linda P. Fried, MD, MPH, dean of the Columbia Mailman School and an authority on healthy aging. "This problem isn't just the story of isolated individuals. There is a confluence of social circumstances that pushes seniors to the periphery."

Over the past year, Fried has taken this message to the International Loneliness Symposium in Belfast, Ireland, and to a committee of the National Academies of Sciences, Engineering, and Medicine. She now chairs the International Loneliness and Isolation Research Network.

It's easy to see why life as an older person can be lonely. Retired seniors may struggle to fill their days with meaningful activities. If they are a caregiver for a spouse or they live

with a disability, they might have difficulty maintaining connections. Their circle of intimates likely shrinks as loved ones pass away.

A growing body of research documents the health hazards that result, which extend from declining mental and physical health to impaired cognition and even death. Lonely elders are also more vulnerable to abuse and less likely to get medical care or food assistance.

To address the epidemic at scale, Fried, who is a founding member of a Gerontological Society of America interest group on loneliness and social isolation, advocates for a new social infrastructure. For example, senior housing could be situated in a city center to facilitate social interaction with the community. Co-housing can place young families near elders who act as surrogate grandparents.

A similar idea is behind the intergenerational tutoring program Experience Corps, which Fried developed in the 1990s; today the program is in 21 U.S. cities. "As we live longer lives, it's crucial that we redesign our world to better value older adults and create opportunities for a sense of purpose and belonging," says Fried. "Doing so benefits people of all ages."

## On the fast track

Columbia Mailman School and Barnard College pair up to deliver an innovative double degree

**WITH MORE COLLEGE GRADUATES PURSUING A CAREER IN PUBLIC HEALTH,** Barnard College and the Columbia Mailman School recently announced a new opportunity for students to complete both a Bachelor of Arts degree from Barnard and a Master of Public Health degree from the Columbia Mailman School in five years, decreasing the length of time needed to obtain an MPH.

“We’ve seen an increase in recent years in the number of Barnard students pursuing STEM fields, as well as heightened interest in public health,” says Barnard President Sian Leah Beilock. “This accelerated pathway provides an opportunity for students to jump-start their work in this important area.” Because the Columbia Mailman School is broadly and deeply interdisciplinary, it is an especially good fit for Barnard students, who will be drawn not only to its offerings in biostatistics and epidemiology but also to the School’s courses in environmental health, human rights, and the social determinants of health.

Barnard students with a GPA of 3.5 or greater can apply to the Barnard-Mailman 4+1 program in their junior year, allowing time to work with an advisor to shape their curricula in their fourth and fifth years. “This partnership will allow the talented women of Barnard to combine a world-class liberal arts undergraduate education with the rigor of engaging on the complex public health issues we face today,” says Dean Fried. Adds Barnard Provost and Dean of the Faculty Linda Bell, “Our students have the critical thinking skills necessary to succeed in graduate work and public health careers, and the need and opportunity for thoughtful, brilliant, and public-minded leaders in this field has perhaps never been greater.”



**BARNARD**



## Network news

Thirty master’s students recently joined the School’s new chapter of the Delta Omega Honorary Society, in recognition of their excellence in public health scholarship. MPH recipient Samuel Carter (’19), who brought Delta Omega to Columbia Mailman School while a student, says, “By establishing a chapter here, I believe we will increase our ties with the American Public Health Association and continue to build Mailman’s national reputation.” Membership has its privileges: Inductees join a society of more than 20,000 members nationwide and have the opportunity to connect at annual meetings and poster sessions.

Photographs, from left: Getty Images; Christina Ferrari.

Funded by the Robert Wood Johnson Foundation, the Coalition’s 40-plus sites provide hospital-based community programs focused on research, education, and advocacy. Thanks to Barlow’s work, the New York City Department of Health and Mental Hygiene requires landlords to install window guards to prevent falls, which were long a top threat to children.

### **Salim Abdool Karim, PhD, joins the Royal Society**

Salim Abdool Karim, PhD, CAPRISA Professor of Global Health in Epidemiology at the School, has been elected a Fellow of the esteemed Royal Society, the world’s oldest science academy. He was chosen in recognition of his pioneering work on HIV prevention and treatment, and other contributions to the science of infectious diseases. Established in 1660, the Royal Society has included many of the world’s leading scientists over the past four centuries, from Sir Isaac Newton and Charles Darwin to Albert Einstein and Stephen Hawking.

### **Dean Fried to co-chair healthy aging effort**

Dean Linda P. Fried, MD, MPH, a pioneer in the science of aging, is the newly appointed co-chair of the National Academy of Medicine’s 2019-2020 International Commission on a Global Roadmap for Healthy Longevity. This multidisciplinary initiative comprised of leaders from foundations, business, government, and academia will make strategic recommendations from the realms of public health, science, and technology in a report due in late 2020.

### **Gen Li recognized with the Sanford Bolton Award**

Gen Li, assistant professor of Biostatistics, is the inaugural recipient of the Sanford Bolton Award, recognizing his expertise in integrating diverse data types to provide valuable clinical insights. The award is named in honor of Sanford Bolton, MS ’66, an alumnus who was a leader in the field of pharmaceutical statistics. In a recent study of melanoma patients, Li collaborated with oncologists to develop novel statistical methods to investigate the relationships between different types of genetic data.

**SUPPORTING OUR WORK****A gift in memory of Judson Wolfe**

Leonard Tow and the Tow Foundation have established the Judson Wolfe Excellence in Teaching Award to honor the late Judson Wolfe, a friend and advocate for the Columbia Mailman School and a member of the Mailman family. “Jud” Wolfe, who held an MBA from Columbia University, was an avid photographer and environmentalist. The first award in his honor went to Yuna Lee, PhD, MPH, assistant professor of Health Policy and Management.

**\$5M bequest from a Singapore alum**

Deh Chien Chen, who received her MPH from the Columbia Mailman School, has established a bequest to honor her late parents. The Mr. and Mrs. Chen Sing Wu Scholarship will provide financial support for Columbia Mailman School graduate students. Deh Chien Chen is the founder and CEO of Harvest Prime Corporation, which sells healthy snacks and desserts, including avocado green tea ice cream.

**New Mailman Professorship**

In honor of philanthropist Phyllis Mailman, the Mailman Foundation, the Joshua Mailman Foundation, and the Tow Foundation have endowed the Phyllis Mailman Professorship. The newly created faculty position will support a distinguished researcher in the field of emerging infectious diseases who will be based in the world-class Center for Infection and Immunity. “This gift has the potential to save thousands, perhaps millions, of lives,” says W. Ian Lipkin, MD, the center’s director.

**ICAP awarded \$50M for critically important HIV population surveys**

ICAP at Columbia University has received a \$50 million grant from the U.S. Centers for Disease Control and Prevention. Its HIV Population Survey project will measure the reach and impact of global HIV programs. “These surveys are important tools that policymakers, funders, and program managers need to determine where to direct resources,” says David Hoos, MD, MPH, project director for this initiative.

## Better together

In the new RISE program, students help students settle in

Adjusting to graduate school can be especially challenging to students of color and those who are the first in their family to attend. Research shows that peer mentorship can help them make a successful transition, and now the



RISE Peer Mentor Program, in its second year, is doing just that. RISE pairs first-year students with second-year mentors. The program includes one-on-one conversations, group game night, presentations by alumni of color, and opportunities for

leadership development. “RISE stands for Resilience, Inclusivity, Solidarity, and Empowerment,” says Raygine DiAquoi, EdD, assistant professor of Sociomedical Sciences and assistant dean of Diversity, Culture, and Inclusion. “Peers help first-year students cultivate a sense of belonging, which is key for academic success.” Last year, 12 mentors mentored 24 peers.

RISE mentee Victoria Garcia calls her mentor, Selena Gonzalez, a friend and confidant. “She helped me through some hard times,” says Garcia, who struggled with imposter syndrome. “She was my unofficial therapist and shared resources like the Center for Student Wellness.” Garcia is a first-generation U.S. citizen from a Texas border town. Neither of her parents graduated from college. “When I read about RISE, I said to myself, ‘I need that,’” she says. This fall, Garcia became a mentor herself. “I want to be a great resource,” she says. “I know how to navigate the school and city.”

## Welcoming Oxiris Barbot, MD

New York City Health Commissioner joins the Board of Overseers



Oxiris Barbot, MD, commissioner of the New York City Department of Health and Mental Hygiene, now serves on the Columbia Mailman School Board of Overseers. Barbot has more than 25 years of experience in advancing health equity in urban communities. Recently, she oversaw development of the Department of Health’s Take Care New York 2020 agenda addressing social determinants of health. Her appointment is in keeping with a history of collaboration between the School and the City of New York. Haven Emerson, the first dean, came to Columbia after serving as Commissioner of Health. Commissioner Barbot’s predecessor, Mary Bassett, once served as the director of the Harlem Health Promotion Center. And Epidemiology professor Steven Stellman was founding research director of the Department’s World Trade Center Health Registry. Says Dean Fried, “It is an honor to continue this tradition by welcoming Commissioner Barbot to our Board of Overseers.”





## When “gluten-free” is no guarantee

**E**ven tiny amounts of gluten in foods are troublesome for people with celiac disease, but roughly a third of gluten-free restaurant dishes contain detectable levels of the protein, finds a study by Benjamin Lebwohl, MD, MS, assistant professor of Medicine and Epidemiology and director of clinical research at the Celiac Disease Center at Columbia University. “Patients have long suspected that gluten contamination in restaurant foods is a frequent occurrence, and these results support that,” says Lebwohl, who earned his master’s from the Department of Biostatistics at Columbia Mailman School in 2010.

Lebwohl used data uploaded by users of the portable device Nima Gluten Sensor. (The device manufacturer supplied 5,624 food tests by 804 users.) Thirty-two percent of tests revealed detectable gluten in dishes that were supposed to be gluten-free. Gluten-free pasta samples were positive in 51 percent of tests, and gluten-free pizza contained gluten 53 percent of the time.

Gluten was detected in 27 percent of breakfasts, 29 percent of lunches, and 34 percent of dinners. Results are published in the *American Journal of Gastroenterology*.

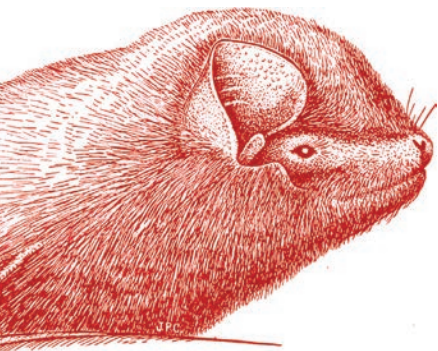
There are limitations to the data, notes Lebwohl. “Users may have uploaded results that surprised them the most.” Also, the device is very sensitive. To be labeled gluten-free in the U.S., a product must contain less than 20 parts per million. “The device can detect levels as low as 5 to 10 parts per million, which most do not consider clinically significant, so a ‘gluten found’ result does not necessarily mean ‘unsafe for celiac disease.’”

Lebwohl suspects that gluten-free foods are inadvertently contaminated. For example, the fact that gluten was so often found in gluten-free pizza suggests that sharing an oven with a gluten-containing pizza is a prime setting for cross-contamination. In the case of pasta, the problem may be that water used to cook pasta with gluten is then used to cook gluten-free pasta. “The solution may be better education for food preparers,” he says.

# On the trail of Ebola

Researchers from Columbia Mailman School were instrumental in the discovery of Zaire ebolavirus in a greater long-fingered bat in Liberia. This is the first such finding in West Africa, adding to evidence suggesting that bats serve as a natural wildlife reservoir for Ebola and related viruses. Researchers from the Center for Infection and Immunity (CII) at the School and EcoHealth Alliance found both genetic material from the virus and its antibodies in the bat. This work is a part of the USAID PREDICT project, which aims to better understand the animal reservoirs, seasonality, and transmission of viruses that can cause epidemic diseases.

A strain of Zaire ebolavirus is responsible for causing the West African Ebola epidemic, which infected nearly 30,000 people between 2013 and 2016. The virus is also responsible for the 2018 outbreak in the Democratic Republic of Congo. “There had been speculation that the virus originated in bats, but until now there had been no direct evidence,” says Simon Anthony, DPhil, assistant professor of Epidemiology in the CII, who led the laboratory discovery.



## A “flight simulator” for hospital leaders

The Thomas P. Ference Health System Simulation, a strategic decision-making and team-building exercise developed at Columbia Mailman School, has become part of the leadership training program at the New York City Health + Hospitals Corporation. The simulation will train 90 employees during three sessions this year.

“Pilots routinely train on flight simulators. In a similar fashion, we have seen how hospital leaders can benefit from our simulation, which immerses participants in a realistic exercise that matches the complexity and intensity of decision-making in a multi-hospital marketplace,” says John S. Winkleman, director of the Health System Simulation program and a lecturer in the Health Policy and Management department at the School.

As part of the exercise, participants are assigned to positions in mock hospital leadership teams. They make strategic decisions that affect their organization’s competitive standing—for example, how much money to allocate to marketing versus quality improvement. After each round of decisions, teams review performance results and adjust resource allocations, supported by feedback from a simulation facilitator.

Developed with input from industry leaders, the simulation is already used by Columbia Mailman School students and at NewYork-Presbyterian Hospital, the American College of Healthcare Executives, and Cedars-Sinai. Participants report it improves their strategic decision-making, teamwork, and leadership skills.

## Teenagers aren’t talking

Fewer than half of young people in the United States are discussing sensitive topics such as sexual abuse or alcohol use with their regular health-care provider, according to a Columbia Mailman School study published in *Pediatrics*.

The researchers asked more than 1,500 young people if they and their provider had discussed 11 topics recommended by national medical guidelines. For 10 of the 11 topics, fewer than half of young people reported discussing that topic at their last visit. Topics discussed the least were gun safety, sexual orientation, and sexual or physical abuse. Rates of discussion were similar by gender but often declined with age. Youth from higher income families also reported fewer discussions.

“Basic changes, such as discussing confidentiality with a young person, could greatly improve opportunities for them to discuss health with their care providers,” said the lead author, John Santelli, MD, professor of Population and Family Health and Pediatrics.





## Rating breast cancer risks

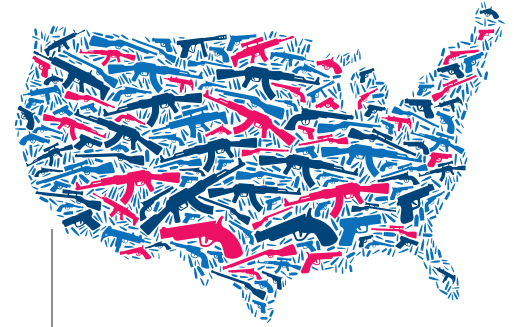
It has been a banner year for breast cancer research at Columbia Mailman School, with three new research studies providing important insights into the disease

Columbia Mailman School researchers and a team from the Institut National de la Santé et de la Recherche Médicale in Paris have determined that the **lower risk of breast cancer from multiple pregnancies and from breastfeeding** seen in average-risk women extends to some of those with BRCA1 and BRCA2 mutations, which are linked with an increased risk of cancer. Women with BRCA1 mutations who had two, three, or four or more full-term pregnancies were at 21 percent, 30 percent, and 50 percent decreased risk of breast cancer compared to those with a single full-term pregnancy. Breastfeeding also reduced their risk. In contrast, women with BRCA2 mutations did not have a decrease in risk from multiple pregnancies unless they had four or more pregnancies.

A team of researchers led by Mary Beth Terry, PhD, professor of Epidemiology, evaluated four commonly used breast cancer prediction models and found that **models with multigenerational family history data were more accurate in predicting breast cancer risk** than the

other models, even for women at average or below-average risk of breast cancer. The study is the largest independent analysis of these models to date. The findings are published online in *The Lancet Oncology*. (Terry, who is also a professor of Environmental Health Sciences, was lead author on the BRCA1/2 study, as well.)

All **women exposed to high levels of the widely used insecticide DDT are at increased risk for breast cancer through age 54**, but the timing of risk depends on their age at first exposure, according to a new study by Columbia Mailman School researchers published in the *Journal of the National Cancer Institute*. Women exposed before 14 years of age, particularly in infancy and early childhood, were most likely to develop premenopausal breast cancer, while those who were exposed after infancy were at increased risk of developing cancer at 50–54 years of age. Knowing when a woman came in contact with the substance can help inform early detection, explains Terry, who was also an author of this study.



## A smoking gun

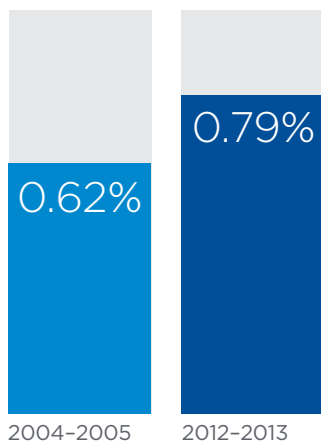
From 1998 to 2014, there were 344 incidents of mass shooting in the United States, and Columbia Mailman School researchers have found that states with more permissive gun laws and greater gun ownership have higher rates of these events, in which four or more individuals are killed. The results showed that a 10-unit increase in state permissiveness was associated with a significant 11 percent higher mass shooting rate; a 10 percent higher state firearm ownership rate was associated with a 35 percent higher rate of mass shootings.

“U.S. gun laws have become more permissive in past decades, and the divide between permissive states and those with more stringent laws seems to be widening in concert with the growing tragedy of mass shootings,” says senior author Charles Branas, PhD, chair and Gelman Endowed Professor in the Department of Epidemiology. Lead author Paul Reeping, MS, also in the Department of Epidemiology, notes, “Our study brings out a key disparity and sets the stage for figuring out which laws could best reduce mass shootings. There is a pressing need to stem the increasing tragedy of mass shootings in the U.S.”

## Suicide: getting the word out

A paper on suicide by Mark Olfson, MD, MPH, professor of Epidemiology, ranked as the most-read original investigation published in JAMA journals, JAMA reported in its annual Articles of the Year review. Olfson, who is also professor of Psychiatry at Columbia University Irving Medical Center, published his article in *JAMA Psychiatry*; it had 497,260 online views within a month of publication. The article, “National Trends in Suicide Attempts Among Adults in the United States,” revealed that the annual percentage of individuals who recently attempted suicide increased from 0.62 percent in 2004 through 2005 to 0.79 percent in 2012 through 2013. The researchers note that the risk disproportionately affects adults aged 21 to 34 with less formal education. They also noted that suicide attempts are the strongest known risk factor for suicide.

The risk of suicide attempts has increased over time



## A new heart warning that could save lives

Drinking water that is contaminated with arsenic, a toxic metal, may lead to an unhealthy thickening of the heart’s main pumping chamber among young adults, Columbia Mailman School researchers have found. This discovery is critical, as millions of individuals globally are exposed to water containing arsenic and other metal contaminants.

The researchers reviewed data from the Strong Heart Family Study of young American Indian adults from Oklahoma, Arizona, and North and South Dakota. Arsenic exposure was measured in urine samples from 1,337 adults, and the size, shape, and function of their hearts were assessed using ultrasound. With a two-fold increase in arsenic in the urine, there was a 47 percent greater chance of thickening of the heart’s left ventricle. Previous studies have shown that arsenic exposure raises the risk of heart disease and its risk factors, such as high blood pressure. This is the first study to review the question in young adults.

Although this study was performed in tribal populations, the results are likely generalizable to millions of people in rural or suburban communities who are exposed to low or moderate levels of arsenic in water. “People drinking water from private wells, which are not regulated, need to be aware that arsenic may increase the risk for cardiovascular disease. Testing those wells is a critical first step to take action and prevent exposure,” says the study’s senior author, Ana Navas-Acien, PhD, professor of Environmental Health Sciences.

## Meatless Monday milestone

Lunchtime is a little healthier for more than a million New York City kids now that the city’s public schools have adopted Meatless Monday, an initiative of the Monday Campaigns, a nonprofit founded by Columbia Mailman School Board of Overseers member Sid Lerner. “Cutting back on meat a little will improve New Yorkers’ health and reduce greenhouse gas emissions,” Mayor Bill de Blasio said upon announcing the change last spring.

Meatless Monday aims to reduce meat consumption by 15 percent. At the Columbia Mailman School, the Lerner Center for Public Health Promotion hosts Meatless Monday events for students, staff, and faculty and partners with student groups such as Food Policy and Obesity Prevention and Students for Environmental Action to provide students with tasty meat alternatives and recipes. The Lerner Center also encourages Meatless Monday at Washington Heights community events and works closely with the Monday Campaigns to implement Meatless Mondays in New York-Presbyterian hospitals and to evaluate the Monday Campaign’s influence on consumer habits.



## Supplying science for a Supreme Court victory

In an unexpected decision late last year, the U.S. Supreme Court refused to hear an appeal by three paint manufacturers, thus holding them responsible for lead contamination in thousands of California homes. Decades in the making, the decision hinged in large part on historical research and court testimony by two Columbia Mailman School faculty members.

Through a scholarly partnership beginning in the 1980s, David Rosner, PhD, MPH, professor of Sociomedical Sciences, and Gerald Markowitz, PhD, adjunct professor, provided expert testimony on what paint companies knew and when, and how internal corporate discussions showed that manufacturers knew lead was dangerous. At low doses, lead exposure is linked to intellectual deficits; at high doses, seizures and death.

The professors' documentation of the paint problem began in 1995, when the New York City Law Department recruited them to examine historical documents as part of a court case. "The industry dumped a roomful of documents on us," Rosner remembers. But with help from graduate students, they organized hundreds of boxes of materials, then uncovered that while companies peddled their paint as "healthful," behind closed doors and in trade association meetings, the executives discussed cases of lead poisoning that resulted from children touching, eating, and inhaling lead paint dust.

Rosner and Markowitz were later enlisted to testify in a lawsuit brought by the Rhode Island attorney general against the paint industry. They were on the stand for more than two weeks. The jury eventually awarded the plaintiff \$4 billion in damages, but after intense pressure from the industry, the Rhode Island Supreme Court overturned the decision. However, it was the work for these cases that paved the way for the recent California victory, which in turn lays the groundwork for paint companies elsewhere to be held responsible for damages.

The evidence Rosner and Markowitz collected over the decades endures at ToxicDocs.org, a searchable archive they created with Merlin Chowkwanyun, MPH, PhD, Donald H. Gemson Assistant Professor of Sociomedical Sciences. "We've been working for 25 years to see this day," Rosner says of the Court's decision. "I'm floating on a cloud."

## Shining a light on girls' puberty problems

Madagascar has one of the highest rates of adolescent pregnancy in Africa, and a new study led by Marni Sommer, DrPH, MSN, RN, associate professor of Sociomedical Sciences, uncovers challenges girls face around puberty that may be a key factor.

Until this study, little had been known about girls' experiences of puberty in the country. The research, conducted in partnership with Projet Jeune Leader, confirmed earlier ongoing research by Sommer that showed girls often receive inadequate guidance and support about their sexual and reproductive health and lack access to safe, hygienic water. The findings, published in the *Journal of Early Adolescence*, also reveal challenges of managing menstruation in school due to limited toilet facilities. "This, in turn, may reduce girls' active participation in the classroom," notes Sommer.

Adolescents are the fastest growing population group around the world, and the majority live in low-income countries. Adolescent girls, in particular, are vulnerable to negative sexual and reproductive health outcomes. Madagascar also reports one of the highest rates of early marriage in the world—almost 41 percent of girls are married by age 18. "Girls in low-resource countries such as Madagascar have been lacking adequate guidance and information. To make a real difference, it is critical that we turn global attention to their needs during this critical stage of transitioning to a healthy adulthood," says Sommer.






# CLIMATE IN CRISIS

The School's faculty, students, and graduates are fighting the most urgent public health emergency our generation—and future generations—may ever face, and rallying peers worldwide to do the same.

By Jim Morrison



**K**ate Weinberger thought she had her academic career all figured out. It was 2009 and she was on her way to becoming an ecologist with a master's degree from Columbia University's Department of Earth and Environmental Sciences. Then an elective survey course, **Public Health Impacts of Climate Change**, offered through the Columbia Mailman School, inspired a new path.

The following year, she enrolled in the School's newly launched Climate and Health Program, the first of its kind in a school of public health. Five years later, she became its first PhD recipient for a dissertation on how New York's changing tree pollen levels affect allergic diseases such as asthma. (A warmer, wetter climate extends the pollen season for some species.)

Right after her graduation in 2015, Weinberger spoke at a White House summit on the health impacts of climate change. "I came late to public health," she says. "But I took one course and was totally sold on the concept. There's a real need for research on how climate change impacts health, which people and communities are going to be most affected, and how to protect health as temperatures continue to rise."

Weinberger watched Columbia Mailman School's Climate and Health Program grow from a small initiative in the Environmental Health Sciences Department into a multibranch initiative that has incubated a growing cadre of researchers doing cutting-edge, cross-disciplinary science. Today, it partners with other Columbia institutions, including the Earth Institute, the International Research Institute for Climate and Society, the NASA Goddard Institute for Space Studies, and the Columbia Climate Center. As the program has grown, it has expanded its work to found the Global Consortium on Climate and Health Education (GCCHE), which is leading health-professions schools worldwide to train future leaders in climate-related issues. "It is critical that we—the public, scientists, government officials, corporations—view the effects of climate change through a public health lens," says Jeffrey Shaman, PhD, a professor of Environmental Health Sciences and the director of the Climate and Health Program since 2017. "The fires, floods, extreme storm events, sea level rise, and rising temperatures we are witnessing are already profoundly affecting human health and well-being. If we are to tackle these issues, we urgently need experts versed in these multidisciplinary issues who can effectively communicate their complexities to politicians, governments, corporations, and the public."

## CLIMATE CHANGE IS A SIGNIFICANT PART OF THE STRESSORS THAT INCITE SOCIETAL CONFLICT AND, ULTIMATELY, **COLLAPSE**.

In his commencement speech at Columbia Mailman School last May, former Vice President Al Gore noted that “the leadership of the Mailman School in acknowledging the crisis has been followed by many health experts around the world.” The need for continued leadership will only grow more urgent. The United Nations Intergovernmental Panel on Climate Change, among other experts, has warned the world that, absent “unprecedented” changes to the global economy, severe impacts of the warming planet will take place as soon as 2040, well within the lifespan of much of the world’s population. The public health effects are already layered and complex: Increased ozone air pollution results in 4.2 million premature deaths annually according to the World Health Organization (WHO). Outbreaks of infectious diseases like Zika, malaria, and dengue fever are emerging in new hot spots. Extreme and more frequent floods and rainstorms in some regions and droughts and wildfires in others are increasingly deadly. Food security will become a more significant issue as temperatures and carbon dioxide levels rise, leading to decreased protein in crops such as barley, rice, and wheat. Many of the negative effects fall disproportionately on poorer populations, older adults, and children, and they strain countries lacking the resources to address them.

Shaman points to the Lake Chad area in central Africa, where the population is among the poorest on the planet, as an example of the devastating impact of climate change on health, poverty, and political instability: Increasing temperatures and a 50-year drought dramatically reduced the lake’s size. The fishing industry turned to agriculture, which accelerated the drying of the lake. The resulting food insecurity has helped fuel the rise of Boko Haram and the Islamic State in the region, and nearly 10 million

people, or half the population, now need humanitarian assistance according to the United Nations. Climate change is not the only driver of this crisis, Shaman says, but it is a significant part of the stressors that incite societal conflict and, ultimately, collapse. “How are we going to anticipate the next Lake Chad and deal with it while it’s happening?” he asks.

The widespread impact of climate change on human health was just beginning to be understood when the Columbia Mailman School Climate and Health Program launched. Ten years ago, examining the health effects of climbing temperatures was novel research. Now, it’s clear that poor health and deaths result not only from heatstroke, but also from cardiovascular disease, respiratory disease, and cerebrovascular disease exacerbated by extreme heat resulting from climate change. And that is just one of the many ways that climate and health interact.


In many regions, the effects of climate change are cascading, piling atop one another. That’s why researchers feel Columbia Mailman School’s interdisciplinary approach is critical. “We cannot only look at one air pollutant or one weather variable like temperature,” says Marianthi-Anna Kioumourtoglou, ScD, an assistant professor at the School. Kioumourtoglou is an environmental engineer and air pollution epidemiologist who uses computer modeling to examine how climate change drives air pollution and how that impacts health, including mental health. “We are beginning to increasingly understand there is a need to look at many things together,” she says. “It’s not just air pollution and temperature, but also snowstorms and hurricanes and coastal storms and flooding. Some are becoming more intense. Some are becoming more frequent. We are exposed to all of these together in a changing climate and we need to understand how this changing system impacts human health.”

In the early years, research efforts in the Climate and Health Program were focused in areas like air pollution, infectious disease spread, and the effects of extreme heat. In recent years, as the faculty and the student body have expanded, so has the research. Like Weinberger, students and faculty often come to Columbia Mailman School interested in one subject and find their focus pulled in exciting new directions, thanks to collaborations. Shaman notes that even seemingly unconnected issues, such as construction, urban development, and agricultural practices, can be viewed through the kaleidoscope that is climate and public health.









All research below comes from Columbia Mailman School studies.

 Adolescent girls living in drought-affected areas have almost **3x** higher chances of **HIV infection.**


 Hurricane Maria worsened HIV outcomes in Puerto Rico:


- **Viral load ↑11%**
- **Viral suppression ↓6%**
- **Access to care ↓22%**

 **90%** of the burden of climate change is borne by **children under five**, although that age group constitutes only **10%** of the global population.

  
  
  
 Direct health impacts on children of air pollution from fossil fuel combustion include:

- Premature births
- Respiratory illness
- Cognitive and behavioral problems
- Childhood cancer

 Stock traders are less willing to take risks on days with elevated air pollution with **↓12%** returns on the **S&P 500.**

 Temperatures over **79°F** result in reduced daily hours and distance ridden by bicyclists in New York City.

**F**or Shaman, a leading expert on flu forecasting, research is inherently interdisciplinary. His work draws on virology, epidemiology, infectious disease, mathematical modeling, statistics, and atmospheric science. He examines how meteorology affects human health, notably the seasonality, transmissibility, and survival rates of influenza, as well as the effects of heat and humidity exposure indoors. “Many other climate impact studies, including examination of the effects of drought on crop yields, food insecurity, and, consequently, economic insecurity, forced migration, and conflict, also can only sensibly be examined through an interdisciplinary lens,” he says.

Kioumourtzoglou also brings together a multitalented team of experts for her projects. She is looking at how short-term exposure to high temperatures affects heart attacks and the influence of neighborhood factors, like green space and building size, on both climate and health. Her team includes researchers expert in temperature prediction models and in the epidemiology of stroke and myocardial infarction, as well as biostatisticians and computer scientists.

She also has published groundbreaking work demonstrating an association between long-term exposure to air pollution and the onset of depression. Using advanced modeling methods, her team was the first to show that prolonged exposure to fine particles in air pollution accelerates neurodegenerative conditions including dementia, Alzheimer’s, and Parkinson’s disease.

Darby Jack, PhD, an associate professor of Environmental Health Sciences, came to Columbia not to work in public health, but to do postdoctoral research at the Earth Institute focusing

on the economics of energy choices among the poor in developing countries. The urgency of the Climate and Health Program’s mandate has a tendency to pull people in, and he soon found himself meeting with a group that included Columbia Mailman School scientists to discuss the health consequences of cook stoves that burn wood, which are a significant source of air pollution that leads to heart and lung disease in the developing world. Cook stoves emit greenhouse gases and black carbon, a short-lived pollutant that warms the climate and darkens glaciers and snowfields, accelerating their melting. “Air pollution and climate change are interlocking problems,” he says. “There’s a growing sense that there is a real opportunity for a public health dual win if we can address both of these problems in the same framework.”

Daniel Carrión, PhD ’19, entered the program in 2014 as a doctoral student and eventually built on Jack’s work. One aspect of his research involved better understanding the biology of pneumonia, a major killer of children that is linked to household air pollution. He looked deeper at what causes cases of pneumonia that are associated with household air pollution, finding evidence that the illness is bacterial rather than viral. This discovery could lead to better treatments or public health interventions. While there are vaccines for certain causes of bacterial pneumonia, for instance, there may be subtypes that have been missed.

Like the others, Carrión has collaborated across disciplines. “When I came into the program, I knew I wanted to be able to bridge the social and biological sciences,” he says. “There’s a lot of opportunity here to do that. The faculty encourages us to find

# THE CLIMATE AND HEALTH PROGRAM IS HELPING TO CREATE SOLUTIONS IN THE AREAS OF POLICY, HEALTH SYSTEMS, AND CARE.

ways to work together.” Jack says additions to the faculty and an increase in students have expanded research interests and created more opportunities for serendipitous collaborations. “Right now, the core of the program is a community of young scholars, PhD students, and postdocs who collaborate and learn from each other and, frankly, I’m learning a lot from them,” he says.

In addition to training academic researchers, Columbia Mailman School’s Climate and Health Program is helping to build a workforce to better understand climate and health and create solutions in the areas of policy, health systems, and care. Some graduates, like Kate Weinberger, go on to teach other climate scientists. (She recently joined the faculty at the University of British Columbia, where her research will focus on the health effects of extreme heat.) Others sign on with consulting firms, work for city or state governments, or join the Centers for Disease Control and Prevention or WHO.

The number of students seeking a certificate in the Climate and Health Program has grown, reaching 22 in the 2018-2019 academic year, and the program is averaging nine doctoral students per year. The Environmental Health Sciences department recently expanded by 13 new members, including those with expertise in plant physiology, infectious diseases, and epidemiology, with a parallel growth in course offerings. Other schools are beginning to follow the Columbia Mailman School’s lead. The University of Washington started a climate and health program in 2014, and the University of Miami and the London School of Tropical Medicine and Hygiene launched their versions in 2019.

Columbia Mailman School cemented its leadership role in climate and health in 2017 when it launched GCCHE, a network of health professions schools and programs focused on training medical, nursing, and public health students, and others to prevent, reduce, and respond to the health impacts of climate change. Proposed and endorsed at the Paris Climate Accords, and then recommended as a key climate and health initiative by WHO, the consortium has nearly 200 members in 30 countries and is growing, adding schools from South Africa, Australia, and Finland in recent months. Schools pledge to educate tomorrow’s leaders on the health impacts of climate change, and GCCHE is a flourishing virtual town square, where educators exchange scientific and educational best practices. GCCHE tracks and shares innovative ways institutions are integrating climate and health content into their curricula and convenes webinars to discuss strategies, challenges, and success stories. It has also developed a set of core competencies in climate and health education. Schools are responding. At the University of Cape Town School of Public Health and Family Medicine, a one-hour session is now dedicated to climate change and a two-hour session covers environmental health. “GCCHE is helping to close the knowledge gaps,” says Brittany Shea, the project director for GCCHE. “More investment needs to be put into preparing for the health impacts of climate change, and that means making sure health professionals are trained on the topic.”

Shaman is heartened by the fact that media coverage has begun focusing on the public health effects of the climate crisis, with recent stories about how warming temperatures are fueling the spread of Lyme disease being one example. As Gore told his commencement audience, “Every day in the news is dire. Every night on television is like a nature hike through the Book of Revelation.”

Adds Shaman, “There’s a new urgency that stems from the recalcitrance and inaction of the world community. It is not addressing climate change effectively.” Lyme disease looks tame compared to what is to come. “We will see increased displacements of people due to drought, agricultural failure, and sea level rise that will impose enormous health burdens on those populations and places to which they migrate. And, as is unfortunately common, the poor and disenfranchised will suffer the most.”

Jim Morrison lives in Norfolk, Virginia, where flooding related to climate change is drawing toxins into local waters. His stories have appeared in Smithsonian, The New York Times, The Wall Street Journal, Pacific Standard, and The Washington Post.

# DISCUSSING THE CLIMATE CRISIS WITH THE HONORABLE AL GORE

The Honorable Al Gore sponsored the first hearings on climate change more than 40 years ago and continues to lead the fight against global devastation. Columbia Mailman School Dean Linda P. Fried, MD, MPH, asked him to answer some of the public health community's most pressing questions.

**Fried:** Poverty is a factor in so many of the diseases we focus on here at Columbia Mailman School. How have you seen climate change making things worse for people living in poverty, here in the United States and globally?

**Gore:** The poor are the first and hardest hit victims of the climate crisis everywhere. The NGO I founded, the Climate Reality Project, recently partnered with Rev. William Barber II of Goldsboro, North

Carolina, a longtime pastor and political activist, as well as the new Poor People's Campaign, to visit several marginalized communities to learn just how they are disproportionately impacted by pollution and the climate crisis. We went to Belews Creek, North Carolina, where improper storage of coal ash exposes families to dangerous toxins leaching into groundwater supplies. We went to Union Hill, Virginia, where a planned compressor station for the Atlantic Coast



Al Gore and Linda P. Fried meet before Columbia Mailman School's May 2019 commencement ceremony; photograph: Martin Seck.

natural gas pipeline project would emit dangerous amounts of methane, which is more than 86 times as potent as carbon dioxide in trapping heat in the atmosphere over a 20-year time frame. And we went to Lowndes County, Alabama, where increased precipitation strains an already weak infrastructure, causing residents' backyards and streets to fill with raw sewage regularly. Those are just three examples. There are so many more.

**You've talked about "environmental racism." What does that look like right now in the United States and what does "climate equity" mean to you?**

Environmental racism often results from influential groups making decisions at the cost of the well-being of communities that don't have access to the political and economic recourse necessary to keep polluting facilities out of their neighborhoods. So communities of color are disproportionately affected by environmental damages and are far more likely to have oil and gas production, coal-fired power plants, highways, and other sources of air pollution located near them.

Climate equity means putting an end to the disenfranchisement of minority communities, while simultaneously enlisting frontline communities in the effort to develop and deploy solutions to the climate crisis, ensuring the resulting economic benefits apply to everyone.

**At the School's commencement last May, you mentioned "climate refugees." What kinds of things are causing people to become so desperate that they flee their homes?**

The consequences of using our atmosphere as an open sewer are clear: stronger storms, deeper and longer droughts, crop failures, strengthening wildfires, spreading tropical diseases, melting ice, and sea level rise, to name a few. These impacts are already driving people from their homes.

For example, one of the driving forces behind the Syrian civil war, leading to the current migration of millions of Syrians into Europe, was the worst climate-related drought in the history of the Mediterranean, which destroyed 60 percent of the country's farms, killed 80 percent of its livestock, and drove 1.5 million refugees into Syria's already overcrowded cities, causing widespread unrest. Similarly, after experiencing more than a year without a harvest due to a climate-related drought, families throughout Central America are being forced to leave their homes and migrate north to the United States.

**Your organization, the Climate Reality Project, is training a new generation of activists. What are a couple of key lessons those of us in the public health arena need to learn?**

The first step for public health professionals wanting to become climate activists is acknowledging and communicating the serious threat the climate crisis poses to human health. The World Health Organization says that the climate crisis is among the greatest health risks of this century. Rising temperatures and pollution from the burning of fossil fuels affect everyone's health and well-being.

The good news is that the solutions are available now. Public health professionals can effectively make the case for climate action that supports a healthier society, and can help advocate for the health benefits of a clean energy transition. I encourage public health professionals and students to apply for the Climate Reality Leadership Corps program, where they'll learn more about the science of the climate crisis, today's cutting-edge solutions, and how to strengthen climate action in their communities. You'll come away with the skills, knowledge, and network to shape public opinion, influence public policy, and inspire your community to act at this critical time.

**What's next for the Climate Reality Project?**

This year, the Climate Reality Project will hold its first-ever training in Japan. Attendees will join our network of more than 20,000 climate activists from around the world who are committed to communicating the urgency of the climate crisis and catalyzing its solutions.

In November, we'll also host our annual 24 Hours of Reality event. This year, we're celebrating the power of our grassroots network with a global day of action and education called 24 Hours of Reality: Truth in Action. Climate Reality Leaders around the world will give educational presentations to bring the hopeful message about solutions to the climate crisis to their community.

**You've spoken in favor of the Green New Deal. What needs to happen to truly push the conversation forward?**

I think the Green New Deal has already made a tremendous impact in advancing the dialogue about the need to address the climate crisis. It's imperative to take the time to understand this crisis, its impacts, and that we have the tools to solve it. With this knowledge we must win the conversation on climate with our friends, families, and in our workplaces and be persistent in not allowing climate denial to go unchallenged.

And vote! Call your representatives and let them know this issue is important, and depending on what they say or do, you will either support them or work to defeat them in the next election.

**We are already grappling with the health effects of climate change. What aspects of the health fallout from climate change do you feel are most in need of attention?**

The fact that the poor, refugees, migrants, and communities of color are most affected by the impacts is critically important. In the United States, more than 1 million African Americans live within half a mile of a natural gas facility and are far more likely than white communities to be located downwind from smoke plumes of coal-burning facilities or near hazardous waste sites. We're seeing African American children suffering from asthma at a rate twice that of white children, but the rate of death from asthma for African American children is ten times that of white children. We need health practitioners working to solve these problems, and we also need policies that target and end the systemic practices enabling them.



# LET'S TALK ABOUT MEDICARE FOR ALL

## MEET THE EXPERTS

**MICHAEL S. SPARER, JD, PhD**, professor and chair of the Department of Health Policy and Management, studies the health insurance and health delivery systems for low- and middle-income populations.

**JAMIE DAW, PhD**, assistant professor of Health Policy and Management, focuses her research on how policies affect the barriers faced by populations in accessing needed health services.

**ASHWIN VASAN, MD, PhD**, a primary care physician and assistant professor of Population and Family Health and Medicine, works at the intersection of health equity, public policy, and our domestic political system.

**Interview by Alison Fromme**

**As the 2020 United States presidential election approaches, healthcare policy is at the forefront of the national conversation.** It's no question that access to doctors and hospital care improves health outcomes. But the number of uninsured Americans is on the upswing after years of decline, with non-Hispanic blacks, in particular, losing coverage. At last count, more than 27 million nonelderly Americans were uninsured. How to provide high-quality care—and pay for it—remains a critical public health debate. We asked three of the School's experts to discuss the feasibility of expanding healthcare coverage.

**Why is healthcare at the top of the political agenda and what are the proposals being considered?**

**SPARER** The fierce debate over our healthcare system is, in many respects, a proxy for a larger debate over the role of government in our lives and the relationship between the private and public sectors.

We've had this debate for a couple hundred years, but it's particularly focused right now. On the left, Medicare for All, in which the government would be a "single-payer," has been proposed to eliminate private insurance, remove the employer from the healthcare arena, and significantly expand Medicare coverage. Moving toward the middle, a large group of Democrats acknowledges that 90 percent of Americans are insured, and propose shoring

**18% OF THE GDP IS  
SPENT ON HEALTHCARE.**

**NEARLY HALF OF ALL  
BIRTHS HAVE BEEN PAID  
FOR BY MEDICAID  
SINCE THE LATE 1980s.**

up the Affordable Care Act (ACA) and expanding Medicare and Medicaid, possibly with an option to buy into these programs. The Trump administration says the problem is not that government isn't engaged enough; the problem is that government is engaged too much. The administration proposes either repealing the ACA or, if that's not politically possible, imposing work requirements on Medicaid beneficiaries, offering slimmer benefit plans, and scaling back the federal role. Generally speaking, the public health community is not in favor of any program that would further restrict access to care. Getting care to as many people as possible, as early as possible, saves lives and money in the long term.

#### **What should be the goals of any healthcare reform?**

**DAW** One goal is to ensure that everyone has access to healthcare, which should be based on need for care and not ability to pay. Another big goal is cost-effectiveness. The U.S. spends around 18 percent of GDP on healthcare, and costs need to be reduced, both on the individual and the societal level. Finally, we don't want to sacrifice quality.

**VASAN** I think the goals should be, number one: Cover every person. Number two: Provide care in a very effective manner, where people are treated for their illnesses in a timely fashion close to where they live. And number three: Do that in a cost-effective manner, both at the level of the individual and at the level of the system.

#### **What's your take on the various reforms being proposed?**

**VASAN** The research is pretty clear that a single-payer healthcare system would reduce costs over time. We currently pay the highest healthcare administrative costs of any country. If we were building a system from scratch, there is no persuasive argument for anything other than single-payer. But in transitioning from our current system, we should understand that there must be a rational glidepath to get to single-payer. We can make Medicare, via a public option and/or reducing the age inclusion criteria, an easier option for people to choose. Private plans will either be forced to compete on costs and quality, or lose market share until we get at or near a true single-payer public system.

**SPARER** What's needed is a central government that effectively regulates the health insurance market, shores up the ACA, and expands programs like Medicare and Medicaid. I don't think it's politically plausible to eliminate the private health insurance system. Nor do I think it's wise. A single-payer system can be quite good, but you don't need a single-payer system to have affordable universal coverage.

#### **What healthcare models could serve as examples for the U.S.?**

**DAW** Lots of advocates recommend that we look to Canada: Get rid of private insurance, or very much limit its role, and have one government program. But we ought to think about models that would more naturally build on the current system. Many other countries, such as Germany, provide healthcare through a social insurance system, which uses private insurance, plus tax revenues, to offer affordable universal health insurance.

**SPARER** States can serve as laboratories. The ACA itself was significantly modeled on the 2006 Massachusetts health reform. More recently, Washington state became the first state to impose a cost cap on a health plan sold in a commercial insurance market (a so-called "public option"). This is an innovative approach expected to significantly lower premiums for prospective buyers. But you can't simply pick up something that works in one state (or country) and drop it in another and expect it to work perfectly. You really have to consider what works where, how it works, and why it works.

#### **How might expanding access to coverage change the patient experience?**

**VASAN** Constant uncertainty about coverage creates more instability in the lives of the poor, whose lives can already be quite unstable. And when uninsured people delay care, they end up in emergency rooms, which cannot manage chronic illness. They struggle to



coordinate care and it costs more. We don't have the ability—because of lack of universal coverage, either through single-payer or otherwise—to redirect those folks into more frequent, higher-quality, lower-cost primary care.

**DAW** I think about women in the period around pregnancy. Pregnant women often experience changes in employment, income, marital status—and all of those changes affect health insurance and the ability to access care. Since the late 1980s, Medicaid has paid for nearly half of all births in the U.S. However pregnancy care under Medicaid only offers coverage from conception to 60 days after their delivery. That's a huge issue because women experience all kinds of pregnancy-related health conditions that can extend long after delivery. Medical problems such as postpartum depression, anxiety, substance abuse, urinary incontinence, pelvic floor dysfunction, and breastfeeding infections affect not only women's health but also children's health. The ACA introduced Medicaid expansion, and in the 37 states that did expand coverage to low-income adults, many more women can now maintain Medicaid after pregnancy. Universal coverage would get rid of the complexity and provide stability.

**VASAN** Another population I'd call attention to is incarcerated people. When my patient is incarcerated, I have no idea what care they receive inside. The "inmate exception" rule prevents federal dollars from being used to pay for inmates' healthcare—so there's no continuity nor standard quality of care. The correctional system is one of the largest if not the largest provider of mental health and substance abuse treatment in every state. But medical care in this setting is mainly focused on basic triage and not managing chronic conditions. Universal coverage and the elimination of the "inmate exception" could begin to tackle these problems.

**In the presidential debates, the idea of "Medicare-for-all-who-want-it" came up. How would that work—and can it work?**

**SPARER** The Democrats seem divided between those who want "Medicare-for-all" and those who want "Medicare-for-more." Bernie Sanders, for example, wants to eliminate employer-sponsored insurance and the private insurance industry, replacing it with Medicare for all Americans. The Medicare-for-more folks are proposing that the current private insurance system would survive, but that some (or all) would be offered the option of "buying into" a Medicare-like program. This is the more politically viable proposal, though it too would be opposed by providers (worried about lower reimbursement) and private insurers (worried about losing subscribers). Would it work? Yes, it could, though the devil is in the very complicated details.

**What's the role of academia in the political discourse?**

**VASAN** Schools of public health are working to build the next generation of researchers who want to dive into the details around these grand policy visions. A huge amount of analysis, forecasting, and modeling is needed, and these are all things our School has led in the past, such as with research that helped inform Obamacare.

**DAW** We bring evidence to the discussion. Research can tell us which options will lead to improved access, reductions in cost, and better quality. I think another major role we play is to remind people that we're not the first country to consider expanding health insurance. By teaching students about health systems around the world, we can expand the options being considered and provide guidance on how other nations made the leap to covering all citizens. Indeed, maybe being late in the game could benefit the U.S. in that we can learn from other countries' mistakes and successes.

**YOU REALLY HAVE TO CONSIDER WHAT WORKS, WHERE, HOW IT WORKS, AND WHY IT WORKS.**

Alison Fromme is a science writer in Ithaca, New York. Since 2013, she has reported on climate and public health, global health justice, and implementation science for Columbia Public Health.

Robert E. Fullilove (second from left), with civil rights workers during Freedom Summer in 1964. Bottom right: Fullilove in the classroom, 2019.



## FOR FAR TOO LONG, OUR COUNTRY HAS BEEN PLAGUED BY HEALTH INEQUITY. IT'S TIME FOR THAT TO CHANGE.

BY ROBERT E. FULLILOVE, EdD

**T**his year marks the 400th anniversary of a critical moment in our country's history, one that continues to shape public health to this very day. It was 1619 when the first Africans arrived at the colony of Jamestown, in what is now Virginia. They may have been indentured servants—neither enslaved nor truly free—but their landing paved the way for millions more who would be sold or born into bondage during the 246 years in which race-based slavery was widespread in the United States. In 2019, the nation continues to be haunted by the legacy of that arrival.

Ultimately, three articles of the Constitution would systematize slavery, establishing deep-seated inequalities that continue to play out in our economy, in our political leadership, in our housing system, and in the health of our citizens. Jim Crow laws may be more than 50 years behind us, but racial inequalities still make a life-or-death difference in our health.

In the United States, people of color bear a disproportionate burden of illness and death as compared to the white population.

The U.S. Department of Health and Human Services reports that the death rate is generally higher for African Americans than for whites for heart disease, stroke, cancer, asthma, influenza, pneumonia, and diabetes, among other conditions. African Americans are three times more likely than whites to die of a pregnancy-related complication and nine times as likely to die from HIV. American Indian and Alaska Native populations, who share a history of persecution, have a higher prevalence of obesity, diabetes, and cardiovascular disease.

These disparities are often attributed to poverty. But even when controlling for poverty, the statistics are sobering: Blacks have worse outcomes than whites at every level of income and education. Research conducted at the Columbia Mailman School shows that African Americans who experienced racial discrimination were twice as likely to use illicit drugs or to take pain pills without a medical reason. Interestingly, the relationship was present only among blacks with income above 150 percent of the poverty line—more evidence that income is not an insulator from slavery's long-term effects.

It can be difficult for some members of our public health community to talk about racial inequality because it opens up a conversation they feel ill-equipped to have. But it is important that we do so. There is some evidence that the effects of racism translate literally from generation to generation: In one study by researchers at the University of California in San Francisco, black women who reported chronic worry about racial discrimination had roughly twice the rate of preterm birth of women who did not constantly worry about it.



## COLUMBIA MAILMAN SCHOOL MARKS 400 YEARS OF INEQUALITY

“The quest for equity underpins all of the work we do at the School to raise the floor and ceiling of health for people worldwide,” says Dean Linda P. Fried, MD, MPH. “Observing this fraught anniversary is key to understanding how we arrived at our current unequal situation, and to making fundamental changes for the future.” Throughout the 2019-2020 academic year, campus events will allow the community to reflect on the 400th anniversary of slavery and learn how to combat the significant health and structural inequalities that persist in the United States.

Events kicked off in September with a roundtable, Framing our Struggles for Justice, featuring faculty who work with children, adolescents, and other vul-

# TOGETHER

We cannot accept these inequities for future generations. Members of the public health community are in a unique position to mark the 400th anniversary of slavery with open conversation about its lasting impact. Progress against inequality has always been achieved when people join together. Ask yourself what role you and your coworkers and others in your community can have in righting the wrongs of the past and shaping the future. Think about how to observe the anniversary. Publicly tell a personal story of oppression and resistance if you have one. Post health inequality information on social media. Host a potluck dinner to bring together a diverse group to talk openly about racism and its effects. For ideas, refer to the starter kit available at [www.400yearsofinequality.org](http://www.400yearsofinequality.org). It was compiled by a team led by former Columbia Mailman School professor Mindy Fullilove, MD, professor of Urban Policy and Health at the New School in New York City. (She is also my colleague and ex-wife.)

The field of public health has invested great effort into helping individuals and communities redraw their health destiny. But undoing 400 years of inequality will require more than individual effort. We must band together if we are to eliminate the strictures and structures of dehumanization and inequality so that future generations are born with a truly equal opportunity for a healthy life.

Robert E. Fullilove, EdD, is the associate dean for Community and Minority Affairs, professor of Clinical Sociomedical Sciences, and the co-director of the Cities Research Group at Columbia Mailman School.

nerable populations. In October, a community-wide, daylong Ecology of Inequality event featured film screenings, panel discussions, and guest speakers who explored the inequalities that exist today in our neighborhood and our nation, with a focus on building a more cohesive and just community and society. Throughout the academic year, Grand Rounds at Columbia Mailman School will be themed to align with the national observance of the 400th anniversary, with topics such as 50 Years Since Stonewall (November), 400 Years of Xenophobia (January), and Data Science for Justice (February). For complete event details, visit [publichealth.columbia.edu/400years](http://publichealth.columbia.edu/400years).

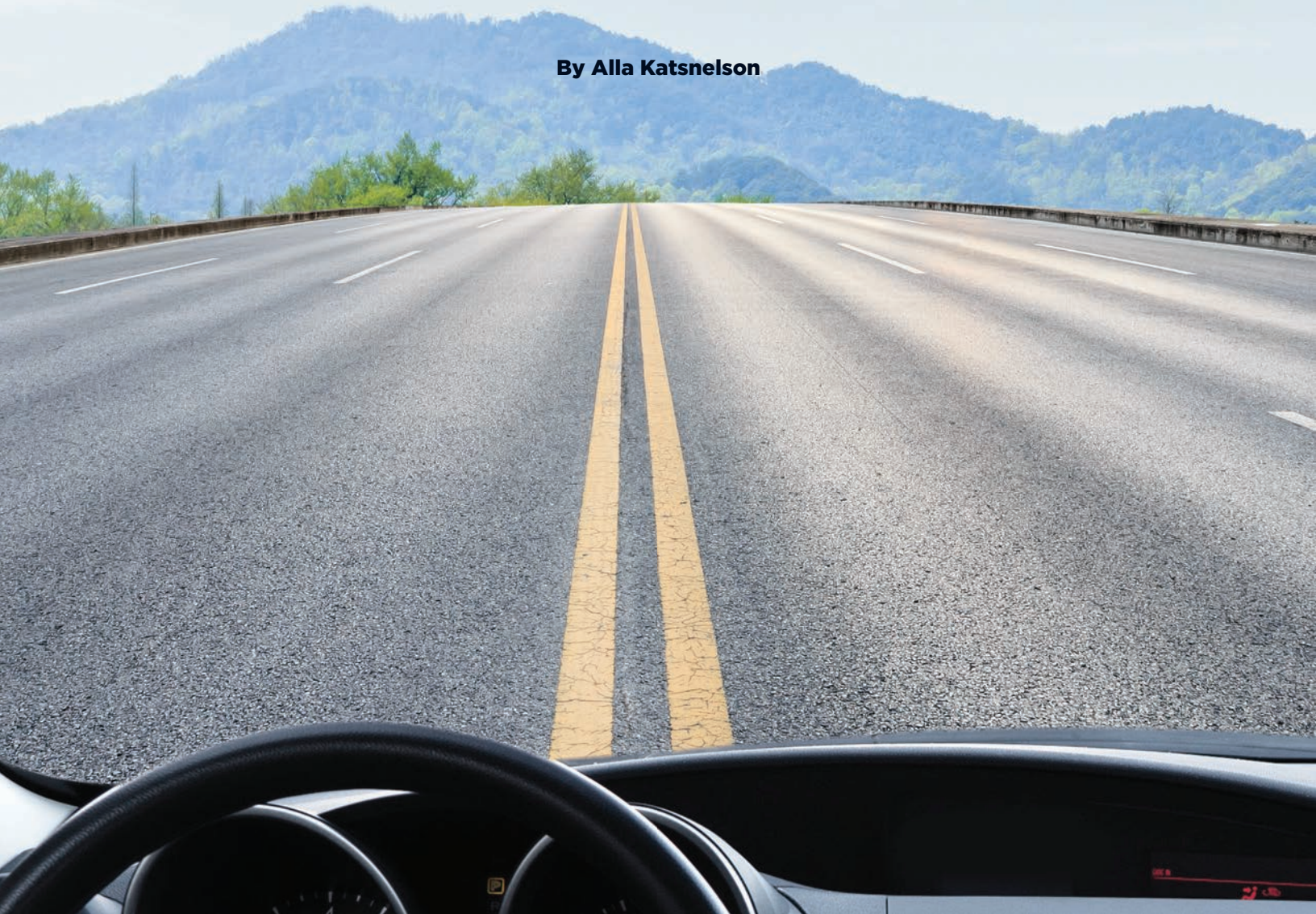




# ROAD WARRIORS

**COLUMBIA MAILMAN SCHOOL RESEARCHERS ARE MAPPING A PATH  
TO HEALTHIER HIGHWAYS AND SAFER TRANSPORTATION SYSTEMS.**

**By Alla Katsnelson**



## »»»» CARS PLAY A FUNDAMENTAL ROLE IN OUR LIVES,

whether we live in a bustling metropolis like New York City or a small farming town in Iowa. But they also play a key role in our deaths: An average of 101 people die in motor vehicle crashes in the United States each day. (Only opioids are more deadly.) The United States clocked some 37,000 motor vehicle deaths in 2017, and 3 million more people were injured, many of them permanently. The issue affects pedestrians and cyclists, too. Pedestrian fatalities in 2017 reached 6,000—a 27 percent jump over the previous decade.

“Despite our having made substantial inroads into safety over several decades, motor vehicles are still a huge burden on public health,” says Christopher Morrison, PhD, assistant professor of Epidemiology. Public health interventions are a key reason that vehicle deaths have declined fairly steadily since the 1970s (seatbelts alone save thousands of lives in the United States each year). But more work by public health researchers like Morrison and others at the Columbia Mailman School will be needed to meet fresh challenges. With the rise of ride-sharing apps like Uber and Lyft and changing laws pertaining to marijuana use—not to mention a fleet of autonomous vehicles on the horizon—the field faces many new questions. Work underway at the School is providing answers, and in some cases already helping to change policy.



## NEW RIDES, NEW WORRIES

Uber turns 10 years old this year, and public health researchers see pros and cons to the explosive growth of ride-sharing. Being able to easily call a car after a night out drinking might drive down alcohol-related car accidents, but early studies have yielded mixed results. “A few cities already subsidize ride-sharing as a potential intervention, but we don’t yet know whether it works,” Morrison says. New York City is the perfect laboratory to study ride-sharing because of how frequently New Yorkers use it. From 2015 to 2017, ride-sharing use jumped almost seven-fold, from about 500,000 to 3 million rides per week. Morrison and his colleagues are now studying GPS data to see whether the number of trips in a particular region of the city correlates with the number of alcohol-related crashes.

But the public health effects of ride-sharing also raise other issues, says Joyce Pressley, PhD, MPH, associate professor of Epidemiology and of Health Policy and Management. Seatbelt and child restraint laws typically exempt vehicles for hire, and as ride-sharing ratchets up the overall number of passengers in such vehicles, the risks of riding unrestrained also increase. In a study undertaken with the New York State Department of Health and published recently in the journal *Transportation Research Record*, Pressley and her colleagues examined New York City motor vehicle crash injuries treated in a hospital or emergency department. Compared with children in other passenger vehicles, kids in taxis were one-tenth as likely to be restrained, twice as likely to be moderately to severely injured, and twice as likely to sustain a traumatic brain injury. Fewer than 6 percent of children in taxis were restrained in a child safety seat.

Pressley, who serves as chair of the Occupant Protection Committee of the Transportation Research Board of the National





Academies of Sciences, Engineering, and Medicine, believes the injury and restraint differences may be even more extreme than what they observed, because they were not able to look at ride-sharing vehicles. “Our surveillance systems don’t capture whether a private vehicle driven by an Uber or Lyft driver is being used to transport a customer or for personal use,” she says. Nevertheless, based on research by Pressley’s team and other experts, New York Governor Andrew Cuomo supports legislation that would close these gaps. “We believe our evidence is growing, and we are working to get that information into the hands of lawmakers,” she says.

## DRUGGED AND DRIVING

An even bigger wild card for road safety than ride-sharing is the changing nature of drug use. The opioid epidemic spurred Guohua Li, DrPH, MD, professor of Epidemiology, to study the role of opioids in motor vehicle crashes. In 2016, his team reported a 700 percent increase in the prevalence of opioids detected in drivers over the previous 15 years. In response to the finding, the Federal Motor Carrier Safety Administration added natural and synthetic opioids to the list of substances for which commercial truck drivers must be tested. More recently, in February 2019, Li published findings in the journal *JAMA Open Network* that drivers who are prescribed opioids are twice as likely as others to be involved in deadly car crashes.

Changing laws for marijuana use are also a major issue, Li says. In the past few years, some 35 states and Washington, DC, have legalized medical marijuana, and several states have legalized recreational marijuana use. His team is studying the effect of these policies on road safety. One emerging consensus is that consuming marijuana and alcohol at the same time has a synergistically debilitating effect. “But unfortunately, drivers and the general public are increasingly using them together,” Li says. Some bars and clubs are creating cannabis-infused alcoholic cocktails, and “there’s no regulation right now restricting these dangerous drinks,” he notes.

Opioids aren’t the only prescription drugs that can cause road accidents. Last year, Li’s team reported that one in five healthy drivers over age 65 take medicines that should be avoided by older people—and that many of these drugs impair driving. That work was part of one of Li’s major ongoing projects: a 10-year study that aims to address key issues affecting drivers over 65 years of age. The average crash rate for drivers this age is three times that of middle-aged drivers, he says. His study, which follows 3,000 older drivers from five regions across the United States, is exploring the risk factors for accidents, how people manage driving behaviors in the face of cognitive and functional decline, and how they use new vehicle technology like voice control and adaptive cruise control.

Although driving may be riskier in certain respects for older adults, stopping driving has big health consequences as well. Three years ago, Li and his colleagues reported in the *Journal of the American Geriatrics Society* that the risk of depression in older adults more than doubles when they stop driving, and their risk of death within five years jumps substantially as well. So the idea isn’t to cease driving but to make roads safer while maintaining people’s autonomy,

he says. His study has generated specific and practical advice for using simple technological modifications such as voice control and special headlights to make driving safer. It is also informing policy. “We are working with state motor vehicle departments to come up with policies for older drivers that would restrict their license—say, to certain times of the day—rather than revoke it,” Li says.

## ➔ WHAT'S AHEAD

Policy and investment in infrastructure have the potential to significantly affect road safety, notes Peter Muennig, MD, professor of Health Policy and Management. Over the past few years, he and his colleagues have built computer models of transportation data to explore the cost-effectiveness of changes to urban infrastructure. For example, they found that building bike lanes and installing speed limit enforcement cameras more widely were each enormously cost-effective investments. This research may have contributed to recent legislation in New York that dramatically increased the number of cameras in use. Bike lanes the city built in 2015 reduced the risk of injury to bikers and the pollution they experienced, and boosted the number of people likely to ride and the benefits they gained through exercise, they reported in the journal *Injury Prevention*.

Currently, his team is taking a close look at New York City's recently approved plan to charge cars a fee to enter certain parts of the city, starting in 2021—essentially, creating economic incentives to keep cars out. This will be the first such so-called congestion pricing plan to be adopted by a U.S. urban area, and policymakers are watching closely to see whether and how it might be adopted by other cities. In a paper currently under review, their research shows that setting up a simple series of tolls would have the same effect on human life—factors such as air quality and pedestrian safety as well as worker productivity—as developing a more complex high-tech system. “We are hoping our research will play into their calculations of the best approach,” Muennig says. “Policymakers really have to be careful,” he adds. “Often they get a totally different effect from the one they intended.” Case in point: When news of New York's success with speed cameras broke, legislation to shut down traffic camera programs was proposed in some red states, which look to New York as a model of progressivism to avoid.

Looming in the near distance for public health researchers: autonomous vehicles. “They are coming more quickly than people initially thought,” says Pressley. Many experts think they will make the roads safer, but as recent problems with software in the Boeing 737 Max 8 plane demonstrate, technology is made by fallible humans, and it can misfire. “Autonomous vehicles are not going to be exempt from that,” Pressley says, and researchers at Columbia Mailman School are at the forefront of examining the new technology. Says Pressley, “We're already trying to anticipate what data we will need to keep abreast of this issue.”

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*Alla Katsnelson is a contributing editor at The Scientist who has also written for Nature. She has a PhD in mammalian brain development.*

## TAKING AUTO SAFETY TO THE NEXT LEVEL

As a member of the public health community, you're probably already a loyal seatbelt-wearer and car seat-user and would never drive while impaired. But there are more steps we can all take to reduce the risk of vehicle-related injury and death.



**Wear a seatbelt in a taxi** Something about stepping into a cab makes even the smartest person skip the belt. Even when the law doesn't require that you use a seatbelt, use one whenever possible. “They're highly effective and underused,” says associate professor Joyce Pressley, PhD.



**Keep children rear-facing longer** Use your child's weight and car seat guidelines (versus his or her age) to determine when it's time to turn your toddler around to face forward. And keep big kids in car seats or boosters until the appropriate age (7 or 8 in most states) or size.



**Avoid distractions** Motor vehicle-related accidents were declining until cell phones wedged themselves irreversibly into our lives, notes professor Peter Muennig, MD. Phone use—not just while driving, but also while walking or cycling—is a significant cause of injuries on the road.



**Support safety policies** When they are well thought out, large-scale changes to city infrastructure can have big effects on health, notes Muennig.



# *Righting the World's Wrongs*

*The new Global Health Justice and Governance program takes aim at the seemingly intractable problems that threaten women, girls, and other marginalized populations internationally and at home.*

*By Jocelyn C. Zuckerman*





In January 2017, when U.S. President Donald J. Trump signed a memorandum reinstating and expanding the so-called “Mexico City policy” that barred U.S. global health assistance for organizations that perform abortions or even discuss it as an option, the action changed lives a world away from Washington.

Girls and women across Africa, Latin America, and South Asia who are pregnant as a result of sexual violence, for example, face one of three certain outcomes as a result: death in childbirth, common among the youngest pregnant adolescents; or death from septic shock after an unsafe abortion (a leading cause of maternal mortality). Option three? Parenting a child born out of rape.

“We have all the evidence in the world that unsafe abortion kills women and girls, but access to abortion is about politics and power,” says Terry McGovern, JD, chair of the Heilbrunn Department of Population and Family Health. Her commitment to a human rights–focused approach to protect the health of vulnerable populations without power, on issues ranging from abortion to fracking to gender-based violence to food insecurity, led McGovern to found the School’s new Global Health Justice and Governance (GHJG) program, which was launched in October 2018.

At a time when health inequities continue to grow; when human rights have come under renewed threat at home and abroad; and when climate change poses ever-greater challenges, McGovern, a veteran human-rights lawyer, believes that questions about laws, public policies, and governance systems—questions such as “Who makes the rules?” “For whom?” and “Based on what?”—must stand at the center of public health research and programs.

If we fail to address such underlying systemic injustices, protecting and improving health will remain intractable challenges. GHJG focuses on advancing environmental, reproductive, and food justice, with a particular emphasis on how gender affects justice. It is the world's poor and otherwise marginalized who most suffer the fallout of the growing perils. "We know that environmental degradation is killing people," McGovern says. "We know that lack of access to sexual and reproductive healthcare prevents girls and women from leading healthy lives. So why are we unable to disrupt these injustices?"

By integrating the work of Columbia experts in public health, law, science, and public policy, and partnering with the communities it serves, the new program aims to do just that. Students from Columbia Mailman School and Columbia's Law School and School of International and Public Affairs, among other schools, will collaborate with grassroots organizations and other local partners, including activists and community health organizations. "We are providing a multidisciplinary approach that prioritizes community partnership to address and remedy the complex interplay of global and local governance around health," says Marta Schaaf, MPH, DrPH, who earned her MPH and doctorate from the Columbia Mailman School and who has worked with global NGOs for more than a decade. Adds McGovern, "We combine traditional public health approaches with law, policy development, and broad partnership to address the structural causes and political determinants of poor health outcomes. We tackle the interplay of various forces that result in injustice. These may be corruption, lack of governance, or discriminatory governance." The timing is right: There is increasingly more appetite within the global health establishment to acknowledge the role of governance as a determinant of health.

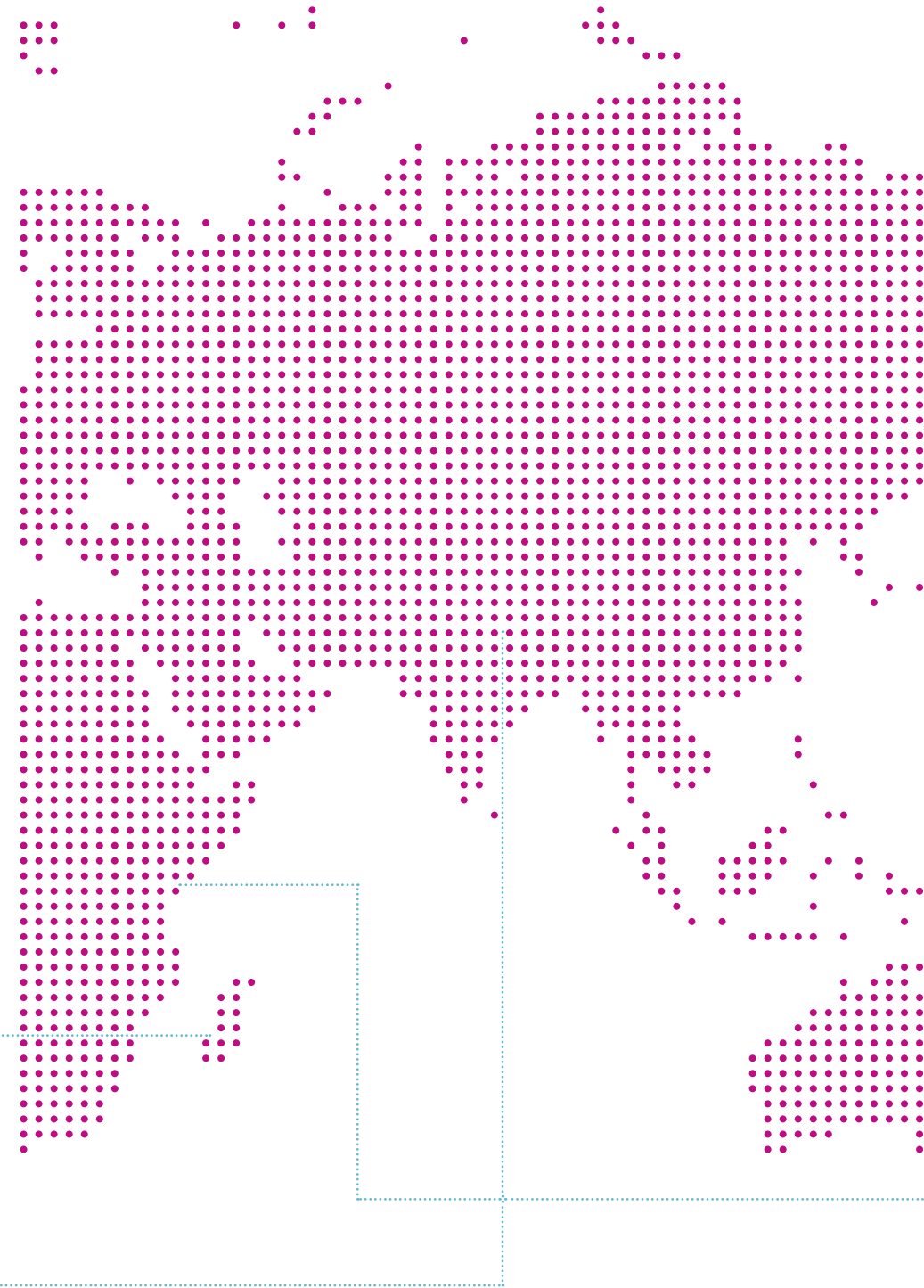
There is no shortage of U.S. policies that adversely affect health around the globe. For women and girls, however, the Trump administration's version of the

Mexico City policy, also known as the expanded global gag rule, is particularly devastating. GHJG was not yet a formal entity in 2017, when McGovern launched an ambitious and ongoing study to look at the impact the rule was having on people's lives. Working with partners in Kenya, Madagascar, and Nepal, GHJG researchers have determined that the global gag rule significantly limits health providers' ability to deliver quality healthcare to women, and hinders debate and collaboration around abortion and other sexual and reproductive rights. "The gag rule was thrown on top of an already bad situation, since some people—both practitioners and patients—didn't realize that abortion is legal in many contexts in the first place," says McGovern. "So the gag rule has just increased fear around giving women and girls access to it. The impact has been ferocious at the global level. It's almost like abortion is not spoken about anymore. And this is completely contrary to what is good public health."

In Madagascar, the nonprofit Marie Stopes International (MSI), which promotes reproductive and sexual health, lost U.S. funding and was forced to close a family-planning voucher program that had delivered contraceptive counseling and care to women and adolescents living in poverty. In addition, 22 MSI outreach teams—often the only source of care for remote populations—are at risk. The Columbia Mailman School researchers will work with in-country partners over the coming months to try to find alternative ways of providing access to sexual and reproductive care.

Emily Maistrellis, MSc, senior program officer for GHJG, observes that sometimes providers lack information about what the global gag rule allows or are misinformed about the details, including by U.S. government employees. In Nepal, for instance, several staff members of an organization that complied with the rule shared with Columbia Mailman School researchers that they had been told by U.S. personnel that they could not hire any staff who had previously undergone an abortion. The actual

*"Who makes the rules?" "For whom?" and "Based on what?" These questions must stand at the center of global health initiatives.*



rule says no such thing. A worker at a Nepalese health facility that declined to sign the rule reported, “If we bought a pen under U.S. funding, we would not be allowed to write a word related to safe abortion while using this pen,” which is a faulty interpretation of the rule.

The GHJG team is looking beyond the near-term impacts of the global gag rule. Latanya Mapp Frett, JD, an adjunct assistant professor at the School who worked with McGovern to establish the project in Kenya, stresses the importance of documenting the rule’s repercussions in a systematic way, so as to make lasting change at the national and international levels. “The early indication is, not only is it a bad policy on its face, but it has also resulted in serious negative outcomes for women around the world,” says Mapp Frett, who recently became president and CEO of the San Francisco-based Global Fund for Women, which supports women-led groups fighting for justice in their communities. Comparable rules, she points out, have been repeatedly imposed and rescinded as the presidency has swung from Democratic to Republican. “If we’re going to stop this ping-pong with the global gag rule, we have to outlaw it,” she says when asked about the ideal outcome of the GHJG research initiative. “Because otherwise, every president that comes in will decide, on his or her whim, whether or not they want to have such a policy.”

Among other GHJG projects underway is one focused on reducing the global epidemic of gender-based violence. In June, McGovern and Schaaf returned from Kisumu, in western Kenya, where they’d helped place two Columbia students, one each from law and public health, at a clinic focused on helping victims of violence. (The project, a partnership with ICAP, was paid for by Columbia University’s President’s Global Innovation Fund.) “We’re taking a hard look at what programs to combat gender-based violence are being financed and what their impacts are,” in

particular where the law is concerned, says McGovern. They start by asking, What are donors supporting? For funders, it can be easier and less thorny to give to an organization that applies a bandage to a problem rather than to an NGO working to change deep-seated political issues that enable victimization.

The GHJG team will also evaluate how efforts are being judged a success or a failure. It's very possible, McGovern says, that the evidence standards currently being used to greenlight funding for some NGO work make it almost impossible for programs that are complex or very locally tailored to gain a foothold. "It seems like we're constantly repeating over and over some of the same mistakes as we try to make a lasting impact," says Mapp Frett. "I think what slows us down is our inability to point to the most effective ways to make an impact. Better research and documentation of what is happening in the field, and how that relates to policy, can help us help groups that are fighting for change to move public health work to the next level."

"A lot of the standards around how you prove something works are perhaps too simple, or misapplied," says McGovern. For instance, it could be that an indigenous women's group has come up with an appropriate method for solving a problem related to gender-based violence, but because of the group's small size or remote location, it has not been able to access support for its work. Depending on what they find, the GHJG team will propose changes to the evidence standards that funders use to determine success—an adjustment that could ultimately determine what programs secure resources.

In addition to its efforts in Kenya, Madagascar, and Nepal, the GHJG team is also examining justice and governance issues in [Tunisia and Lebanon](#), where Goleen Samari, MPH, PhD, who joined Columbia Mailman School as an assistant professor in the Population and Family Health department in November 2018, is



*“This is a really important time to implement multidisciplinary approaches that put human rights and justice front and center,” says McGovern.*

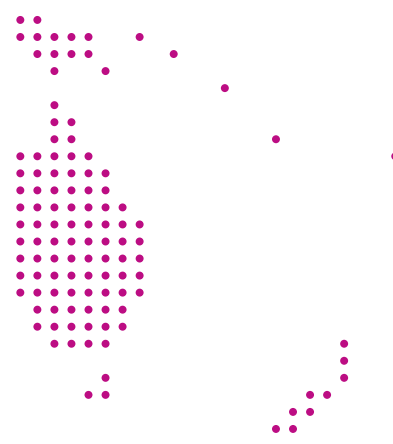
examining which NGOs work to address gender-based violence and what outcomes they have had.

**G**HJG’s environmental work already is far-reaching, with legal researchers helping to address the fallout of fracking on disenfranchised American communities and inquiries underway as to how indigenous populations living near industrial contaminants are affected and might seek justice. As part of GHJG, Jeffrey Shaman, PhD, professor and director of Columbia Mailman School’s Climate and Health Program, has begun collaborating with McGovern’s team on issues such as the interaction between climate change and forced migration. “With sea level rise, island nations such as Kiribati, in Micronesia, are going to disappear,” Shaman says. “What does that mean for its people? The international community doesn’t have the appropriate treaties in place to handle such situations.” As GHJG considers what legal and accountability frameworks might be established in order for governments to address this, Shaman helps provide expertise on the science. Justice issues also will come into play as extreme weather events proliferate, he notes. Intense flooding could lead to more contaminants being leached into water supplies, for example, with likely disparities in the communities impacted. “We need to understand that there’s going to be enormous social inequity,” Shaman says, “and that it’s going to move along economic and racial lines based on the exposures of those groups.” While still in the very early stages of development, the food program will likely also focus on the connection between climate change and access to food, and on women’s role in food production.

“This is a really important time to implement multidisciplinary approaches that put human rights and justice front and center,” says McGovern, who is optimistic about the program’s potential for impact. Recalling her early days working with HIV-positive women who could not

access treatment because AIDS was then defined as a male disease, she describes how she teamed with female doctors, nurses, lawyers, and public health experts to take on and permanently change the system. What those women taught her, she says, “was the strategic deployment of rage and love.” Underpinning the strategy is science, and as GHJG’s public health researchers ask key questions and uncover evidence about what works, they deploy that science in the service of health equity—with the aim of changing a whole lot more than hearts and minds.

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*Jocelyn C. Zuckerman is a Columbia University Graduate School of Journalism alumna. Her book about the palm oil industry, Planet Palm, will be published in 2020.*





**Ben Lane, MPH '20**, discovered a passion for public health while working at the Centers for Disease Control and Prevention during the height of media frenzy over the 2013-2016 Ebola outbreak.

# Tell Me a Story

In this age of YouTube and Netflix, knowing how to engage an audience using a personal narrative and a well-crafted video is an important new skill for public health experts.

By Tim Paul

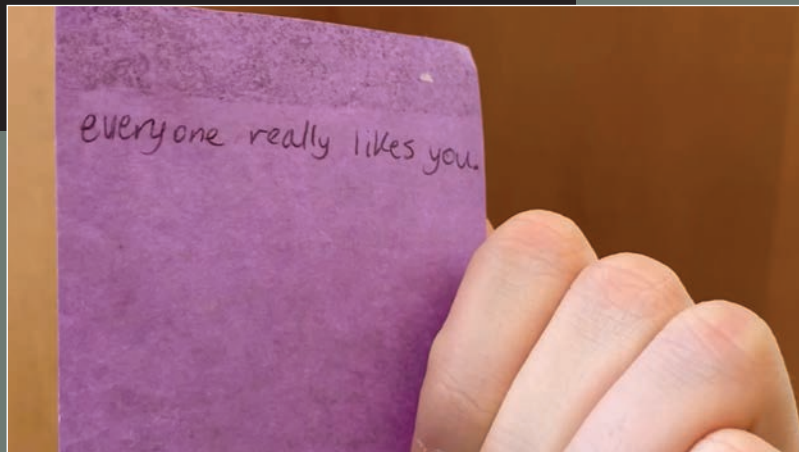
Columbia Mailman School students are experts in analyzing data and reporting the results with the dispassionate voice of scientific authority. Now, a workshop in digital storytelling at the Lerner Center for Health Promotion is teaching them to tell visually rich personal stories. “Science and scientific writing are central to public health. So too is the ability to connect with an audience on an emotional level,” says Gina Wingood, MPH, ScD, a professor of Sociomedical Sciences and director of the Lerner Center. “Facts matter, but in the

world of public health advocacy, one of the most powerful ways to motivate people to be healthy is through stories that are supported by facts.”

In the spring, facilitators with StoryCenter, a Berkeley, CA, nonprofit organization, began the two-day workshop by giving students a series of writing prompts. They were asked to think about “The Fork in the Road” (a decisive moment in their life); “The Stand” (a time they stood up for themselves or others); and “The Scar” (a visible or invisible reminder of a transformative experi-

ence). As the group met to share first drafts and solicit feedback, facilitator Robert Kershaw encouraged the students to express a personal point of view grounded in concrete details of time and place. “Less helicopter. Land on the street. That’s where the story starts,” he said.

The following day the group further refined their stories, then brought them to life using an online tool called WeVideo to create short videos that combine still and video images, music, and other sounds with a spoken narration. The completed videos show



As a health educator in an after-school program, **Julia Herskovic, MPH '19**, cherished an encouraging message she received from one of her students.



Growing up in a boarding school in rural India, **Carthi Mannikarottu, MPH '19**, endured the discomfort and stigma of living with a skin condition.

the many different ways students harnessed their creativity and opened up about their personal lives.

Watch all the videos online [publichealth.columbia.edu/storytelling](http://publichealth.columbia.edu/storytelling)

A video by Julia Herskovic, MPH '19, starts with a close-up of a purple sticky note she carries in her wallet. Its friendly message, written by a teenager she met while working in an after-school health education program, gives her encouragement whenever she is stressed or feels like she doesn't belong. In his story, Ben Lane, MPH '20, immerses us in the sights and sounds of the Centers for Disease Control and Prevention at the height of the media frenzy around the 2013–2016 Ebola outbreak in West

Africa; working there during the crisis sparked in him a renewed sense of purpose. Through a montage of childhood photos, Carthi Mannikarottu, MPH '19, evokes the physical and social discomfort of growing up with an uncomfortable skin condition. Like most of the workshop participants, Mannikarottu found that the storytelling process took her into uncharted territory. "I'm so used to writing essays with seven sources per paragraph," she says. "But I was very happy for the chance to tell my story."

Just two weeks after completing the workshop, Staci Carney, MPH '19, was fast at work on another video using the skills she had acquired in the workshop. As part of a research team testing a targeted communications campaign, she

collaborated with a woman in Washington Heights to tell the woman's story of living with diabetes and depression. That video will be used to inspire similar individuals to connect with local social services and will eventually find a permanent home on the Columbia Mailman-affiliated neighborhood portal GetHealthyHeights.org. "The workshop was one of the most rewarding things I did here," says Carney. "It was really cool to take what I learned and apply it in the real world right away."

Tim Paul is editorial director of communications and editor of the *Transmission* newsletter. He wrote about the connection between climate and flu rates for this magazine in 2017.



# 50 YEARS OF THINKING DIFFERENTLY

**The Department of Sociomedical Sciences  
is marking a milestone anniversary and looking forward  
to making an even bigger impact on the future.**

**By Kristin Bundy**





As deaths from AIDS rose steadily in early 1990s New York City, pediatrician and adolescent medicine specialist Alwyn Cohall, MD, saw another disturbing trend: In the school health clinics he ran on the Upper West Side and in Harlem, more and more students were being diagnosed with sexually transmitted infections. Concerned, his team began to test them for the most frightening sexual infection to date: HIV. “And out of the first ten young people we tested, four were positive,” he recalls. “It was mind-blowing. These weren’t street workers or injection drug users. These were kids in high school. Some of them were *ninth graders*. And they were developing a life-threatening disease.”

It was a public health challenge without precedent. And as more teens were diagnosed, Cohall realized he had nowhere to send them for care. “There were no adolescent HIV clinics nearby. We had to send them to pediatric or adult clinics, but they didn’t fit in with either population,” he says. Teenagers don’t want to sit in tiny waiting-room chairs. Teenagers think they are invincible. Teenagers are notoriously noncompliant, whether you’re handing them a prescription for an antiviral drug or a supply of condoms. And the predominantly African American and Hispanic teens were up against disparities in access to care because of their race, age, and economic circumstances. Many had limited access to good nutrition and were exposed to stressors like a parent’s unemployment. “I grew up in Harlem,” Cohall recalls. “I know what it’s like to not have heat and to go to bed with gloves on, to have to run the stove all night to keep warm.”



SMS was one of the only places I could find that really brought to bear the different disciplines that shape our understanding of people’s lives and the factors that influence their health.



Realizing that adolescents’ experience with HIV would be impacted by their big-picture lives, Cohall, who was employed by St. Luke’s–Roosevelt Hospital, which was then affiliated with Columbia University, reached out to Columbia Mailman School’s Department of Sociomedical Sciences (SMS). The department was a pioneer in understanding the social conditions underpinning the experience of people with HIV/AIDS. Together, department experts and Cohall’s team developed a new model to serve the specific needs of HIV-positive teens and young adults. With an initial grant from the New York State Department of Health, they were able to collaborate with community organizations, high schools, and the city’s departments of health and education. “Each of those folks do what they do very well,” Cohall says. “But a lot of times they, like many of us in health-

care, operate in silos.” He went on to join SMS, and today serves as director of the Harlem Health Promotion Center and Project STAY (Services To Assist Youth). Together they have helped hundreds of young people gain access to HIV medication and comprehensive, interdisciplinary care. Cohall and a team that includes Columbia Mailman School students have also worked to prevent HIV infection by doing aggressive outreach in schools and agencies serving LGBT youth.

SMS was a natural partner for these efforts. Founded in 1968, during a time of social tumult, the department has long had at its core a commitment to advancing health equity—ensuring that everyone has a fair and just opportunity to be as healthy as possible. Ray Trussell, PhD, director of the School from 1955 to 1968,

and Jack Elinson, PhD, the department’s first chair, founded the department, which was the first of its kind at any institution in the United States. Its mission: to develop solutions to address disparities in health experienced due to social determinants such as race, gender, age, and sexuality. These determinants play a major role in exposure to factors that affect the ability to be healthy, from lack of nutritious food and opportunities to exercise, to inadequate access to education and housing, to fair pay and exposure to poverty and violence.

SMS’s work addresses a critical need, given that social and behavioral factors account for an estimated half of all premature deaths in the U.S. today, according to a 2015 report from the Institute of Medicine. “We tend to think biomedical factors are the most influential drivers of health outcomes, but nonbiomedical factors—where you live, what nutrition you’re getting, racism, sexism—are just as consequential and sometimes even more consequential,” says Merlin Chowkwanyun, MPH, PhD, Donald H. Gemson Assistant Professor of Sociomedical Sciences. An early landmark study of chronic disease in rural Hunterdon County, NJ, which was led by Trussell and Elinson, combined clinical examinations with social-sciences methods and focused on a geographically defined population. Their findings indicated that a combination of survey and interview yielded a more accurate assessment of health. This groundbreaking approach eventually led the National Center for Health Statistics of the U.S. Public Health Service to initiate a periodic National Health Examination Survey, which is today a valuable source of data about the country’s health.

“What sets our department apart—and what really is its strength—is the depth and breadth of social-science expertise that



Merlin Chowkwanyun looks to history to move us forward. Photograph: Leslye Smith.

we bring to every project,” notes professor James Colgrove, MPH, PhD, whose work focuses on how U.S. public health policies have historically been influenced by social, political, and legal processes. SMS faculty employ methods from anthropology, behavioral science, ethics, history, political science, psychology, sociology, and health promotion and communication. “Our department is diverse in scope, but united by a desire to address social forces that affect health and to seek justice,” says Colgrove.

The department’s innovative and diverse scholarship drew associate professor Marni Sommer, DrPH, MSN, RN, there as a doctoral candidate. “SMS was one of the only places I could find that really brought to bear the different disciplines that shape our understanding of people’s lives and the factors that influence their health. Interdisciplinary research also helps us think about a wider range of interventions we can use to address their health.” Today, Sommer leads the Gender, Adolescent Transitions, and Environment (GATE) Program, which explores the intersections of gender, health, education, and the environment for girls and boys transitioning into adulthood in the United States and low-income countries, including Madagascar and Tanzania.

The deep and broad portfolio of research and teaching at SMS spans topics as diverse as aging, bullying, drug use, healthcare access, homelessness, housing, incarceration, obesity, sexuality, stigma, urban health, and occupational and environmental health. In the incarceration prevention program, Robert E. Fullilove, EdD, teaches incarcerated individuals about health inequity and motivates them to work to reverse it. (Read an essay by Fullilove on page 24.) Meanwhile, Daniel Giovenco, MPH, PhD, a member of SMS’s Lerner Center for Public Health



Marni Sommer takes an interdisciplinary approach to adolescence. Photograph: Lisa Hancock.

Promotion, examines tobacco marketing in New York City, where he has found that the unhealthiest products like cigars and cigarillos are more likely to be carried and advertised in low-income neighborhoods.

The department’s Center for the History and Ethics of Public Health is one of only a handful of centers of its kind designated by the World Health Organization and the only one in a school of public health. The Center recently developed ToxicDocs, the world’s largest repository of once-secret documents about corporate and public use of toxic substances like lead paint, which disproportionately harms children in low-income communities of color. Looking at history is a critical part of public health work, notes Chowkwanyun. “Study of the past shows that the way we do things is not preordained. It reminds you that societal pathologies are a product of human deci-

sions, not destiny. If we made them, we can undo them.”

There are now 28 full-time SMS faculty, and research is ongoing in Asia, Africa, Europe, and North and Latin America. Many of the department’s more than 3,000 alumni have gone on to be changemakers, with leadership positions in public and private health agencies, corporations, foundations, NGOs, and academia. And this year, SMS welcomes a new department chair and Stephen Smith Professor, Kathleen J. Sikkema, PhD. An expert in HIV-related mental-health interventions, she comes from Duke University where she was the Gosnell Family Professor of Global Health and a professor of psychology, neuroscience, and psychiatry and behavioral sciences. She was also director of the Global Mental Health Initiative at the Duke Global Health Institute. “Kathleen

“ We tend to think biomedical factors are the most influential drivers of health outcomes, but nonbiomedical factors are just as consequential and sometimes even more consequential.





# 3

## Questions for Kathleen J. Sikkema, PhD

Kathleen J. Sikkema, PhD, remembers, as a graduate student in the late '80s, sitting in the library with journals spread across the table that represented medicine, psychology, and ethical and political sciences. "I worked in HIV 10 years before we had treatment. Those journals were a visual representation of how the challenges of

HIV cut across disciplines—none of them alone were going to help us make progress in the epidemic," she says. Now, as the newly appointed chair of the Department of Sociomedical Sciences (SMS), she leads a team that lives where these disciplines meet.

### What drew you to accept the chair position?

The work I've done for almost 30 years has always been interdisciplinary. I've worked with individuals and at the community level. So my background reflects the mission and the overall goal of SMS in terms of taking social sciences into account, trying to effect change and develop interventions that impact public health and global health. Columbia Mailman School's prominence in public health from a social-science perspective, its integration of theoretical and applied research, and its deep commitment to education and service make this the place to be.

### How did your background prepare you to lead the department?

People often think of clinical psychology as an individual-level discipline, which it is. But I've had the fortune to be mentored and involved in research for decades that is more health- and community-psychology oriented. Global mental health is my specialty, and that involves broader issues like: How does poverty affect mental illness? How do we get treatments to people in low-resource settings? While my background is in social and behavioral sciences, I have held various roles in schools of public health, medicine, and arts and sciences. That exposure helps me think about different perspectives and cultures, which will help me guide SMS into the future.

### What are you most looking forward to at SMS?

I look forward to expanding the work SMS already does in mental health to include global mental health—a relatively new subfield in global health. We will continue the mission of SMS, which is to collaborate across disciplines, but I also want to think about how we expand, what areas are ripe for growth, and how we should be thinking about advancing health and reducing disparities in 10 to 20 years. It's great to be able to head a department that is a prominent leader in both the country and the world.

does groundbreaking work at the intersection of global health and mental health," says Colgrove, who served as interim chair.

Says Sikkema, "The department is very well positioned for impact because faculty focus on the social structure of people's lives—their economic situation, the role politics plays, shifting social norms—and how that influences well-being." She adds, "There is so much intellectual synergy and collaboration. Part of the excitement is figuring out how to build on the excellent work SMS has done, and determining where we want to be in a decade or two."

Today, with colleagues at the Harlem Health Promotion Center and Project STAY, Cohall provides health services for justice-involved adolescents and young adults at risk for, or living with, HIV. He recalls one young man referred to him by the New York City Department of Correction. "He was HIV positive, but when we unraveled his story, we found out that his father was incarcerated because he tried to kill his mother after his mother stole his crack stash. The young man had been bounced around to different homes and had been physically abused. He had a lot of trauma—not to excuse his behavior, but it gives you the context."

When they assessed the man's health, not only was he HIV positive, but he was also overweight, with high blood pressure and an elevated risk for diabetes. The team addressed his physical and mental health, as well as his substance abuse and the trauma that had shaped his life. "After three years, his viral load is undetectable. He's lost weight, his blood pressure is under control, he's stayed out of jail, and he is working and in school," says Cohall. "That's the kind of success story that happens with interdisciplinary teams working together. The beauty of SMS is that the natural next step is to think, 'How many other young people are like this man? And what can we do on a systemic level?'"

*Kristin Bundy, of Pittsburgh, has been writing about HIV since the 1990s. She also writes for Medscape and Pitt Med Magazine.*



More than 28,000 residents received MMR vaccines in Rockland County after the recent measles epidemic began. Patricia Schnabel Ruppert, top right, led the effort. Rachel Alter, bottom right, uses social media to educate. Photographs, clockwise from left: AP Images; Getty Images; National Center for Disaster Preparedness.

## Fighting Measles on Two Fronts

*Patricia Schnabel Ruppert, DO, MPH '15 and Rachel Alter, MPH '18*

Some hung up the phone. Others refused to answer the door. Talking to people who don't vaccinate their kids is hard. That's one thing Patricia Schnabel Ruppert, DO, MPH '15, has learned since measles spread through Rockland County, NY, where she is health commissioner. (She is also an assistant professor of clinical medicine at Columbia University Medical Center.)

The outbreak started when a 14-year-old with measles traveled from Israel to Rockland County on Oct. 1, 2018, and attended services at a large synagogue. By October 12, Ruppert says, "we had case after case coming in." Soon, Ruppert—who graduated from New York College of Osteopathic Medicine in 1989, practiced internal medicine and held administrative posts before becoming commissioner in 2013—was working on the biggest public health crisis of her career. In the recent Rockland County outbreak, 312 residents were confirmed to have measles, the largest concentration of the infection in the U.S. outside of New York City.

Ruppert is used to learning by doing. She enrolled in Columbia Mailman School's Executive MPH Health Care Policy and Management program at the same time that she became health commissioner. Classes in managerial decision-making and program evaluation helped her better utilize her 230 employees; during this measles crisis, her environmental health workers who would typically deal with things such as water quality have stepped up to deliver subpoenas to uncooperative parents of sick children.

"I have people who you wouldn't normally call in for a measles outbreak," she says, "but I need them and there's no hesitation." A health policy class prepared her for speaking to New York state lawmakers regarding the repeal of the religious exemption to vaccine requirements for school-age children.

While Ruppert has been coordinating vaccine clinics, holding press conferences, and meeting with rabbis, Rachel Alter, MPH '18, has been fighting the outbreak by engaging people on the topic of vaccines on social media. Inspired by her Columbia Mailman School classes in epidemiology, infectious diseases, and communication, Alter began perusing anti-vaccination Facebook groups. When she answered people's claims about vaccination injuries with facts, she was often kicked out; she calls the groups echo chambers designed to exploit people's fears.

Later, she joined Vaccine Talk: A Forum for Both Pro and Anti Vaxxers on Facebook, where scientists competently answer queries such as whether aluminum compounds in vaccines pose a risk (they do not). Alter sometimes stays up late responding to group members, such as a man who believed vaccination combined with cell phone use causes cancer. "The goal is to prolong the conversation so that people can see the breakdown of their own logic," says Alter, now a research affiliate at the Vaccine Confidence Project at the London School of Hygiene and Tropical Medicine. "You want to keep them engaged as long as you can, so you can plant the seed of real science." —*Nancy Averett*

## Technology That Heals

*Divya Devli, MHA '17*

A car accident in 2012 was the catalyst for Divya Devli's decision to attend the Columbia Mailman School. Her recovery from eight pelvic fractures was rough, and Devli



'17 was appalled by the disorganization of the medical system where she was treated in India. "I felt passionately about improving healthcare, so my

family would hopefully never experience what I did," she says. Today, she is product manager, provider digital experience at Blue Shield of California in San Francisco, where she is building easier, more intuitive digital tools to assist in managing patient care. "I never considered business school; I wanted to be in a school of public health because healthcare is unique and complex," she says. "The MHA program allowed me to gain management skills while learning about the special challenges and opportunities of healthcare."

Devli is working to make real-time claim payments a reality. "When you shop in a grocery, you know how much you will pay, and the seller knows how much they will collect. Data and technology can help us do this in medicine," she says. Her course in health economics helped Devli better understand the audience she builds products for, while digital analytics taught her to track metrics. Above all, the collaborative environment at the School taught her a key success secret: "Healthcare," she says, "is a team sport."

## Leading Through Change

*Emme Deland, MBA*

In the late 1970s, healthcare was undergoing a sea change. As costs rose, hospitals began to be paid not whatever they charged, but what insurers would reimburse. At the time Emme Deland—now one of the country's top healthcare administrators as senior vice president and chief strategy officer at



NewYork-Presbyterian Hospital—was early in her career and looking for a change too.

She had graduated magna cum laude from Harvard with a degree in modern East Asian studies and then worked in banking. But healthcare innovation intrigued her. Living on West 168th Street while her husband was in medical school, she entered the joint MBA/MPH program at Columbia, splitting her time between what became the Columbia Mailman School and the Business School. "I wanted to do something interesting that would improve people's lives," she says. "I was never going to be a doctor because I fainted at the sight of blood."

The program proved to be the perfect merger of her interests and skills, with the courses at the Columbia Mailman School giving her a foundation of historical, statistical, analytical, and epidemiological understandings. Deland earned her MBA in 1980—she completed coursework for an MPH but not her thesis—and spent the ensuing decades putting that training to work, first at a consultancy, then in leadership roles at Harvard Medical School, Brigham and Women's Hospital, and Mount Sinai.

Since 2000, Deland has been responsible for developing clinical and corporate strategies for NewYork-Presbyterian, a 4,000-bed, \$8 billion academic healthcare system affiliated with Weill Cornell Medicine and Columbia University's Vagelos College of Physicians and Surgeons. She oversees the hospital's response to healthcare policy changes, guides strategic investments, directs physician leadership education, and leads the identification, adoption, and commercialization of new technologies such as telehealth and artificial intelligence. In 2017, Deland helped launch NYP OnDemand, which became one of the country's most comprehensive telehealth programs and one of the hospital's core offerings, making up some 20 percent of patient encounters.

Decades later, changes continue as the industry transitions from a fee-for-service approach to value-based healthcare, in which providers are paid based on health outcomes. Meanwhile, "millennials expect care to be more convenient, and when you're really sick, you still want an academic medical center," she says. In that heady whirl of challenges, Deland continues to innovate, even as she serves the bigger goal—imparted in her public health training—of improving access to care and lowering costs. Perhaps not coincidentally, it was during her tenure that NewYork-Presbyterian adopted its tagline, "Amazing Things Are Happening Here."



## Advancing Equity

*K. Aletha Maybank, MD, MPH '06*

Race-based health disparities remain profound in the United States, and K. Aletha Maybank, MD, MPH '06, is tackling the problem on a national scale. In April 2019, Maybank was named the inaugural chief health equity officer of the American Medical Association, the nation's largest professional organization of physicians and medical students. Previously a deputy commissioner of New York City's Department of Health and Mental Hygiene, Maybank was founding director of that agency's Center for Health Equity and oversaw development of the first place-based community health worker efforts in New York City public housing.

As a vice president of the AMA, Maybank will launch a Center for Health Equity to embed the pursuit of health equity at the core of the AMA's operations. And because inequities run the gamut from interpersonal bias in provider-patient interactions to the echoes of institutional racism embedded in policies on housing, transportation, and civil rights, she plans to take a full-spectrum approach to the enterprise.

Maybank was already a board-certified preventive-medicine physician when she enrolled at the Columbia Mailman School, and she credits Associate Dean for Community and Minority Affairs Robert E. Fullilove, EdD, and others with opening her eyes to the often-insidious ways race amplifies how social determinants of health play out. "At the time, I was a young black physician figuring out what I was going to do. They opened doors for me and that's important for all students, but especially students of color."

Now Maybank is opening doors herself. She is a founding board member of the Artemis Medical Society, an international mentoring, networking, and advocacy organization for black women physicians. "As physicians, we take an oath to do no harm and keep our patients safe," she says. "If biases are causing harm, we have to confront them for the sake of excellence in patient care." —*Sharon Tregaskis*

## Compassion, at Scale

*Ken Coburn, MD, MPH '93*

Shortly after finishing his internal medicine residency at Columbia-Presbyterian Medical Center, Ken Coburn, MD, MPH '93, led two New York City HIV/AIDS clinics,



where he saw how nurses improved vulnerable patients' quality of life. That led Coburn to the Columbia Mailman School and later to become founding

CEO and medical director of Health Quality Partners (HQP), a Pennsylvania nonprofit that designs better models of healthcare delivery. HQP's Advanced Preventive Care system sends nurses on house calls to support elderly patients with chronic diseases: cajoling them to take medications, answering questions, and screening for home hazards. A randomized clinical trial found that the model reduced all-cause mortality by 25 percent, hospitalizations by 33 percent, and Medicare costs by 22 percent.

Coburn credits biostatistics and health economics classes for teaching him the importance of measurement. He recently helped develop software that tracks everything from patient data to nurse performance. Next he wants to spread HQP's model nationwide. "Health systems spend incredible amounts to build a new service line," he says. "When you say, 'Give me a quarter of that and let's hire six nurses to target the most vulnerable,' it takes a leader who puts outcomes high on their list and is savvy enough to realize that it will pay for itself." —*Nancy Averett*

## A New Focus on Food

It was a busy summer for the Columbia Mailman School's first group of Food Fellows, as they explored the connection between food and public health in internships with the New York City Department of Health and Mental Hygiene, Helen Keller International, and the Comprando Rico y Sano (Buying Healthy and Flavorful Foods) program, among others.

Sonia Sifuentes, '20, interned with the West Side Campaign Against Hunger, a New York City non-profit that runs a supermarket-style food pantry and provides healthy food and supportive services. "I've always been interested in food and nutrition, and the Food Fellows program gives me a stipend that supports me as I explore this field," she says.

At Glynwood Center for Regional Food and Farming in the Hudson Valley, Food Fellow Mallory Stellato '20 focused on assessing how Glynwood's programs in sustainable agriculture could be harnessed to better improve community health in the Hudson Valley. "The goal is for Glynwood to help support regional agriculture, drive a healthy population, a healthy economy, and healthy agriculture," she says.

The program is part of a larger focus on food. Former *New York Times* food columnist Mark Bittman joined the faculty of the Department of Health Policy and Management, and this year hosted a lecture series on the food justice movement. "Food and public health are connected in some way in virtually every department and discipline, including climate science, forced migration, health equity, nutrition, and chronic disease prevention," notes Julie Kornfeld, PhD, MPH, vice dean for education and associate professor of Epidemiology. "Faculty are also focused on obesity, nutrition and the safety and regulation of food, so it's a natural next step to expand our curriculum and our research on food and public health."



## What Bikers Are Breathing

### *Logging Miles to Answer Questions About Air Pollution*

Five years ago, Darby Jack, PhD, an associate professor of Environmental Health Sciences, set out to answer the question every urban bicyclist ponders while dodging cars and potholes: How much pollution am I breathing? Now finishing up a National Institutes of Health-funded study, Jack and team are close to having answers, even as cycling has grown more popular.

Most methods to assess pollution exposure measure concentrations in the air. But Jack wanted to understand the actual dose inhaled by a cyclist and how it affects the cardiovascular system. He and Steven Chillrud, PhD, a professor at Columbia's Lamont-Doherty Earth Observatory, assembled a sophisticated blend of technologies to measure these factors among 150 volunteers. In addition to air monitors, there are biometric shirts to record heart rate and breathing volume, and ambulatory blood pressure monitors to detect small changes resulting from air pollution exposure. "Noise is a stressor, so we are asking some volunteers to add a noise monitor when they ride," says Jack.

This fall, the team is analyzing its data. What they know thus far: "In our cohort, biking accounts for 7 percent of an average 24-hour period, but it's 55 percent of their black carbon dose, which is a marker for traffic-related pollution," says Jack. "There is also a clear connection between black carbon exposure and truck routes." The good news is that even a small separation from traffic can make a difference in dose. One goal is to create a map that city cyclists can use to steer away from high-pollution routes. The findings may also have an impact on urban design.

More results will be out next year, and the team hopes to do another study in China to examine whether wearing a mask impacts the inhaled dose. In the meantime, Jack hasn't stopped biking from Brooklyn to the Columbia Mailman School, a 15-mile trip. "The greatest risk of cycling is not doing it," he says.



## A Global Perspective on Growing Old



The world's population is aging. In sub-Saharan Africa, for example, the fraction of adults age 60 or older will more than triple by 2050. The global response to this “gray tsunami” is the focus of a new book by associate professor of Sociomedical Sciences Kavita Sivaramakrishnan, PhD. In *As the World Ages: Rethinking a Demographic Crisis* (Harvard University Press), she argues that Western experts too often extrapolate their experiences of aging to low- and middle-income countries. Retirement, costs of long-term care, and welfare have been the main focus in the U.S. But in the global South, adequate access to social benefits is often not universal, and policy debates have focused on the responsibilities of family. She points out that young people in these countries are being asked to do more for older generations, but many of them are unable to find jobs and have migrated to the cities.

Sivaramakrishnan, who is interim co-director of the Robert N. Butler Columbia Aging Center, notes that Western society stands to learn from the experience in the global South. “The West, too, has older people who fall outside the social safety net,” she says. She calls for countries with the largest aging populations to share their experiences with programs that have been used successfully by local communities so that they can be scaled up or used elsewhere. For instance, in Chennai, India, there are neighborhood-level networks of geriatric care by older people who take care of those older than they are. *As the World Ages* will awaken scholars and policymakers alike to a more nuanced conversation about aging.



India Hamied Fellows Aditi Roy, Habib Farooqui, and Surinder Jaswal

## Collaboration Across Continents

### *Hamied Fellows Share Research Interests*

An ongoing research exchange between faculty at the Columbia Mailman School and scholars in India is laying the groundwork for a series of innovative public health collaborations. The Yusuf Hamied Fellowship Program, supported by the pioneering Indian business leader who made anti-retroviral drugs affordable for millions in Africa, is addressing key public health challenges.

Access to medicines is a shared concern of Hamied Fellows Habib Farooqui, MD, associate professor at the Public Health Foundation of India, and Bhaven Sampat, PhD, Columbia Mailman School associate professor of Health Policy and Management. Meanwhile, Columbia Mailman School's Hamied Fellows Mary Beth Terry, PhD, and Jasmine McDonald, PhD, are examining the connection between air pollution and risk for breast cancer in India, which has one of the world's highest rates of triple negative breast cancer, the most aggressive form. Other fellows focus on climate change and nutrition research. “The rich exchange will be beneficial to both countries,” says Gary Miller, PhD, vice dean for research strategy and innovation.



Interprofessional Education and Service Learning Fellows from Columbia Mailman School and fellow Columbia University students in nursing, nutrition, social work, and health education traveled to Puerto Rico in the wake of Hurricanes Maria and Irma. They joined with community members to assess community health needs as part of an Office of Field Practice pilot program. The project is continuing during the 2019-2020 school year.



Vivian Mao '20 worked on new programs at a medical center.



Kai Wilmsen '20 monitored environmental metrics.



Quinton Neville '20 worked at the UVA Biocomplexity Institute.



Ashley Tseng '20 (far left) studied bats in Turkey and Jordan.

## A Summer to Remember

The hands-on student practicum is a highlight of the Columbia Mailman School experience.

An internship in the field is required of MPH candidates, and almost 500 students fanned out during the summer of 2019 to work in 38 countries, including Bangladesh, Zimbabwe, Switzerland, and Vietnam, as well as 13 U.S. states. Do you

have memories of your own Columbia Mailman School fieldwork or classes? Share your stories and photos for possible publication when we celebrate our centennial year in 2022 by emailing [mailmancomm@cumc.columbia.edu](mailto:mailmancomm@cumc.columbia.edu).

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“I worried less about how I was going to be able to afford to live in New York while getting my degree. The scholarship helped me focus on academics and start a new chapter in my professional life.”

Taylor Jordan, MHA '19








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