Letter From the Dean
The School’s leader reflects on our first 100 years and sets the stage for the next century.
BY LINDA P. FRIED, MD, MPH

Leading the Global Fight Against Infectious Diseases
Across continents and through outbreaks of HIV, SARS, MERS, and more, researchers in the lab and public health workers on the ground have helped the world understand and combat transmissible diseases.
BY JIM MORRISON.
Plus: Covid-19 By the Numbers
BY ALEJANDRA VILLANUEVA ’20

The School and the City
Columbia Mailman School has had a long and productive relationship with the city it calls home. And over the years, students, faculty, and the community have all benefited.
BY CAROLINE HOPKINS

Every Gift Has a Story
Philanthropy makes it possible for the School to launch new programs, recruit talented faculty, and educate the next generation of leaders.
BY NANCY AVERETT

A World of Good
With a commitment to human rights, the School’s faculty have a long history of working to battle pressing health threats across the globe—and are poised for progress in the future.
BY JILL LANGLOIS

The True Measure
Research here is helping to ensure longer and more robust lives for the most vulnerable populations.
BY JOCELYN C. ZUCKERMAN

From Paper to Policy
Science-based advocacy is a guiding principle at Columbia Mailman School.
BY ALLA KATSNELSON

Climate in Crisis
Public health challenges posed by climate change are already threatening populations worldwide. The School’s programs are training the next generation of leaders to fight back.
BY JIM MORRISON

At the Core
The School’s MPH Core Curriculum has evolved with the profession and continues to be the standard for public health education.
BY TIM PAUL

Decades of Discoveries
A trailblazing study has influenced two generations of scientists and still generates findings today.
BY TIM PAUL

A Century of Impact
For 100 years, the Columbia Mailman School of Public Health has set the pace for public health education and led by example in the quest for better health for everyone, everywhere.
Plus: Celebrating 100 Years of Public Health Leadership Charting decades and discoveries.
BY JESSE ADAMS

Building a Healthy and Just World From the Inside Out
The School’s FORWARD initiative, launched last year, is just one in a series of efforts to promote inclusive and equitable education in the field of public health.
BY PAULA DERROW

In Our Words
Members of the School community reflect on its memorable qualities and the difference it has made in their lives.
INTERVIEWS BY RUTHIE FIERBERG

publichealth.columbia.edu
100 years ago, we helped create the discipline of public health. Now we’re defining its future. Because in the century ahead...

Over the last 100 years, Columbia Mailman School and its supporters have opened up new avenues for making life longer, healthier, and better for millions around the world. With your partnership, we will be positioned to make even greater leaps in our second century. Join us.

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Letter From the Dean
In 1914, Columbia University made the visionary commitment to be one of the first universities in the United States to formalize the science, education, and practice of public health. An influenza pandemic struck soon afterward, and Columbia’s Institute of Public Health launched in 1922. Its mission: to develop the scientifically based knowledge needed to prevent disease, disability, and injury and to improve health; to partner with society to create solutions; and to educate a superb workforce.

It is humbling to think that what began with a single student has grown to be one of the world’s most highly regarded and impactful schools of public health. Along the way, we have educated generations of scientists and leaders, advanced groundbreaking discoveries, and developed solutions to protect and improve the health of diverse communities across cities, countries, and continents. The lessons we’ve learned locally and globally have benefited the world and our beloved New York City.

Public health is responsible for adding 25 of the more than 30 years of increased life span humans have enjoyed in the past 100 years. Columbia Mailman School has made countless contributions to this success. Our community of changemakers—scientists, educators, practitioners, and advocates—has led global efforts to advance health at every age, launched the world’s first multicountry HIV care and treatment program, identified thousands of emerging pathogens, exposed the dangers of pollutants, improved maternal and child survival, prevented chronic diseases, and developed advanced analytics to predict and control the spread of COVID-19. But our work is far from over.

This great school of public health has the power to create solutions to grave 21st century challenges, while continuing to lead on entrenched issues. From the health impacts of the changing climate and food systems to the need for transformed pandemic preparedness, prevention, and response; from threats to mental health, resilience, and social capital to the need to ensure access to health equity and enable our now-longer lives to be lived in good health—the world’s most pressing public health challenges are no less than existential threats. These threats are, notably, human-created and require science-based solutions at scale.

The Columbia Mailman School is steadfast in our commitment to building the necessary knowledge and science and to developing solutions for these threats and much more. We are preparing future leaders to think expansively, to work across disciplines, and to harness the rapid changes in science to transform health.

Public health, from discovery to practice, is the basis of a successful society. We need all sectors—and all of you—to join us as we take on the challenges of our School’s second century. If we succeed, we could change the trajectory of health and health resilience on Earth. Humans and our planet would thrive. As we reflect on our School’s Centennial, it is clear that our incredible history has prepared us to meet this extraordinary moment in public health.

Dean Linda P. Fried, MD, MPH
LEADING THE GLOBAL FIGHT AGAINST INFECTIOUS DISEASES

Challenging norms and creating innovative approaches to combating infectious disease have been part of the School’s mission since it was founded in the shadow of the 1918 influenza pandemic.

By Jim Morrison
Quarraisha Abdool Karim, MS ’88, PhD, professor of Clinical Epidemiology at Columbia Mailman School, remembers when she first heard about a sharp rise in the number of female tuberculosis (TB) patients in rural South African hospitals. It was 1997 and she was in Durban, South Africa, working at the South African Medical Research Council after completing a master’s degree in parasitology at Columbia School of Public Health. Her research focused on understanding why young women ages 15 to 24 were acquiring HIV infection five to seven years before their male peers. Now, not only were men in their 40s and 50s infected with TB, but increasingly women over 25 were also being diagnosed. Abdool Karim asked colleagues and they told her the same thing: “The face of our patients is changing.”

It struck Abdool Karim that TB could be an important marker of advancing HIV disease. She and a colleague tested TB patients and found that 70 percent of them were coinfected with HIV. HIV was suppressing the immune system and creating an opening for opportunistic TB infections. As discussions started to shift toward making antiretroviral treatment available to people with AIDS in Africa, “the question nobody could answer was, ‘Do you treat TB first or HIV?’” she recalls.

Abdool Karim and others, including her husband, Salim Abdool Karim, MS ’88, MD, PhD, now CAPRISA Professor for Global Health in Epidemiology at Columbia Mailman School, conducted research that shaped how HIV-TB co-infected patients are treated. Working under the leadership of Zena Stein, MB, BCh, an epidemiologist at the School, the Abdool Karims launched the Columbia University–Southern African Fogarty AIDS International Training and Research Program (CU–SA Fogarty AITRP), funded by the National Institutes of Health.

This partnership between the School’s faculty and researchers and healthcare practitioners in South Africa would span two decades, creating a critical mass of highly trained epidemiologists who would go on to lead pioneering HIV and TB research across South Africa. The program began with just two students coming to Columbia for master’s level training in epidemiology before returning to South Africa. By the time it concluded 20 years later, it had expanded across southern Africa to include Botswana, Lesotho, Mozambique, Namibia, and Swaziland, and added cutting-edge basic science training in HIV and TB. More than 800 scientists had been trained, transforming the response to HIV and TB in southern Africa. “It is not just about the training received in the U.S., but also how the training enabled critical research questions that are unique to the African HIV epidemic to be answered, thereby changing the trajectories of HIV and TB in Africa,” says Quarraisha Abdool Karim. Adds Salim Abdool Karim, “I think it’s safe to say that almost every major HIV study in South Africa has our trainees involved in some way or another.”

The trainees overwhelmingly returned home to their country and the program continues to pay dividends. Fast-forward to 2020: When the ministry of health in South Africa created a COVID-19 advisory group, more than 60 percent of its members had been associated with the Fogarty program. “We were not just training them to be amazing scientists, but to be people who assumed positions of global and local scientific leadership,” says Quarraisha Abdool Karim.

Columbia Mailman School’s leadership in the fight against infectious diseases is evident in other pioneering programs as well, including ICAP, which battles epidemics and strengthens health systems in more
than 30 countries; the Centre for the AIDS Programme of Research in South Africa (CAPRISA, led by the Abdool Karims and founded with the help of Columbia Mailman School), which fights AIDS in southern Africa; and the new Global Alliance for Pandemic Prevention (GAPP), launched by the School’s Center for Infection and Immunity (CII), which aims to prevent pandemics with early detection and containment strategies born out of cutting-edge research about how best to get prevention and treatments to people in need on the ground. Those programs extend work by the School’s faculty over three decades to fight not only AIDS, but also TB, Ebola, SARS, MERS, malaria, and, most recently, COVID-19. ICAP’s innovative approach grounds decisions in a deep collaboration with local organizations and communities. ICAP achieves its goals through research, collaborative technical assistance, and a focus on strengthening health systems. It helps to create high-quality and accessible health services that reach far and wide.

“ICAP’s work against infectious disease began as AIDS roared through sub-Saharan Africa; in 2001, three million people worldwide died from AIDS-related causes; 2.2 million of them in sub-Saharan Africa. In wealthier countries, HIV had been transformed from a death sentence into a chronic, manageable disease. Not so in Africa. “There were millions and millions of people living with HIV in poorer countries, particularly in Africa, who had absolutely no hope,” recalls Wafaa El-Sadr, MD, MPH ’91, MPA, founder and director of ICAP and director of Columbia World Projects. “They were going to die suffering because they had no access to treatments.”

With AIDS marching across the continent, El-Sadr realized she could apply lessons learned from her work in New York City’s Harlem Hospital in the 1980s and 1990s to combat stigma and distrust and deliver prevention and treatment. Her team launched the world’s first multicountry HIV care and treatment program. Initial efforts focused on families. (More than 2 million women with HIV in the region gave birth in 2002 and, despite the availability of antiretroviral treatments, about 630,000 infants were born with HIV.) Focusing on treatment bucked conventional wisdom. “People felt that we should only focus on prevention,” El-Sadr says. “And, essentially, that meant you were going to lose a whole generation, if not a full nation, to HIV/AIDS. I felt very strongly that if you don’t bring hope to people, how can you talk about prevention?”

Today, nearly two decades later, ICAP at Columbia University, the organization El-Sadr founded in 2003, works in more than 30 countries to respond to HIV, TB, malaria, and, most recently, COVID-19. ICAP’s innovative approach grounds decisions in a deep collaboration with local organizations and communities. ICAP achieves its goals through research, collaborative technical assistance, and a focus on strengthening health systems. It helps to create high-quality and accessible health services that reach far and wide.

“We’re challenging deeply ingrained norms of how health systems are structured, how health services are organized,” says El-Sadr, who is also a University professor and the Dr. Mathilde Krim-amfAR Chair of Global Health at Columbia Mailman School. “The commitment to bring the voice of the people to the table—that recipients of services must have a role in shaping those services—is a huge challenge to the existing norm.” El-Sadr also continues a tradition of the School’s commitment to the health of people around the world. “To really have a deeper impact on an individual’s health and well-being while taking into account the broader community, we have to think beyond the walls of clinics and hospitals,” she says.

Over the years, ICAP has added branches to its trunk. It has developed innovative strategies to train nurses, midwives,
laboratory workers, and researchers and create new models of care. “We’re not there to replace people or to do the work for the people on the ground,” says El-Sadr. “That’s not sustainable.” Working with the federal ministry of health in Ethiopia, ICAP trained more than 3,500 laboratory professionals and 2,400 healthcare professionals on managing malaria patients. Annual malaria-related deaths declined from more than 2,000 in 2012 to 374 just five years later.

While ICAP trained healthcare workers, CAPRISA, founded in 2002 by the Abdool Karims and four universities, including Columbia Mailman School, filled the urgent need for scientists who had a grounding in epidemiology and statistics and who could conduct studies with the necessary rigor to design and evaluate treatments in their native country. “That’s where the Columbia training became so important,” Quarraisha Abdool Karim says. “When they came back to South Africa, they were able to move from descriptive studies and risk factor studies to more high-level analytical studies and start designing and evaluating interventions.”

In 2010, the Abdool Karims published a paper proving that tenofovir gel used by women would prevent sexually transmitted HIV infection. *Science* lauded it as one of the top 10 breakthroughs of the year. CAPRISA marries understanding of the issues people face locally with robust and rigorous science. The Abdool Karims looked at tenofovir gel as a way women could be empowered to control their risk. “Everything we had available—abstinence, will he be faithful, male condoms—at that stage was all dependent on the cooperation of the male partner,” Quarraisha Abdool Karim says. “Given the power dynamics of age-sex disparate relationships, a key driver of new HIV infections, it’s not surprising that women couldn’t negotiate safer sex practices. That’s what inspired us to fill an important HIV-prevention gap for young women.”

Their research was controversial at the time. Trials of two other vaginal gels by other groups had failed. An article in *Nature* questioned the study’s design. But the Abdool Karims persevered, convincing their critics. “People still talk about that as a turning point in HIV prevention because it became clear to the world at that point for the first time ever that antiretroviral therapy could prevent sexual transmission of HIV,” Salim Abdool Karim says. “And, of course, today it’s so widely used globally.”

One way to stop an outbreak of infectious disease from becoming a pandemic is to identify and tamp it down before it has a chance to go global. Stephen Morse, PhD, a professor of Epidemiology and director of the Infectious Disease Epidemiology Certificate Program, recognized this more than 30 years ago when he coined the term “emerging infectious diseases” and began to help build a global surveillance system. He remembers Anthony Lake, the national security advisor during the Clinton administration, saying that infectious diseases were a national security concern. “There were people who scoffed at that, but we now see how devastating something like this can be, the effect on the economy, on travel and international relations,” he says.

W. Ian Lipkin, MD, director of CII, saw while still in clinical training in the 1980s that a lag in identifying HIV increased the death toll. This prompted him to look for faster ways to identify infectious diseases using genetic techniques. Now one of the foremost authorities on infectious agents, Lipkin has hopscotched the globe helping tamp down...
outbreaks over three decades, earning the title of the world’s leading “virus hunter” for revolutionary research that has transformed the speed at which health authorities identify and respond to emerging infections.

In 1999, Lipkin and his team discovered West Nile virus. They introduced the first sensitive diagnostic test for SARS in 2003, and in 2006 created the GreeneChip system, a glass slide containing 500,000 genes. It was the first tool to provide a comprehensive differential diagnosis of diseases, including those caused by viruses, bacteria, fungi, or parasites. The team pioneered 454 high throughput pyrosequencing in 2005 and used it to resolve outbreaks of encephalitis and hemorrhagic fevers. In 2014 they identified dromedary camels as the animal source for human MERS infection. And in 2015 they created a virome capture sequencing platform for vertebrate viruses (VirCapSeq-VERT), an inexpensive tool to simultaneously test for hundreds of viruses and provide a near complete sequence of their genomes. He and his team have discovered more than 1,800 infectious agents. When Lipkin began his work, it took years to identify a virus. Now, it takes hours.

In February 2020, working in CII’s high-security, pressurized Biosafety Level 3 laboratory, he and the CII team, including Nischay Mishra, PhD, assistant professor of Epidemiology, developed an antibody test for SARS-CoV-2 as well as a PCR assay that can simultaneously detect the influenza A, influenza B, and SARS-CoV-2 viruses. They later examined the therapeutic effect of convalescent plasma in the fight against COVID-19.

Now, with an eye to the future and support from the Skoll Foundation, CII is rolling out GAPP, a community of public health experts, laboratory and data scientists, and epidemiologists working together across more than 30 countries to build a comprehensive, evidence-based system for pandemic risk reduction. “Our dream is to build a global immune system to support the World Health Organization in infectious disease surveillance and rapid testing of diagnostics, drugs, and vaccines,” Lipkin says. “We are looking beyond COVID-19 to preventing future pandemics and to reducing morbidity and mortality from all infectious diseases.”

Innovation comes in many forms and, in recent years, Columbia Mailman School has continued to embrace the flow of research into creative programs to prevent and combat infectious disease and improve health. Professor of Environmental Health Sciences Jeffrey Shaman, PhD, has pioneered work developing systems to forecast infectious disease outbreaks in a changing climate, capabilities that will be increasingly important in the future. Broadly, he looks at how meteorology affects human health, notably the seasonality, survival, and transmissibility of influenza and the effects of heat and humidity exposure indoors.

Other researchers are exploring how social interactions influence prevention efforts. Gina Wingood, ScD, MPH, Sidney and Helaine Lerner Professor of Public Health Promotion in the Department of Sociomedical Sciences and director of the Lerner Center for Health Promotion, has developed gender-appropriate and culturally informed HIV prevention interventions for African American women. Her Sisters Informing Sisters about Topics in AIDS (SISTA) intervention began in San Francisco and is one of five HIV prevention interventions she has designed. It has been endorsed by the Centers for Disease Control and Prevention as a Tier 1 evidence-based intervention, and implemented nationwide. She recently published
a study showing that a series of weekend workshops integrating strategies for both reducing risky alcohol use and preventing sexually transmitted infections (STIs) led to an increase in safe sex and a decrease in drinking among young Black women. “This groundbreaking study illustrates the power of contextualizing issues of safe sex, alcohol use, and STIs, within the reality of young African American women’s lives,” she says.

Meanwhile, Dustin Duncan, ScD, associate professor of Epidemiology, predominately explores the disparities in HIV prevalence by turning to spatial epidemiology, looking at how neighborhood contexts and network characteristics influence the risk for HIV infection and prevention behaviors. To do that, he has created innovative ways to define and understand neighborhoods.

Duncan, co-director of the Social and Spatial Epidemiology Unit and director of the Columbia Spatial Epidemiology Lab, doesn’t define neighborhoods by ZIP codes and census tracts, but rather as activity spaces. In one study of cisgender young, gay, bisexual, and other sexual minority men in New York City, he found, by using GPS devices carried by participants, that increased spatial proximity to preexposure prophylaxis, or PrEP, clinics meant the men were more likely to take the biomedical intervention method. But that association showed up only when he and his lab looked at the activity space—where people actually go—versus what neighborhood they lived in. “Traditionally, in public health, we look at neighborhoods in a very crude way, where we miss people’s actual exposure to health and well-being,” he says. “Our work is trying to more rigorously and accurately estimate exposure. It’s unfortunate, but the vast majority of public health research doesn’t account for where people actually go and what they experience.”

Responding to an emerging infectious disease also requires up-to-the-minute data about what’s happening on the ground. Since 2014, Jessica Justman, MD, senior technical director at ICAP and associate professor of medicine in Epidemiology, has led the implementation of ICAP surveys into the prevalence of HIV in sub-Saharan Africa that have sampled 400,000 people to provide insight that helps guide national policies and programs. This work laid the foundation for COVID-19 surveys in the U.S. and around the world. Samples are collected in diverse public spaces such as bus stations, markets, and other busy commerce locations and are shedding light on the impact of the pandemic. “This type of sampling gives us a snapshot of what’s going on not just at hospitals and clinics, but in the community,” Justman says. “That’s a really different kind of picture.”

After a difficult year spent advising African governments (not to mention the leaders of New York City and Columbia University) on the COVID-19 response and supporting teams on the ground in countries around the globe, El-Sadr sees a silver lining in the pandemic, notably a better understanding about using data to focus prevention and treatment. “I firmly believe that there is now a deeper appreciation of public health and what needs to be done to achieve population health,” she says. “There’s also much more appreciation of the importance of engaging communities. COVID is shining the light on the disparities in our midst and on the work of those engaged in advancing the health of communities here and around the world.”

Jim Morrison has written about virus hunters, pandemics, and the intersection of climate and health for Smithsonian and Wired, among others.
28
Number of vaccine awareness public service announcements (PSAs) featuring Columbia University Irving Medical Center employees (including from Columbia Mailman School) created in partnership with the New York State COVID-19 Vaccine Equity Task Force. PSAs were broadcast on networks through the tri-state area and shared widely on social media.

6
Number of PSAs the School did in partnership with the cast and filmmakers of the movie Contagion.

1,124
Number of health facilities worldwide receiving COVID-19-related support from ICAP.

5
Number of videos created by CopeColumbia to provide insight into how to manage stress and anxiety during the pandemic and other difficult times.

600+
Number of students who joined volunteer organizations via the COVID-19 Student Service Corps (CSSC), sharing information on preventing the spread of the virus, tutoring children, helping to alleviate food insecurity, and otherwise supporting communities.

3
Level, on a scale of 1 to 4, of the Biosafety Lab at the Center for Infection and Immunity (CII) where W. Ian Lipkin, MD, Nischay Mishra, PhD, and a team of researchers developed their C3 test for SARS-CoV-2 infection. At press time, it had been used in the U.S. more than 7 million times.

3 million
Number of immune markers, covering proteins of all known human coronaviruses, used in CII’s HCoV-Peptide test, which can detect antibodies against all coronaviruses, including all SARS-CoV-2 variants, and can distinguish between immunity from infection vs. vaccination.

$35 million
Amount of funding from federal grants, foundation grants, and personal philanthropy that supported the School’s research.

1
Ranking, out of an estimated 7,000+ articles in Nature Medicine, of a paper published by Lipkin and co-authors on the origins of SARS-CoV-2, as of September 2021, making it the journal’s most cited article to date.

3
Ranking, out of an estimated 70,000+ articles in Science, of a paper by a team of Columbia Mailman School researchers, led by Jeffrey Shaman, PhD, professor of Environmental Health Sciences.

COVID-19, BY THE NUMBERS
From directing research that informs policy to volunteering in our communities, Columbia Mailman School faculty, staff, and students came together like never before to become leaders in the pandemic response.

By Alejandra Villanueva, MHA ’20
### Number of meetings of Columbia University President Lee C. Bollinger’s Advisory Task Force on COVID-19 held as of June 30, 2021

71

Dean Linda P. Fried, MD, MPH, and Wafaa El-Sadr, MD, MPH ’91, MPA, represented the School on the Task Force, helping to shape the University’s multifaceted response, including its health and safety protocols.

### Number of classes that urgently made the transition to online learning when the pandemic forced the campus to shut down in March 2020

274

### Number of Columbia Mailman School classes that can take place simultaneously on Zoom.

27

### Number of guest appearances by punk rock drummer Marky Ramone in Zoom classes held by professor of Epidemiology Andrew Rundle, MPH ’94, DrPH ’00.

2

### Number of Columbia Mailman School classes that can take place simultaneously on Zoom.

1,500

Number of questions about COVID-19 answered by the women scientists and health professionals behind Dear Pandemic/Querida Pandemia, a digital-media public service effort co-founded by assistant professor of Epidemiology Sandra Albrecht, MPH ’04, PhD.

### 31+

Number of community initiatives, including food relief efforts, public education outreach, and economic empowerment programs, that the School’s students, faculty, and staff took part in during the pandemic.

### $216,864

Amount raised by the School community for the Community Support Fund that helped students cover their expenses when they needed to rapidly move off campus after the shutdown began.

### $3.5 million

Additional cost of the pandemic to the School, which spent funds on cleaning, remote operations, the transition to online instruction, and pandemic-related financial aid, among other items.

### 1,450

Number of students who participated in online Commencement ceremonies in 2020 and 2021, completing their Columbia Mailman School degrees at a time when their expertise, leadership, and passion are especially needed.

### “This is a moment in which the School shines because the whole world is looking to public health for help in how to deal with this enormous crisis.”

Columbia University President Lee C. Bollinger speaking to Columbia Mailman School’s Board of Advisors about the School’s role in the pandemic response in October 2020

### Alejandra Villanueva, MHA ’20, is a hospital management fellow with the Trinity Health System in Albany, New York.
A CENTURY OF IMPACT

The world awakened to the power of public health research and education during the COVID-19 pandemic, but Columbia Mailman School has been a champion of public health—and the public good—since it helped create the discipline in 1922.

By Jesse Adams
Today, the Columbia Mailman School of Public Health is a global leader in education and practice, with over $250 million in sponsored research and projects in more than 100 countries. So it might be hard to envision our humble beginnings on West 59th Street a hundred years ago. An institution that began in a single room, with a single student, now has more than 16,000 alumni with state-of-the-art working worldwide to build a healthier and more just society. Ranked fourth nationally among schools of public health by U.S. News and World Report, the School has 378 multidisciplinary faculty members addressing prevention of infectious and chronic diseases, pandemics, environmental threats to health, food and food systems, reproductive health, maternal and child health, climate change and health, public health policy, and crisis preparedness, among other issues. Underpinning it all: a commitment to resolving health disparities around the globe and across the full life course. More than 1,300 graduate students from 55 nations are pursuing master’s and doctoral degrees, and the School is home to world-renowned academic departments and research centers, including ICAP, the Center for Infection and Immunity (CII), and the Robert N. Butler Columbia Aging Center.

To see how far the School has come, it helps to look back to the early years: the 19th century, when industrialization forced formerly agricultural workers into new depths of squalor and the emerging disciplines of sanitary science and bacteriology began to enable revolutionary reforms. Just before the 1866 cholera epidemic, New York City’s Metropolitan Board of Health became America’s first public health agency. While early public health achievements primarily involved protecting water supplies, ensuring safe disposal of sewage, and regulating foodstuffs, rapid advances in bacteriology quickly opened up new opportunities. In 1886, Columbia’s College of Physicians and Surgeons began offering courses in handling bacteria; not long afterward, New York City established the nation’s first diagnostic public health laboratory in an effort to combat diphtheria, known as “a plague among children.” The groundwork for a public health curriculum at Columbia was laid in 1903, when a university committee proposed a Department of Hygiene, Sanitary Science, and Preventive Medicine; while the plan wasn’t adopted, a popular lecture series was born, attracting hundreds twice a week.

In 1914, the Rockefeller Foundation, which was exploring how to address the nation’s increasing need for trained public health workers, invited several research universities to the table. Columbia arrived with a remarkably multidisciplinary pitch that integrated medicine, engineering, and social sciences. This proposal was not funded, but it gained new life when Columbia received a major gift from the estate of mining magnate Joseph DeLamar in 1918 amid the spread of a deadly “Spanish flu.” At last, in 1922, Haven Emerson, MS/MD (1899 P&S)—a former New York City health commissioner who later served as chief epidemiologist for U.S. forces in the First World War—was appointed head of a new Institute of Public Health under the College of Physicians and Surgeons. The Institute was situated in one room with, as Emerson would later recall, “the smells from the cadaver room coming up through the floors.” Columbia had created one of the three original schools of public health in the United States. It formally became a school in 1945 and in 1998 became the Mailman School of Public Health as a result of a visionary endowment in honor of Joseph L. Mailman.

The School has embraced the mission laid out by the Rockefeller Foundation over its first 100 years, creating the science to understand how to prevent disease, disability, and injury and to improve health for all, and working in partnership with policy and practice sectors to bring that knowledge to benefit the population and educate future leaders. In the century since its founding, through three locations and five names, the School’s devotion to creating the conditions in which all can be healthy has endured. Our hallmark strengths—world-leading science, a singular curriculum, our distinctive Washington Heights home, and our inexhaustible commitment to our city and to building a healthy and just world—have equipped today’s public health leaders and are nurturing the trailblazers of tomorrow.

Defining Public Health

The School’s growth would not have been possible without a series of forward-thinking leaders (to date, 11 Institute heads—later called deans) peering beyond the horizon and constantly pushing to advance public health science and education. Early on, the School pioneered the formal study of population health using methods from the social sciences. Its researchers were the first to employ on-site health examinations and sampling techniques as part of a population health study. In the late 1920s, Adelaide Ross Smith, MD, the School’s first female professor, studied occupational health issues, including exposure to lead, chromium, and benzene. As early as 1946, the School launched a degree in biostatistics. The School is now a leader in the field of data science for health.

The School’s faculty has also led innovation in reproductive health and maternal and child health. Dean Allan Rosenfield, MD ’59, developed innovative programs to create healthy and safe motherhood at global scale, including family planning clinics; closer to home, he established a continuum model for childhood and adolescent health that incorporated school-based clinics for New York City middle and high schools, and clinics for underserved young men and women.

In 1952, Norman Jolliffe, MD, an associate professor at the School, founded one of the first public health clinics to study the causes of obesity and methods of prevention. Two decades later, the School evaluated the first methadone maintenance program and launched the first survey of teenagers’ health problems. Pro- fessors Mervyn Susser, MB, BCh, DPH, and Ernest Gruenberg, MD, DrPH, FAPA, established the world’s first Psychiatric Epidemiology Training Program in 1967 with funding from the National Institute of Mental Health. In 2011, the School became home to...
the first academic program in climate and health in a public health school, which is looking more prescient with each passing season. A parade of firsts continued when, in 2019, the School launched its Program in Food Systems and Public Health focused on the intersection of public health and food access, policy, and advocacy. (For more firsts, unfold the page at right to read “Celebrating 100 Years of Public Health Leadership.”)

Pursuing Health for All

Students and faculty at Columbia Mailman School today describe a strong sense of collaboration and solidarity with others who embody the School’s credo, “Building a Healthy and Just World.” The School’s expertise and global networks have led to major progress on entrenched long-term health inequities. In New York City, research in collaboration with low-income, marginalized communities provided the basis for policies that promote health and equity, including low-emissions buses and speed cameras. The School’s Harlem Health Promotion Center as well as clinics it helped launch in Northern Manhattan and the Bronx have brought health services to individuals living with or at risk for HIV and to marginalized young men and women of color.

Throughout the School’s history, its researchers have studied and championed the health needs of at-risk populations. In 1985, Allan Rosenfield and colleague Deborah Maine, MPH, DrPH, published a landmark paper titled “Maternal Mortality—A Neglected Tragedy. Where Is the M in MCH?” The paper called on global health professionals and policymakers to address the mothers often forgotten in the maternal-infant health equation. Then they built the program to accomplish this globally, led by Lynn Freedman, JD, MPH ’90: AMDD (Averting Maternal Death and Disability). Children were not overlooked, however. Founded in 1998, the Columbia Center for Children’s Environmental Health works with community partners in New York City and internationally. Across departments and decades and time zones, faculty have worked to provide cleaner air and water, and environments free of chemical pollutants.

Fostering Scientific Discoveries

Research and scientifically developed evidence is the foundation for population health, and the Columbia Mailman School has, since its founding, pursued an agenda of innovative research to address critical and complex public health issues. In 1970, professor of Tropical Medicine John Frame, MD, was the first person to identify and characterize Lassa fever, a virus endemic to West Africa. In 2010, Quarraisha Abdool Karim, MS ’88, PhD, and Salim Abdool Karim, MS ’88, MD, PhD, both professors at Columbia Mailman School, published the CAPRISA 004 tenofovir gel trial, which provided proof of concept for the use of antiretroviral microbicides in the prevention of HIV and herpes simplex virus type 2 in women. Scientists at CII, led by renowned virus hunter W. Ian Lipkin, MD, developed methods to identify infectious disease threats, which have led to the discovery of more than 1,500 novel microbes and diagnostics for them. They orchestrated the response to SARS in 2003 and identified bats as the animal reservoir for the MERS coronavirus in 2013.

In times of crisis, Columbia Mailman School has proven its ability to pivot and find solutions: Its work on infectious disease identification and modeling was key to helping the world understand the COVID-19 pandemic. Around the world, ICAP, which created the world’s first multicity HIV program, has tested 42.8 million people for HIV and supported programs delivering HIV treatment to 2.7 million people. Founded and led by Wafaa El-Sadr, MD, MPH ’91, MPA, it quickly broadened beyond its initial roots in HIV work to fight tuberculosis and malaria, improve maternal and child health, and strengthen health systems in more than 30 countries.

Distinguished epidemiologist and geriatrician Linda P. Fried, MD, MPH, an expert in aging and health in our longer lives, became the School’s current dean in 2008 and is the first woman to lead the institution. During her tenure thus far, the School has launched a curriculum that has become a model for schools across the country, and established a range of new programs. These include the Climate and Health Program and its Global Consortium for Climate Health Education; the Program in Food, Food Systems and Health; the Lerner Center for Public Health Promotion; the Robert N. Butler Columbia Aging Center; and the Center for Injury Epidemiology and Prevention, among others. As the Columbia Mailman School moves into its second century, we’re more ready than ever to promote and protect public health. And bigger, better triumphs are within our reach. Join us in commemorating our past, and in working together to create an even healthier future.

Our mission is to educate the next generation of public health leaders, conduct groundbreaking discovery, and deliver solutions to protect and improve the health of people everywhere.

Jesse Adams has chronicled Columbia University past and present from the schools of journalism, law, and engineering. He previously wrote for Bill Moyers on PBS.
BUILDING A HEALTHY AND JUST WORLD FROM THE INSIDE OUT

The School’s commitment to ensuring that all people have the opportunity to be as healthy as possible began long before the pandemic and the protests surrounding the killings of George Floyd, Breonna Taylor, and others. On and off campus, the pursuit of health equity is providing the foundation for new thinking and the kind of activism required right now.

By Paula Derrow
When the guilty verdict in the trial of George Floyd’s killer came down on the afternoon of April 20 earlier this year, Robert Fullilove, EdD, was right where he wanted to be: on 169th Street between Broadway and Fort Washington Avenue, at the heart of the institution and community where he has worked for 30 years. For longtime activist Fullilove, the Columbia Mailman School of Public Health’s associate dean of community and minority affairs, the verdict brought other trials to mind, trials with less just endings. “I was in Mississippi in 1964 when three civil rights workers were murdered,” he says. “But seeing everything that has happened as a result of George Floyd’s murder—that gives me hope for a world not dominated by white supremacy, hope that we know the difference between right and wrong.”

Fullilove’s optimism extends to the School, where change is afoot, rooted in the long-standing commitment of students, faculty, and staff to ensuring health equity and dismantling structural racism. At issue is the very question of what public health should be, what health equity means, how it is hampered by structural racism, and why it is so crucial to educate students in the principles of anti-racism. “In many schools, public health is viewed as a purely technical exercise. That’s not true here,” says Merlin Chowkwanyun, PhD, MPH, Donald H. Gemson Assistant Professor of Sociomedical Sciences (SMS). “As we’ve seen with COVID-19, you can’t separate politics from health. Public health is a political exercise.”

Columbia Mailman School leadership, faculty, staff, alumni, and, especially, students, are all in, helping to drive change, making the school more equitable while also actively battling inequities in the Washington Heights and Harlem communities and beyond. Yvonne Hou (‘22), an MPH student in the Department of Epidemiology and the diversity and inclusion chair for the Graduate Student Association, says her interest in public health and medicine was sparked by volunteering in the emergency room at Bellevue Hospital, where most patients were people of color. “That’s where you truly see that there is a gap in healthcare, and when I began to understand what systemic racism really is,” she says.

That understanding deepened at the School. “A lot of students know racism exists. We want to change the world, but we don’t know how to do it, because we don’t have the context,” says Hou. The School, she says, provides that context. “As part of the Core program for a master’s in public health, we learned about the history of the field of public health, especially as it relates to racism,” says Hou. “That’s one way the School is equipping students with the tools we need to implement change.”

Besides attracting students interested in looking beyond the traditional boundaries of public health, Columbia Mailman School is known for faculty who take a broader view of the field, not focusing solely on numbers and analyses. “We are as much imbued with a passion about using public health to remedy the inequalities that exist in the culture as we are about sophisticated cohort studies,” says David Rosner, PhD, Ronald H. Lauterstein Professor of SMS and co-director of the Center for the History and Ethics of Public Health. “We are meant to be talking to the world, not just to each other.”

Among the instruments of change are Columbia Mailman School’s Office of Diversity, Culture, and Inclusion (ODCI) and the School’s FORWARD (Fighting Oppression, Racism, and White supremacy through Action, Research, and Discourse) anti-racism initiative. Both are helping to train students like Hou to consider health equity from the get-go. “I’m involved in FORWARD’s Curriculum Corps,” says

Students at Commencement in 2018 wore sashes from Columbia Mailman School’s first Students of Color Graduation Celebration. Photograph: Diana Gazzia
Hou. The Corps has recommended changes to teaching and the curriculum. “The School has given me a chance to be a leader. Racism is systemic. There’s no quick fix, but the School is trying to implement a sustainable approach.”

Indeed, as alumni, students like Hou go on to redress health inequities and consider social determinants of health in their careers at nongovernmental organizations (NGOs), government entities, the Centers for Disease Control and Prevention, and health departments at national and local levels. “In a sense, it doesn’t matter where you end up working—whether for an NGO or in consulting—so long as you bring a certain spirit and an equity-and-social-justice lens to what you do,” says Chowkwanyun. “Our students tend to graduate with a greater sense of commitment to these principles.”

Pipelines to a More Inclusive World

Many Columbia Mailman School students and alumni have experienced inequities themselves. Some came to the School through the Biostatistics Department’s BEST program and the Environmental Health Sciences Department’s PrIMER pipeline program, both of which help to educate populations that are historically and presently marginalized. The BEST program, which stands for Biostatistics Epidemiology Summer Training, is expressly meant to “create a pipeline to public health” for undergraduate students who may not have even heard of biostatistics, much less dream of going into the field. “BEST was started in 2008 by two DrPH students who didn’t see anyone in the department who looked like them,” says program director Justine Herrera. Now, every summer, the Columbia Mailman School trains 12 to 14 students for eight weeks, including students of color, or those who are from economically challenged backgrounds, or who may have disabilities, or who are the first in their family to go to college. During the program, each student is closely mentored by a faculty member from Columbia Mailman School or Columbia University Irving Medical Center. The goal, says Herrera, is to encourage these students to go into public health, ideally at Columbia Mailman School.

According to BEST founder Melissa D. Begg, ScD, now dean of the Columbia School of Social Work, of the 110 students who have attended BEST since 2008, 75 percent pursued graduate school or are working in the quantitative sciences and related areas. Out of those students, 25 percent have received or will receive their degrees from Columbia Mailman School. Those kinds of numbers will make a big impact on the field. “Extensive evidence reveals that as teams become more diverse, they also become more creative and effective,” says Begg. It stands to reason, then, that “a more diverse scientific workforce will lead to more relevant research and better population health outcomes.” The BEST program and its sister PrIMER program in the Department of Environmental Health Sciences (a two-year paid research internship for marginalized New York City high school juniors and seniors) are also focused on dismantling barriers, particularly the financial impediments that come with the cost of attending a private institution like Columbia. All students who finish the BEST program and matriculate in the MPH or MS program at Columbia Mailman School are eligible for a special scholarship, currently $10,000 per year. “This is a sign of how much the school supports the program and wants these students to be and feel part of our community,” says Herrera.

Adds Fullilove, “Columbia Mailman School has been open to reengaging populations that used to be rejected. We no longer regard these people as automatically excluded.” Case in point: the School’s
collaboration with the Bard Prison Initiative (BPI), which offers incarcerated individuals the chance to earn an undergraduate degree from Bard College. Fullilove is a senior advisor to BPI where he teaches public health, and he likes what he sees. “Six formerly incarcerated individuals are now in a public health graduate program or are working in the field or in the community, doing great things,” says Fullilove.

And the pipeline will continue to broaden. “There are opportunities to start identifying middle school students for pipeline programs,” says Charles Branas, PhD, Gelman Endowed Professor of Epidemiology and chair of the Department of Epidemiology. “When you look at the challenges facing underserved communities with COVID-19, it’s clear that pipeline programs for younger kids could eventually contribute to solutions.” Programs for students at community colleges are another possibility. “There is a huge opportunity to find the best and the brightest who would otherwise not have considered a career in public health,” he says.

These initiatives add up, shaping into what Dean Linda P. Fried, MD, MPH, calls one of the roles of great universities: “to educate the future leaders who will build a thriving society with a foundation of health for all.”

A New Definition of Diversity

That’s also a key goal of Raygine DiAquoi, EdD, assistant dean of ODCI and assistant professor of SMS. ODCI was established in 2016 to help build a culture of inclusion and equity at the school. “That means analyzing and making changes to our long-term practices, such as requirements for entry that may be denying students opportunities,” says DiAquoi. “We are the gatekeepers, and we don’t want to replicate the structures that have been purposefully keeping students out.”

DiAquoi is thinking about everything from how to define the word “diversity” to how the School continues to take specific actions to become an anti-racist institution. “Diversity to me is not just about numbers around race and income,” she says. “Diversity also speaks to the climate and culture of a place. When I see students who are not the ‘onlys’ in classrooms, seminars, and study groups and those students are thriving, are feeling truly mentored, connected, valued, respected, and welcomed here, then I’ll know we are moving toward where we need to be.”

And things are moving. Soon after ODCI was established, the office, jointly with Fried and the Office of Education, invited students, staff, and faculty to be part of a task force to develop recommendations for faculty and student recruitment and retention efforts, as well as community engagement and curriculum. In 2017, ODCI, in partnership with the Office of Education, launched the Faculty Inclusive Institute for faculty members to explore inclusive pedagogy. Then, in 2018, the office debuted the RISE (Resilience, Inclusion, Solidarity, and Empowerment) Peer Mentor Program, in which incoming students of color and first-generation graduate students are paired with second-year student mentors of similar backgrounds. Since then, ODCI has led trainings and workshops for departments, centers, and hiring committees. And it has partnered with departments to closely examine and revise practices that contribute to the maintenance of structural inequality at the School.

In 2019 and 2020, Fried, in collaboration with Fullilove, ODCI, and others throughout the School, led a yearlong effort, via guest speakers and special lectures, to explore how threads of this country’s history of slavery and racism are woven in and through every aspect of our present and to use that understanding to identify more effective solutions. Chowkwanyun is proud of the speakers he brought this past year to the Sophie and Alex Rosner seminar series, including labor leader Sara Nelson, who is the international president of the Association of Flight Attendants, and New York state Sen. Julia Salazar, who has been instrumental in pushing for tenant protections. “It was important to me that the series reflect the student body, which is mostly women and people of color,” says Chowkwanyun.
This fall, the School is offering a series of seminars on anti-racism public health practice that were suggested by a committee of faculty, staff, and students. This series is situated within the MPH Core Curriculum, taken by all 500+ first-year MPH students, and is also open to the larger school community.

Looking FORWARD

Columbia Mailman School students are doing extraordinary things themselves, including during the summer of 2020, when the School’s Black and Latinx Student Caucus advocated for greater focus and investment in anti-racism efforts through FORWARD. FORWARD is no temporary task force charged with writing a report, then calling it a day. It’s a permanent advisory board to the dean, powered by 120 students, faculty, staff, and alumni, working to create real change within the School—and to continue creating it, in successive waves.

How it works: Ideas are generated by four all-volunteer Action Corps, then shared with an Accountability Cabinet led by co-chairs DiAquoi and Branas. The Cabinet then makes recommendations to the dean to implement the ideas that will have the most impact toward helping Columbia Mailman School become an anti-racist community, working in an ongoing, focused way to develop solutions, measure success, and be accountable for progress.

Already, initiatives born of FORWARD are underway, including the Curriculum Corps, which is conducting a review to ensure the curriculum is grounded in equity principles and anti-racism. And the School has provided stipends for financially deserving students to take otherwise unpaid summer practica (essentially internships) in the community. The anti-racism workshop series will be required for all incoming students starting this fall. Notes DiAquoi, “It’s been amazing to see how we now speak to each other as an institution about inequities instead of all of us being separated in our own silos and departments. There is now a shared lexicon and thinking around anti-racism.”

An Ethos of Activism and Science

Of course, Columbia Mailman School also has a long history of activism around health and health inequities that started long before the summer of 2020. That history is part of what drew Chowkwanyun to the School in 2015 to work at its innovative Center for the History and Ethics of Public Health. “The heart of public health tends to be very quantitative,” Chowkwanyun says. “But one thing our Center does is to put those numbers into a larger political context. A lot of today’s racial inequality has long roots, and decisions made nearly a century ago have consequences we feel today,” he says. “That’s why it’s so important to understand policies that reduce or create racial inequality.”

Rosner points to the Black Lives Matter movement, which has forced us to acknowledge the problems we’ve had in the past, as well as to continue to ask questions and define what public health is and what it should be. “For instance, should public health protect or advocate for the public or just do good studies?” he asks. In the end, Rosner says, it comes down to “the social structures built around racist assumptions like ‘poor people don’t need the same doctors as the rich do.’ These are relics of an unequal society, and that’s what we in public health—and at Columbia Mailman School—are wanting to address.”

Adds Kathleen Sikkema, PhD, chair of the Department of SMS and Stephen Smith Professor of SMS: “We are guided by science-based advocacy. That’s potentially the most effective kind of advocacy—using science to move beyond a belief or a mission to action.” She says, “What we do in SMS, what we’ve always done, is address social influences in public health that contribute to health disparities.”

The roots of this approach at Columbia Mailman School, explains Rosner, go back to the late 1920s and 1930s, when social reformers and activists like Adelaide Ross Smith, MD, who published a study in 1929 with Columbia’s School of Public Health on the lung disease silicosis, began to notice that people were starting to die of
“working class diseases” from the factory. Smith was followed by people like Jack Elinson, PhD, a pioneering sociomedical scientist and statistician who established the SMS Division of in 1968, amidst the tumult of the Vietnam War and the assassination of Martin Luther King Jr. “Social issues such as socioeconomic status and race had not been applied to health before,” says Sikkema.

From Within to the World Beyond

Part of the School’s history also includes the sometimes fraught relationship of Columbia University to Harlem and Washington Heights. “There are great ideas in the community about how to make things better for people’s health and safety,” says Branas. “Academics often think they know best, but things often emerge at the grassroots, community level without us, and we need to be shoulder-to-shoulder with the folks who are living and working nearby.”

Ideally, that tension can also lead to good things. “Washington Heights and Harlem have long been hotbeds of social reform, civil and immigrant rights, and tenant activism,” says Chowkwanyun. “That energy flows over into the school.”

Adds Fullilove: “We are turning our talented students on to what’s going on in the community, and they and our faculty are actively engaged.” Like Fullilove and many other Columbia Mailman School faculty, along with the school’s leadership, Chowkwanyun welcomes students’ political engagement. “Our students are not only here to learn things in the classroom and in textbooks,” says Chowkwanyun. “They have their ears to the ground. That’s a great thing.”

Because, ultimately, it’s the students who will go out into the community and the world, shaped by the turmoil of these past few years—as well as by Columbia Mailman School’s long-standing mission of science-backed health advocacy. One of them is Ibrahim (Bryan) Konaté, MPH ’20. Konaté was active in student-government leadership during his final year at the School and is now a clinical research coordinator at a New York City hospital system. “I’m hopeful that in 100 years, when the School is reflecting on its bicentennial, that we’ll say that the past year really did change a lot of things,” he says. Going forward, “we’re going to make the leadership of public health look a lot like the communities we’re working in.”

“…”

Paula Derrow has worked and written for national magazines, nonprofits, and academic institutions. Her work has been published by The New York Times, Real Simple, Tablet, and Refinery29.

“We are guided by science-based advocacy—using science to move beyond a belief or a mission to action.”

Kathleen Sikkema, PhD

Robert Fullilove, EdD, leads a community walk during orientation. Photograph: Suzanne Shrekgast

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THE SCHOOL AND THE CITY

A century of partnership has elevated both Columbia Mailman School and the multidimensional metropolis it calls home.

By Caroline Hopkins
Wearing backpack air monitors and carrying digital counters, 17 teenagers scattered throughout Harlem to chart street-level diesel fuel emissions and count diesel buses, diesel trucks, cars, and pedestrians. It was July 1996. The interns, all residents of heavily polluted Northern Manhattan, were dubbed the “Earth Crew.” And they had a personal stake in the goal of their mission: to curb diesel pollutants in the neighborhood. The study—spearheaded by the West Harlem nonprofit WE ACT for Environmental Justice, designed by the Columbia Mailman School’s Columbia Children’s Center for Environmental Health (CCCEH), and largely executed by the Earth Crew and Columbia Mailman School students—revealed particulate matter and elemental carbon concentrations far above the Environmental Protection Agency’s standard. Paired with research showing high rates of asthma in Harlem and evidence linking asthma with pollution, it corroborated what many in the neighborhood, including WE ACT’s co-founder and executive director Peggy Shepard, could see: New York City’s diesel buses were harming Harlem’s health.
Through partnerships with advocacy groups like WE ACT, government bodies like the New York City Department of Health and Mental Hygiene (DOHMH), and community members, the Columbia Mailman School has cultivated a symbiotic relationship with the vibrant city it calls home. Grounded in the goal of reducing health disparities, the School’s researchers and students work in a uniquely dynamic setting, with the city as their lab. The diverse population allows a look at myriad health challenges.

And the city benefits. The School’s experts have a direct line of sight into pressing public health problems and provide evidence-based paths to solve them. For the School and its neighbors, collaboration means close personal relationships, deep trust, and the understanding that neither could achieve its goals without the other. “By partnering with community groups who have loud voices, we can get momentum and the ability to initiate change that we would not have by ourselves in our labs,” says Julie Herbstman, MSc, PhD, associate professor of Environmental Health Sciences and CCCEH’s director. “In return, we give information back to community members and say, ‘We learned this because of your participation. Here’s how to make your community healthier and safer.’”

WE ACT and Columbia’s Earth Crew study, along with the “Dirty Diesel” campaign that WE ACT launched incorporating the findings, compelled city transit officials to update the bus fleet from diesel-powered to natural gas, low-sulphur, and then hybrid-electric vehicles. WE ACT’s Shepard joined Columbia Mailman School’s Board of Advisors in 2020, and the partnership continues. “The goal of our research is impact,” Herbstman says. “Especially in an environmental health sphere, you can’t do this work effectively without partnerships.”

The DOHMH partnership dates back to the early 20th century, when the School—then the DeLamar Institute of Public Health—provided training to state and city public health officers. The DOHMH, in turn, has given students and researchers opportunities to apply their work in a real-world setting with tangible impact. “The collaboration has benefited the health of generations of New Yorkers,” says former DOHMH commissioner Oxiris Barbot, MD, who served on the School’s Board of Advisors and is now an adjunct assistant professor of Population and Family Health. “The work of staying on the leading edge of public health is what makes this partnership so dynamic and fruitful.”

The City as Partner

The New York City DOHMH has also been a critical partner over the School’s hundred-year history. The School’s evidence-based research has guided city services and its skilled graduates have bolstered the health department’s workforce.
Over the years, thousands of alumni have gone on to serve the city; nearly half the School’s 2020 graduating class took jobs in New York City after graduation, and government service was second only to hospital administration as the most common field. It is a tradition that the commissioner of the New York City DOHMH serves on the School’s Board of Advisors, and nine commissioners, to date, have come out of the School.

From the outset, the School’s relationship with what is now the DOHMH was close (so close, in fact, that the two have shared a building on 168th Street since 1939, and the School’s first director, Haven Emerson, MS/MD (1899) was the former health commissioner). As the DOHMH’s programs expanded, so did students’ involvement. On the seventh floor of their shared building, students in the 1940s analyzed specimens in the department’s Tropical Disease Clinic and Diagnostic Laboratory. “A close relationship between the staff of this clinic and that of the School is of mutual benefit in research, teaching, and service,” reads a 1945 announcement from the School’s archives. The city’s children and families benefited from that relationship in 1972 when Barbara Barlow, MD, and Leslie Davidson, MD ’78, launched the “Children Can’t Fly” program with the health department; it persuaded the city to require window guards in the homes of children under 10 and reduced childhood deaths from window falls by 96%.

The School–city partnership took on new urgency during the HIV/AIDS epidemic, when researchers from the School teamed up with the Mayor’s Office of AIDS Policy Coordination and the DOHMH to identify the needs of New Yorkers affected by HIV. In 1994, the School launched the Community Health Advisory & Information Network (CHAIN) project. To date, it has generated over 200 reports based on some 12,000 interviews with 3,000 people living with HIV in New York City and the tricounty region. Angela Aidala, PhD ’80, a research scientist in Socio-medical Sciences, leads the team and works with the DOHMH and community partners. “Our goal has been to conduct rigorous research to assess the overall system of care informed by the voices and lived experience of people living with HIV,” Aidala says. “CHAIN has been a major source of data for service planning, and it was collaborative from the beginning.”

CHAIN exposed significant housing and food insecurities. At one point, based on a presumption that food services were sufficient, the HIV Planning Council considered reducing funds for food assistance for persons with HIV. Advocates, including those from God’s Love We Deliver, which provides medically tailored meals, pushed back. CHAIN documented that, while many people with HIV received some food assistance, programs seldom addressed all needs or provided nutrition critical for people with chronic illness. The findings helped catalyze the Food Is Medicine Coalition, a group of registered dietitians and nutritionists, policy advocates, and food service organizations promoting access to medically tailored meals. Aidala notes: “We’re not just doing research that ends up on a shelf.”

The School’s researchers also played key roles in the wake of the September 11, 2001, terrorist attacks. Sandro Galea, DrPH ’03, “By partnering with the community groups who have loud voices, we can get momentum and ability to initiate change.”

Julie Herbstman, MSc, PhD
published the first study in his extensive research on the mental health consequences of 9/11 just a year after the tragedy, while he was a doctoral student at Columbia Mailman School (he is now dean of the Boston University School of Public Health). The School’s researchers have gone on to track long-term health behaviors among those affected, including binge drinking in adults and alcohol and cigarette use among adolescents. Steven Stellman, MPH ’92, PhD, professor of Clinical Epidemiology at the School, also served as research director of the World Trade Center Health Registry and is currently a consultant to the registry, a cohort study of over 71,000 community residents, Lower Manhattan area workers, and rescue and recovery workers.

Community Input, Mutual Trust

Partnerships that promote public health are impossible without community participation, and the School has long fostered these relationships. Beginning in the 1970s, the Department of Population and Family Health ran two programs in Washington Heights attended primarily by immigrants from the Dominican Republic who were coping with cultural differences in their new home. Salud Familiar (called “Parent Family Life and Holistic Sexuality” in English), led by Aurea Martinez, senior staff associate, taught parents how to communicate with their teens and how to counteract myths on sexuality. Meanwhile, teenagers could attend Teatro HEY (Health Education for Youth), led by program director Yvonne Carretero. The acting program used peer mentoring to address sexually transmitted disease, mental health, racism, bullying, and other topics. Over two-plus decades, they touched the community they served. “I still walk through the neighborhood and people who were in those classes speak to me and share their memories,” says Ingrid Carretero, Yvonne’s daughter, who has worked in several departments at Columbia University for 30 years.

In the mid-1990s, community-based interviewers, themselves Harlem residents, shaped the influential Harlem Household Survey. Robert Fullilove, EdD, now associate dean for Community and Minority Affairs and professor of Sociomedical Sciences, and his then-wife Mindy Fullilove, MD ’78, now a professor of Urban Policy and Health at the New School, along with other researchers, conducted the survey to chart health conditions, behavioral risk factors, preventive health measures, and drug use among a diverse and representative sample of 695 Harlem residents.
Census maps at the time were known to undercount households in low-income communities where, for example, telephones weren’t a given. The study’s findings painted a more complete picture, in part because of the mutual trust stemming from the decision to use community-based interviewers. Rates of self-reported drug use were higher than in other surveys of the same neighborhood, reflecting the value of this trust. The survey achieved a 72 percent participation rate—high for this type of research—and underscored the need for the city to address sobering health disparities.

Bidirectional Education

While Columbia Mailman School–led research has supported decades of improvements in New York City public health, the city has provided rich opportunities for students. Each year, John Santelli, MD, MPH, professor of Population and Family Health, brings his class to visit George Washington High School’s school-based health center that was itself the result of a multi-stakeholder partnership. The center is one of seven serving 23 public high schools in Harlem, Washington Heights/Inwood, and the Bronx that provides students with services including physicals, immunizations, stress management, pregnancy prevention, dental care, and psychiatric care. The program stems from the School’s collaboration with Columbia’s Vagelos College of Physicians and Surgeons Department of Pediatrics, NewYork-Presbyterian Hospital, the city’s Department of Education, and the DOHMH. “A school health center has to be a coalition effort,” Santelli says.

To validate the centers’ value—and secure continued city support—Santelli and colleagues published research in the Journal of Adolescent Health detailing how these centers bypassed students’ barriers to healthcare, such as transportation, finances, and lack of awareness, improving their well-being and educational opportunities. “When people look at the efficacy of school-based health centers, they cite our research and the Columbia-Presbyterian model,” he says.

The annual class visit to one of the centers complements Santelli’s classroom lessons. “We teach people about the importance of rigor and strong science, but we also teach them about the application of those ideas to the world. That is the essence of good public health education,” he says.
Deep Bonds, Continued Impact

After 100 years of partnership, Columbia Mailman School and its collaborators continue to tackle New York City’s most pressing health challenges, most recently COVID-19. Through ICAP, researchers ran Harlem- and Bronx-based sites for COVID-19 vaccine trials, and during the initial vaccine rollout, Fullilove and ICAP director Wafaa El-Sadr, MD, MPH ’91, MPA, fielded questions and dispelled myths about the vaccine through community events.

Beyond the pandemic, Sociomedical Sciences professor Diana Hernández, PhD, has been spearheading research in partnership with residents in the South Bronx community where she grew up, highlighting an urgent need for energy efficiency upgrades in low-income housing. The high cost of outdated utilities, her research has shown, can affect health needs like lighting, cooking, and heating. Meanwhile, Health Policy and Management professor Peter Muenning, MPH ’98, has been working with elected officials and community leaders on a plan to cover the Cross Bronx Expressway with green spaces as a means to control pollution.

And at the Harlem Health Promotion Center, which is directed by Alwyn Cohall, MD, professor of Sociomedical Sciences and Population and Family Health, the School collaborates with community organizations, Columbia University Irving Medical Center, the DOHMH, and the New York State Department of Health to reach residents in Harlem and citywide with innovative service, education, health promotion, and research programs. To Cohall, the Center’s longevity ensures value to both community members and researchers. For example, its service component, Project STAY (Services To Assist Youth) launched in 1990 to provide tailored care to young people living with or at risk for HIV. The program has helped thousands of youth access care, trained countless students from public health and other disciplines, and provided the framework for community participatory research studies. The center is deeply ingrained in the Northern Manhattan community and has partners throughout the city. As Cohall has seen firsthand, mutual trust takes decades to build. “Many times, health professionals get some money, go into a community, do a project, and then leave once funding runs out, and the community is left holding the bag,” he says. “Columbia Mailman School is really saying, ‘We’re going to be here for the long run. We see you not as subjects, but as partners. We got you.’”

“Columbia Mailman School is really saying, ‘We’re going to be here for the long run.’”

Alwyn Cohall, MD (above)

Science and health reporter Caroline Hopkins is a 2019 graduate of Columbia Journalism School.
The generosity of philanthropists has brought innovative programming, life-changing research, and talented students to the Columbia Mailman School of Public Health. Donors ensure that the School is at the forefront, whether it’s tackling the climate crisis or COVID-19. “Public health is front and center these days,” says Dean Linda P. Fried, MD, MPH. “But when times are good, the public often forgets about the role our field plays in keeping us healthy and giving us a better quality of life. I’m grateful to our funders who never forget why we need to invest in public health.” Get to know some of our donors and you too will be inspired.

By Nancy Averett
During her 14 years on the School’s board, including as vice chair and Executive Committee member, Betsy Williams, MPH ’03, has brought her passion for international public health and her family’s legacy of catalyzing philanthropy to advance humanity. When she enrolled for her MPH, she was already committed to health and human rights, having worked at the South African Truth and Reconciliation Commission and Physicians for Human Rights. She lived with her grandmother, philanthropist Norma Hess, in Manhattan, and they had dinner together every night. Williams’ observation that students didn’t have a common space where they could bond led to one of the family’s first gifts: Hess Commons.

Williams’ support has continued. Not long after she graduated, her family’s foundation endowed the Leon Hess Professorship in Environmental Health Sciences, named for Williams’ grandfather. They contributed to the Allan Rosenfield Scholarship Fund in honor of the former dean and Williams’ personal mentor, and she created a scholarship fund to honor her late friend Judson Wolfe.

But Williams is most proud of how she has championed the work of Wafaa El-Sadr, MD, MPH ’91, MPA, to address access and equity in global health, including the critical response to the 2014–2016 Ebola outbreak in West Africa. “It was a personal mission for me to endow Wafaa’s chair,” she says, and her leadership was essential. Having worked with the Liberian Ministry of Health and Social Welfare, she knew the impact the research could have. Williams leveraged funds from the Hess Foundation and the American Foundation for AIDS Research (amfAR) to endow the chair named after amfAR’s founder, Mathilde Krim, PhD.

Today, Williams co-chairs the nonprofit she founded with former Liberian President Ellen Johnson Sirleaf, Emerging Public Leaders, to foster competent and ethical civil servants among Africa’s best and brightest. “I joined the Board when I was deeply ensconced in public health,” she says. “Today it’s my link to public health. It’s where I still get to think about public health deeply, and that’s important to me.”
Phyllis Mailman and her children, Josh Mailman and Jody Wolfe, were at an impasse in how best to honor their late husband and father, Joseph L. Mailman. Then serendipity led them to pledge an extraordinary $33 million to Columbia’s School of Public Health. Their endowment gift, made in 1998, was at that time the largest single philanthropic donation ever made to a school of public health. “It was a very exciting idea to be able to name an important school in an important city after this man for whom we had such regard,” says Phyllis Mailman. She had been unaware of the difficulty that public health schools have trying to build endowments until one of her lawyers had lunch with then-Dean Allan Rosenfield, MD ’59. Rosenfield laid out the problem: Public health graduates do lifesaving work but they don’t get rich doing it, so creating an endowment from alumni is slow going. The Mailmans were intrigued. Public health’s population-level focus, which touches on everything from clean water to vaccines to maternal health, was something they could all get behind. “We discovered that the myriad disciplines within public health resonated across our collective generations,” says Jody Wolfe, president of The Mailman Foundation.

She, her mother, and her brother—all long-serving members of the Board of Advisors—also knew the family patriarch would approve. Joseph Mailman had a broad sense of equity and fairness that would have extended to public health, according to his son. “It’s not just about who can afford the best medical care,” says Josh Mailman. “It’s about having a healthcare system that can cater to all. It speaks to his interest in promoting a fair society.” A prominent businessman, Joseph Mailman gave generously to many causes, especially in health and education, and, as a young man, he actively assisted families in escaping Nazi Germany prior to World War II. “He went above and beyond,” says Phyllis Mailman. So did the Mailmans’ gift. By making their donation contingent upon acquisition of a dedicated facility, the family paved the way for the move to 722 W. 168th Street, a 200,000-square-foot building with sweeping views of the Hudson River.

And the family has given generously ever since. “Oh behalf of the entire school, I am deeply appreciative of the visionary leadership of the Mailman family,” says Dean Fried. “Without their foundational support at a key time in the School’s development we would, quite literally, not be where we are today.”
FUNDING THE GLOBAL HIV RESPONSE

AIDS was the leading cause of death worldwide among people ages 15 to 59 when, in 2003, eight foundations answered the call to fund ICAP at the Columbia Mailman School of Public Health. Their goal was to tackle an untenable inequity: People living with HIV in wealthier countries had access to lifesaving treatment, while others had no such hope. At that time, many thought that it would be impossible to bring life-saving medicines to resource-limited Africa. But donors stepped up to support the effort. The Bill & Melinda Gates Foundation, William and Flora Hewlett Foundation, Robert Wood Johnson Foundation, Henry J. Kaiser Family Foundation, John D. and Catherine T. MacArthur Foundation, David and Lucile Packard Foundation, The Rockefeller Foundation, and The Starr Foundation invested their confidence and funding that enabled Wafaa El-Sadr, who founded and has led ICAP since its inception, to make treatment a reality for families affected by HIV—setting the stage for further scale-up to reach millions in Africa and around the world. “Again and again, we heard the word ‘no,’” El-Sadr once said while describing the all-too-common response to her plan, but “these forward-thinking foundations said ‘yes.’”

Transforming Maternal Health

In 1985, one year before he would become dean of the School of Public Health, Allan Rosenfield, MD ’59, and his colleague Deborah Maine, DrPH, published a seminal piece in The Lancet challenging the conventional belief that prenatal and preventive care were the best tools to avert maternal deaths during pregnancy and childbirth. Instead, they argued that women in many parts of the world were dying because they lacked access to medical care and emergency obstetrical services—someone trained to do cesarean sections, administer blood transfusions, or treat preeclampsia. That article helped convince the Bill & Melinda Gates Foundation to give the school its single largest contribution to date: $50 million in 1999 to support an international health program to prevent maternal deaths. Today, the Gates Foundation—the School’s largest donor overall, having given over $130 million in total—continues to support the School’s Averting Maternal Death and Disability (AMDD) Program, which has collaborated with United Nations agencies, nongovernmental organizations, and governments in more than 50 countries in Asia, Africa, and Latin America. It also supports the scholarship of Lynn Freedman, JD, MPH ’90, who directs AMDD, and who has brought a human rights focus to the issue of maternal and newborn health. “The funding supported our efforts to link our fairly nuanced and broad-based conceptual understanding of human rights with our very practical, on-the-ground approach to maternal mortality,” said Freedman. “In recent years, that has led to the development of the field now called respectful maternity care, which seeks to eradicate disrespectful and abusive treatment of women during birth and to build a health system—indeed, a social and political system—that supports and values the dignity and well-being of every person giving birth.” Her continuation and expansion of Rosenfield and Maine’s early work in maternal health shows the long reach of philanthropic donations.
Transforming Approaches to Incarceration and Gun Violence

Leonard and Claire Tow grew up in working-class Brooklyn. Later, after successful careers as pioneers of the cable television industry, they focused their philanthropic efforts on funding medicine, culture, and higher education. “Claire and I came from very low-income environments,” says Leonard Tow, MA ’52, PhD ’60, a member of the School’s Board of Advisors. “Material plenty was not something we knew. But life, somehow, provided us with surpluses that we contribute to others.” When their children—Emily, Frank, and Andrew—joined The Tow Foundation, the family added criminal justice reform to its giving. In 2014, The Tow Foundation funded a two-day conference at the School on public health and mass incarceration. “It was exciting to bring together faculty focused on this area to discuss mass incarceration from an epidemiological viewpoint,” says Emily Tow, the Foundation’s president. The next year, the Tow Faculty Leadership Scholars program was created to help junior faculty build leadership skills and conduct research.

Meanwhile, the conference led to the creation of Columbia Mailman School’s Incarceration and Public Health Action Network, which promotes the strengthening of public health/criminal justice reform coursework, research, and advocacy. It also led Olivia Tow—granddaughter of Leonard and Claire and a Tow Foundation trustee, who was inspired by the advocacy of Parkland, Florida, high school students—to support a group of School professors and colleagues launching Columbia SURGE (Scientific Union for the Reduction of Gun Violence). Members have conducted research on the impact of state gun laws and the Federal Assault Weapons Ban, the use of high-capacity magazines, and the effects of gun violence on children. “To have researchers working in their specific areas—public health, trauma, education, politics—approach the issue in such a holistic way was so exciting,” Olivia Tow says. Her grandfather couldn’t be more pleased with her decision. “It’s great to have this association with an institution that appeals to people from their 20s to their 90s,” he says. “I think that’s a wonderful thing.”
ALTRUISTIC ALUMS

Past and present Alumni Board members support the School with time and resources. Alumni Board President Anette Wu, MD, MPH ’08, PhD, who serves on the Board of Advisors, says members are especially interested in supporting students—via scholarships, job placements, coaching, and networking. “We want to attract the best students,” she says. “We know that when they graduate—because they went to Columbia Mailman School—they’ll be doing work that’s very dear to our hearts.”

Faculty and Staff Give Back

Each year, faculty and staff share their passion for public health education and research by donating to the School. Liliane Zaretsky, director of academic programs for the Department of Epidemiology, gives, in part, because she appreciates that the School is training students to address real-world problems. “I appreciate the richness that I am part of,” she says. “And so I give something back.”

Advisors Drive Donations

Columbia Mailman School’s Board of Advisors provides vital resources, in particular the unrestricted funding that fuels the School’s investments in new areas of endeavor. “The contributions of our Board—as donors, strategic advisors, and ambassadors—are immeasurable,” says Dean Fried. “They are essential partners in advancing our public health mission.”

Transforming Public Health Messaging

Robert H. Heilbrunn’s father died just before the 1929 stock market crash, leaving him, an only child, to support his mother. The young Heilbrunn learned how to invest, acquired a fortune, and later gave generously to causes he and his wife, Harriet, believed in. The Heilbrunn’s helped established the Harriet and Robert Heilbrunn Department of Population and Family Health, as well as the Harriet and Robert H. Heilbrunn Professorship in Population and Family Health. They also funded several student fellowships.

Later, their daughter Helaine and her husband, Sid Lerner, became benefactors of the School as well. Sid was a successful Madison Avenue executive known for the popular “Please Don’t Squeeze the Charmin” campaign. He turned his considerable marketing talents toward public health and, in 2003, he created Meatless Monday, which grew into a global movement to encourage people to skip meat one day of the week. Around the same time, he joined the School’s Board of Advisors, and established the Monday Campaigns, which collaborates with leading public health schools to use the weekly cue to encourage more exercise, nutrition, and stress management.

In 2013, Sid founded the School’s Lerner Center for Public Health Promotion, which focuses on social and behavioral factors associated with health, evaluates public health promotion campaigns, and works to understand the science behind effective campaign models. The couple also endowed the Sidney and Helaine Lerner Professorship of Public Health Promotion, whose incumbent, Gina Wingood, MPH, ScD, directs the Lerner Center.

Like many longtime donors, the Lerners expanded their philanthropy as the horizons of public health expanded. Sid, who passed away in 2021, left a legacy of impact, which Helaine has continued. She recently gave $5 million to the School to create awareness of adolescent health and advocate for change in global menstrual hygiene management, which has gained recognition as a critical global public health issue. This gift fulfills one of Sid’s goals to address women’s basic needs, which are too often overlooked in public health.
Financial aid makes it possible for a diverse range of talented students to acquire a Columbia Mailman School degree. On average, 35 percent of students receive partial or full scholarship support. In the current academic year, the School will award about $5.5 million in aid. One recipient, Lauren Rutherford (’22), decided to get her MPH after completing a Fulbright fellowship researching women’s reproductive rights in Bogotá, Colombia. Now, thanks to the generosity of the Huo Family Foundation, Rutherford attends Columbia Mailman School tuition-free as one of five Huo Scholars. “We are delighted to be able to support students whose aim is to advance public health,” says Yan Huo, one of four trustees at the Foundation. “We are inspired by their dedication and commitment to service, and we look forward to seeing their positive impact in the world.”

Science writer Nancy Averett lives in Cincinnati. Her award-winning work has appeared in Discover, Audubon, Sierra, and Scientific American.
A WORLD OF GOOD

Grounded in the belief that health is a human right, the School’s faculty are working to make a difference for populations across the globe.

By Jill Langlois

PHOTOGRAPH: HOWARD G. BUFFETT
The little girl stretched her arms out in front of her, palms facing the sky. She couldn’t be more than five or six, thought Joseph Graziano, PhD, but the lesions on her hands were identical to those covering the skin of the adults in the town where she lived. It was his first time in Bangladesh, but he already knew he and his team had made an unprecedented discovery.

Graziano was aware that lesions like the ones on the child’s hands were caused by decades of exposure to arsenic. Yet the girl was too young to be showing these signs of poisoning from the metalloid. It was then that he realized that mothers drinking contaminated water were passing the toxins to their babies in utero.

A pharmacologist by trade, he had just completed 20 years of work in the Balkans. He had also done research on the effects of lead poisoning that led to the development of the oral drug used to treat children exposed to the heavy metal. Now, in 1999, as chair of Environmental Health Sciences (EHS) at Columbia Mailman School and professor of pharmacology at Vagelos College of Physicians and Surgeons, he had turned his attention to arsenic in the water in Bangladesh. “Safe drinking water to me is a human rights issue,” says Graziano. “Life cannot go on without access to it. It is a fundamental part of life.”

Graziano, one of the many people working on global public health across departments and programs at Columbia Mailman School, had first heard about the water problem in Bangladesh when he read a November 1998 article in The New York Times about “wells that pump poison.” A week later, he found out that a geochemist colleague at Columbia University had read it too. Alexander van Geen, PhD, wanted to understand what made arsenic different in the South Asian country and why it
Faculty members like Lynn Freedman, JD, MPH ’90 (above, second photo from left) work in more than 100 countries. PHOTOGRAPHS (FROM LEFT): ISTOCK/PHOTO BETO; ROBERT Glick; MARK TUSCHMAN; JESSICA SCRANTON; COLUMBIA MAILMAN SCHOOL ARCHIVE
was contaminating the drinking water. He and Graziano teamed up and were joined by Habibul Ahsan, MD, a Bangladeshi-American epidemiologist also at Columbia, who studied environmental and genomic effects on cancer and other diseases. Together, the three men and the rest of their multidisciplinary team would take dozens of trips to Bangladesh over more than two decades, working with local partners to better understand what was happening to the water, how it was affecting the people there, and what could be done to turn the situation around.

Working in areas that hadn’t yet had any testing, they discovered the problem was shallow wells, which contained a high concentration of arsenic. The team’s research would not only go on to ensure safe drinking water for some 70,000 people in Bangladesh, but also lead governments in the U.S. to make policy changes in their own states, lowering what is considered a safe level of arsenic in water. In Maine, legislators passed a bill that required wells to be tested for arsenic before properties are sold. Graziano retired earlier this year, but EHS professor Ana Navas-Acien, MD, PhD, is continuing to work on the issue, looking at how the research in Bangladesh can be applied to Native American communities in the U.S. that are suffering from a similar problem.

Graziano is one of many faculty members whose work has played an integral role in contributing to solutions around the world and working to narrow the gap in health disparities in everyday care and in situations of humanitarian and emergency response. The ground for this work was laid early in the School’s history. One of its early leaders, Harold Brown, MD, DrPH, founded a program that sent public health students to work and do research in Suriname, Liberia, and St. Thomas.

Today, much of the School’s global work originates in the Harriet and Robert Heilbrunn Department of Population and Family Health. Known as “PopFam,” the department first started to take shape in 1975, when it was a center at the School. Headed by Allan Rosenfield, MD ’59, an obstetrician/gynecologist who had helped develop Thailand’s first family planning program, it would grow and expand, refining its focus to look at reproductive and maternal health through a human rights lens. “We did a lot of work in that period of trying to reconceptualize population, reproduction, and maternal-child health issues as human rights issues,” says Lynn Freedman, JD, MPH ’90, professor of Population and Family Health and director of the department’s Averting Maternal Death and Disability (AMDD) Program. “Allan was a major supporter of that, and also magnified the voices of other people who tried to push that issue.”

In 1985, Rosenfield and his colleague, epidemiologist Deborah Maine, DrPH, published a transformative article in The Lancet called “Maternal Mortality—A Neglected Tragedy: Where is the M in MCH?” (MCH stands for maternal and child health). It drew attention to the shockingly large number of women globally who were dying during pregnancy and childbirth. Healthcare providers, they said, were focusing on children and forgetting about their mothers. The article was a precursor to the Prevention of Maternal Mortality Network, which developed strategies to prevent maternal mortality and worked with 11 teams in Ghana, Nigeria, and Sierra Leone to carry them out, helping to build capacity in those countries. It would be followed by the creation of the AMDD Program, with the support of the Bill & Melinda Gates Foundation, which continues to work with partners around the world to support access to safe emergency obstetric and newborn care.

AMDD did the first work globally that assessed women’s experience of care, working in Tanzania to carry out pioneering studies that would document and measure disrespect and abuse of women during childbirth, leading to the development of the field now called respectful maternity care. It has also worked with several countries’ ministries of health, including those in India, Ethiopia, and Bangladesh, to expand access to quality emergency obstetric care, helping to develop training programs and prepare facilities to carry out lifesaving procedures like cesarean sections, and to change policies regarding who can perform them, broadening the definition to include more medical professionals than just obstetrician/
gynecologists. The key, Freedman says, is to “give others support with tools and research they may not previously have had access to, so that they can address the issues they’re facing in creative ways within their own circumstances, both cultural and environmental.” She adds, “Working with people on the ground, we recognize that they will ultimately be the ones who best analyze and solve their own problems.”

For Terry McGovern, JD, the Harriet and Robert H. Heilbrunn Professor of Population and Family Health and chair of the Harriet and Robert Heilbrunn Department of Population and Family Health, it’s those relationships built with local partners that are key to making impactful changes. “We’ve really come to understand that our role is not necessarily in leading,” she says. “It’s in partnering.”

The School’s Reproductive Health Access, Information, and Services in Emergencies (RAISE) Initiative, for example, was the first to take on access to contraception and abortion in a humanitarian context and led to the development of an interagency group that looks at the sexual and reproductive health of refugees. RAISE often partners with major humanitarian organizations, governments, and United Nations bodies to determine the most effective ways to provide sexual and reproductive healthcare to refugees, internally displaced persons, and others affected by humanitarian crises, including access to contraceptives in the Democratic Republic of the Congo and to post-abortion care in South Sudan. Without this work, “these services would not have existed for these women and girls,” says Monette Zard, MA, the Allan Rosenfield Associate Professor of Forced Migration and Health and director of the Program on Forced Migration and Health. Zard’s program, the first of its kind in a school of public health, was launched following the Rwandan genocide, when reproductive health wasn’t considered essential for those fleeing conflict or forced to migrate. It now looks at all forms of displacement and their effect on the health of those who need to be on the move.

Other aspects of reproductive health are the focus of the Gender, Adolescent Transitions, and Environment (GATE) Program, which works to improve the integration of menstrual hygiene management (MHM) and pubertal health transitions into global humanitarian response, and to provide better access to gender-supportive solutions to sanitation around the world. The program, run by Marni Sommer, DrPH ’08, MSN, RN, associate professor of Sociomedical Sciences, has implemented projects on menstruation and Ebola, and menstrual disposal, waste management, and laundering in emergencies. It has also created a toolkit for emergencies, providing practical guidance for those working on MHM programming in humanitarian response situations around the world.

Zard has been at the forefront of a new frontier in research: understanding the role climate change plays in forced migration. Her new project looks at how migrants coming from Mexico and Guatemala, many pushed from their homes by climate change, are forced onto more dangerous routes because of U.S. policies. As they are kept in holding patterns that can last for months, even years, they are stuck without access to health services; the humanitarian system struggles to track them and offer them services. She theorizes that this has significantly affected the health and mortality of the migrants and is in the process of quantifying the effect. “We want to make that visible to the world so that policymakers can understand that these strategies are operating to the detriment of migrants and refugees who are doing what they are legally entitled to do: reach safety,” she says.

The containment of refugees closer and closer to their country of origin is another phenomenon Zard’s program plans to look at in more depth. She wants to better understand the impacts this is having on the physical and mental health of those trying to flee, as it often leaves them without status and confined for years. Zard says the Program on Forced Migration and Health is also trying to quantify the sheer impact that living with such wide-sweeping uncertainty can have on people’s health. Quantifying is the first step toward proposing solutions that could save lives.
Goleen Samari, MPH, PhD, assistant professor of Population and Family Health, is one of the researchers looking into this new line of study. A demographer focusing on social inequities and health, she uses data to examine how racism, gender inequities, migration-based inequities, and xenophobia mold population health. Her work on anti-Muslim sentiment was among the first to bring attention to the racialization of religious minorities and Islamophobia as a public health issue, and has been used to create more inclusive policies while also driving resources to communities that would not have received them otherwise. An analysis Samari published on the impacts of the 2017 Muslim travel ban on preterm births among women from countries that were banned from immigrating to the United States concluded that “structurally xenophobic and racist policies in the U.S. may have a harmful effect on birth outcomes and early life indicators of life-long health outcomes.” Given that xenophobia and racism exist in many places around the world, her work could have a far-ranging impact.

Part of what drives Samari to specific research questions is the lack of data available on certain populations. She would like to embark on more comprehensive national data collection efforts that will help fill in these gaps. “A lot of people fall back on the notion of ‘We don’t have the data to answer that question,’” she says. “It’s a big hope of mine that we can collect that data and answer those questions.”

Being part of the Harriet and Robert Heilbrunn Department of Population and Family Health, Samari says, has given her the unique chance to work with other like-minded individuals and to have a positive impact on the communities she studies. “There are very few places that are truly as interdisciplinary and multidisciplinary,” she says. “Public health is a field of social justice, and the School truly allows me to pursue research that is in the interest of social justice.”

HONORING A GLOBAL HEALTH LEADER

The Allan Rosenfield Building is the heart of the School’s campus, a fitting memorial to a force for good who led the Columbia Mailman School from 1986 until his death in 2008. In a remembrance of Allan Rosenfield, MD ’59, New York Times columnist Nicholas Kristof called him “one of the giants in the world of public health.”

Early in his career as an obstetrician/gynecologist, Rosenfield “chose not to go into a lucrative private practice but to serve the needs of the developing world,” recalls his wife Clare Rosenfield, MA, MS, LCSW. They spent their first year of marriage in Nigeria, then moved to Thailand, where he worked for the Population Council, expanding access to birth control with his then-revolutionary idea of using trained non-physicians and midwives to administer care. He then joined the School as the founder of what is today the Harriet and Robert Heilbrunn Department of Population and Family Health and helped start the Averting Maternal Death and Disability Program. A speech he gave at the International AIDS Conference in Durban, South Africa, on the urgent need to care for all women living with HIV, both before and after they give birth, gave rise to the groundbreaking MTCT-Plus Initiative that, for the first time, offered HIV treatment to both mother and child.

During his tenure as dean, the School grew in reputation and size. “The School had no building of its own when he started,” his wife recalls. In 2001, it moved to its current home, which was later named for him. He traveled the globe with an indefatigable work ethic, facing seemingly insurmountable odds alongside world leaders, his moral compass pointing the way. Long after he used a wheelchair due to amyotrophic lateral sclerosis, he came to work every day and made time to visit anyone he knew who was in the hospital, even friends of friends. “The School had the feeling of a family. His colleagues were his equals,” Rosenfield says. “He had a strong motivation to be of help. He offered to the world a model of selfless service. He always said, ‘The challenges are great, but together we can make a difference.’”

Jill Langlois lives in São Paulo, Brazil. Her work has appeared in National Geographic, Smithsonian, and The New York Times.

PHOTOGRAPHS, FROM LEFT: ISTOCK/DIMA BERKUT; COLUMBIA MAILMAN SCHOOL ARCHIVE

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Historians looking to sum up 2020 will invariably use the word “catastrophe.” But for all its suffering, our annus horribilis brought with it a significant public health triumph: In 2020, for the first time in U.S. history, the number of citizens over age 65 rivaled that of children under 15. Worldwide, the average human life expectancy has doubled in the past century, largely due to advances in public health. Dean Linda P. Fried, MD, MPH, likes to say that public health has “raised the floor and the ceiling of health,” with reduced deaths in childbirth and infancy setting the stage for lives extended by vaccines, antibiotics, and other modern public health interventions. Research by Columbia Mailman School faculty is tackling challenges at both ends of the spectrum. If, as the saying goes, the true measure of a society can be determined by the way it treats its most vulnerable, then the School is truly measuring up.

Protecting the Littlest Lives

As a young Columbia professor in the 1980s, Frederica Perera, MPH ’76, DrPH ’82, PhD ’12, studied how exposure to environmental contaminants could result in damage to DNA and eventual disease. A pioneer in molecular epidemiology, she
was focused on detecting lung cancer at its earliest stages. She needed a control sample that would be as pure as one could get, so she settled on pristine cord blood. (“Because what could happen to a fetus?” she recalls thinking.) Perera was shocked to discover in her cord blood samples the same evidence of chemical exposure that she’d been observing in adults and in people with cancer. “That was a wake-up call,” she explains, and the moment she decided to focus her considerable energies on prenatal exposure to toxins.

By 1998, Perera had founded the Columbia Center for Children’s Environmental Health (CCCEH), and she and her colleagues had begun enrolling more than 700 pregnant women from low-income neighborhoods in Northern Manhattan and the South Bronx in an effort to determine the effects of prenatal and early childhood exposure to urban pollutants on these historically marginalized communities. The heavy traffic and idling buses and trucks that were a staple in the neighborhoods, which are home mostly to Dominican American and Black families, suggested that pollution levels would be high, and Perera was concerned about the lasting impact the polluted air would have on the developing brains, lungs, and other vital organs. She and a team of investiga-
tors installed air monitors in the homes of study participants and convinced them to wear portable ones as they went about their day. (This last bit took some doing, as the first backpacks holding air monitors were rejected on account of their unsightliness. They were eventually replaced by Prada knockoffs sourced from Chinatown.) Working closely with community organizations, particularly WE ACT for Environmental Justice, CCCEH researchers have now been conducting interviews, collecting questionnaires, and amassing data based on the monitors and various biological measurements for 22 years. Some of those first babies now have kids of their own. In addition to studying diesel exhaust particulates and the polycyclic aromatic hydrocarbons that result from burning fossil fuels (like diesel, gasoline, and coal), the teams have gone on to investigate the impact of lead, mercury, mold, phthalates, tobacco smoke, pesticides, and home allergens related to mites, mice, and cockroaches, documenting links to neurodevelopmental problems, obesity, and asthma and other respiratory disorders along the way.

Andrew Rundle, MPH ’94, DrPH ’00, who as a graduate student worked on the original design and grant proposals for CCCEH, eventually led a team that showed that air-pollution exposure during pregnancy was associated with overweight (higher body mass index) in African American and Dominican American children. Rundle, a professor of Epidemiology, also has been comparing outcomes from vaginal births and cesarean deliveries to determine whether the relatively sterile environments involved with surgery might restrict newborns’ exposure to helpful microbacteria and compromise the microbiome in such a way as to result in excessive weight gain later in life.

CCCEH researchers are now looking into how maternal stress, often due to poverty and racism, can behave like some of the other pollutants they’ve studied to damage developing fetuses and babies.

Perera, who holds a PhD in environmental and social policy, founded CCCEH with a mission to inform public policy. “The idea was not to have this science going into a black hole in some peer-reviewed publication, but rather to inspire real-world change,” she says. Today, the team can point to successes from the local level to the international stage. Under the Bloomberg administration, the Center’s research was instrumental in New York City’s decision to begin a phaseout of the cheap, sludgy fuel oil that had long been common to low-income housing; its combustion produces damaging particles. Testimony at city-council and zoning-board meetings by Rundle, who also studies the impact of urban design on physical activity and diet, helped make it possible for supermarkets and grocery stores to open in neighborhoods formerly characterized as “food deserts.” In Poland, where Perera established a children’s cohort, her work with Polish colleagues at the University of Krakow has led to the replacement of coal-burning units in residential homes. In work led by associate professor of Environmental Health Sciences Deliang Tang, MD, DrPH ’96, she and their Chinese colleagues provided the Chinese government with evidence that babies born in the Chongqing municipality after the closure of its coal-fired power plant were healthier and performed better on cognitive tests than those born earlier.

Julie Herbstman, PhD, who in 2020 succeeded Perera as director of CCCEH, has gained national recognition for her work on flame retardants, including polybrominated diphenyl ethers, or PBDEs, the compounds once routinely added to car seats, couches, and other furniture. Her research showed that the PBDEs tended to leak over time, and that exposure to them resulted in impaired IQ and attention problems among children. Going up against the chemical companies that produced the compounds—as well as against Big Tobacco, which had helped convince fire-safety officials to back a standard that effectively required all furniture to be filled with the toxic compounds—Herbstman played a pivotal role in the eventual decision by the U.S. Consumer Product Safety Commission to advise manufacturers against the use of this class of compounds.

In the past year, Perera has shifted her focus to communicating the work of the
“don’t yet know what to do” with the new dynamic. Ageism remains rampant, a reality underscored by the pandemic, during which politicians and other public figures have routinely dismissed older Americans as disposable and demonized them for dragging down the economy. Fried talks about a “third demographic dividend”—a new stage of development in which all ages will benefit from people living longer lives. “But unless we build the upside,” she warns, “you’re only looking at cost.”

The Columbia Aging Center is focused not just on resetting the public health agenda so that people worldwide live longer, healthier lives—its International Longevity Center USA is a leader of a global consortium developing policies, awareness campaigns, and interventions to better respond to aging populations—but also on actually building that upside, according to a new set of plans. Fried points to the work of associate professor of Sociomedical Sciences Kavita Sivaramakrishnan, PhD, whose book *As the World Ages: Rethinking a Demographic Crisis* examines how the global community has responded to aging and how countries have successfully mobilized programs used by local communities so that they can be scaled up or be relevant to other settings. Sivaramakrishnan explains: “For instance, in cities such as Chennai in South India, there are neighborhood-level networks of geriatric checkups and care by older people who take care of the oldest of the old. This approach is low in cost and encourages social cohesion.”

“Failure to adapt to aging is a risky strategy for a country,” notes John W. Rowe, MD, the Julius B. Richmond Professor of Health Policy and Aging and a member of the School’s Board of Advisors who also chairs the Aging Society Network, a consortium of scholars helping to prepare the nation for the challenges and opportunities posed by an aging society. “If we neglect to develop and implement effective policies, we will be left with a society rife with intergenerational tensions, characterized by enormous gaps between the haves and the have-nots, and unable to provide needed goods and services for any of its members.”

Citing a 2005 study conducted in St. Louis that found that among adults aged
“Think about what it can mean for kids to be surrounded by intergenerational caring. It changes their future.”

Linda P. Fried, MD, MPH
65 years and older, Black individuals living in urban areas became disabled 10 years earlier than suburban White individuals, Fried underscores the critical importance of addressing our vast inequalities. Assistant professor of Epidemiology Daniel Belsky, PhD, studies why socioeconomically disadvantaged populations face shorter health spans. Belsky has demonstrated that just as environmental toxins and pathogens affect the cellular properties of aging, with molecular-level changes eventually contributing to the development of diseases, so do poverty and psychological stress. Young adults who have been exposed to early-life poverty and/or were victimized as children by physical abuse, sexual abuse, neglect, or bullying showed a faster pace of biological aging.

Belsky has used samples from an existing study of prolonged caloric restriction in young, healthy people to test if this intervention, proven to slow aging in animals, can also slow the process at the organ system and cell level in humans. He and his team also are investigating how in utero undernutrition contributes to aging-related health decline. And they recently began analyzing samples from a trial of an anti-poverty intervention called Paycheck Plus in order to determine what, if any, impact that two-year cash-supplement experiment had on biological rates of aging.

Based on their findings, Belsky says, the researchers might then begin to consider what sorts of interventions could best extend the lives and health of our most disadvantaged citizens. “If money works, then a question will be, ‘Are there particular things that people who got money did that appeared to advantage them? Did they move to cleaner, greener neighborhoods? Did they take up different work? Did they report a reduction in stress?’” Such conclusions could help determine whether it would make more sense to intervene on the psychological experience of stress, for example, or on what people are eating, how often they’re moving their bodies, or where they live, and, in turn, could establish what society needs to do to create the conditions for healthy longevity for everyone.

Belsky and his team recently presented an innovation that could speed up the research process considerably in the future. Combining genomic data and machine-learning analysis, they have devised an algorithm that can quantify the pace of aging based on a single drop of blood. Not only do such samples summarize changes occurring across entire organ systems, but they also appear to be predictive of differences in the risk of death.

Also on the horizon: greater understanding of Alzheimer’s disease and other complex diseases associated with aging, thanks to work by researchers in Biostatistics. Iuliana Ionita-Laza, PhD, and Ying Wei, PhD, professors of Biostatistics, recently received a grant from the National Institute on Aging to use novel statistical methods that can be applied to massive, biobank-size datasets, using genetic data from tens of millions of genetic variants across the genome to identify variants associated with Alzheimer’s disease. Ionita-Laza has already identified several new genes associated with Alzheimer’s disease. Expanding the studies to include new methods could lead to new genetic findings with particular relevance to medicine development.

Work taking place at Columbia Mailman School will ideally improve on the ability to identify those most at risk of age-related disease early enough to intervene. Among the interventions might be strategies for designing out loneliness and social isolation, which Belsky has shown is linked to premature aging. Innovations like Experience Corps, a program Fried co-founded in which older people with lifetimes of knowledge (and the desire to leave the world a better place than they found it) work with children in public elementary schools and enjoy health benefits as a result, could go a long way to realizing some of those dividends. “Think about what it can mean for kids to be surrounded by intergenerational caring,” says Fried. “It changes their future.”

Jocelyn C. Zuckerman is the author of Planet Palm: How Palm Oil Ended Up in Everything—and Endangered the World. She is an alumna of Columbia University’s Graduate School of Journalism.
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 they’re rallying their peers worldwide to do the same.

By Jim Morrison
Kate 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 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.)

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, including Weinberger herself who is now an assistant professor at the University of British Columbia, where her research focuses on the health effects of extreme heat. Today, the Climate and Health Program is a schoolwide, interdisciplinary program that will serve as the health arm of the new Columbia Climate School. It partners with other Columbia institutions,
including the Earth Institute, the International Research Institute for Climate and Society, and the NASA Goddard Institute for Space Studies. 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.

That need to connect the climate crisis and public health is at the heart of the Climate and Health Program. “It is critical that we—the public, scientists, government officials, corporations—view the effects of climate change through a public health lens,” says program director Jeffrey Shaman, PhD, professor of Environmental Health Sciences. “The fires, floods, extreme storm events, sea level rise, and rising temperatures we are witnessing are already profoundly affecting human health and well-being. We urgently need experts versed in these multidisciplinary issues who can effectively communicate their complexities to politicians, governments, corporations, and the public.”

The United Nations Intergovernmental Panel on Climate Change warned earlier this year that “human-induced climate change is already affecting many weather and climate extremes in every region across the globe” and cited heat waves, heavy precipitation, droughts, and tropical cyclones as outcomes. The public health effects are 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 and water insecurity has helped fuel the rise of Boko Haram and the Islamic State in the region, and nearly 10.6 million people, or half the population, now need humanitarian assistance, according to the United Nations, and more than 3 million people have been forced to flee their homes. 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.

Cecilia Sorensen, MD, who joined as director of GCCHE in 2021, started becoming more aware of environmental impacts on health a decade ago, while in medical school at Drexel University. She was working in Cameroon, where she founded the Bush Medicine Partnership to bring healthcare to communities in need. A drought meant there was no food to sell, so people there didn’t have money to go into the city for healthcare. “Back then, I didn’t have any mentorship,” she says. “There wasn’t anybody who was
even talking about climate change and desertification and how that impacts health and vulnerable populations.” Today, in her role leading GCCHE, Sorensen is in a position to help ensure that students around the world have mentors and that a culture of cross-disciplinary partnership builds to address this global crisis.

Sorensen also saw the effects of the climate crisis while working in a camp in Lebanon for Syrian refugees. A drought more severe than anyone could remember killed the majority of livestock and forced people into already crowded cities. “I started thinking, How can we provide education for health professionals to help in these situations?” says Sorensen, who has published papers on the climate crisis, the effects of heat and smoke, and the need to build resilience in low- and middle-income countries.

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. 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 worsened by air pollution). And that is just one of the many ways that climate and health interact. In many regions, the effects are piling atop one another.

That’s why the School’s interdisciplinary approach is critical. “We cannot only look at one air pollutant or one weather variable at a time,” says Marianthi-Anna Kioumourtzoglou, ScD, an assistant professor at the School. Kioumourtzoglou 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 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. More recently, as the faculty and the student body have expanded, so has the research, which now includes food security, neurodevelopment, epigenetics, and mental health. Students and faculty often come to Columbia Mailman School interested in one subject and find their focus pulled in exciting new directions. 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.

Sorensen sees GCCHE focusing on building a community of practice and creating trained experts to address interconnected issues. “A consortium is about getting people from different parts of the world together to develop solutions. In my experience in the climate and health world, we’re all siloed. So how can we open the lines of communication and start troubleshooting together?”

For Shaman, a leading expert on forecasting the spread of flu as well as on COVID-19, 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. “Many climate impact studies can only be achieved with an interdisciplinary lens,” he says. Drought, for example, affects crop yields and food insecurity, but also economic insecurity, forced migration, and conflict.

Kioumourtzoglou 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 intriguing 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 disease, and Parkinson’s disease.

Lewis Ziska, PhD, associate professor of Environmental Health Sciences, is a plant physiologist who studies the nexus of climate change, carbon dioxide, plant biology, and public health. Over decades, he has published studies reporting that climate change exacerbates allergy seasons, makes herbicides less effective, and could drive a decline in pollen important for bees. He has also delved into what strains of rice and wheat will be best suited for a changing climate. The rise of carbon dioxide in the atmosphere, he says, means plants may grow faster, but will be less nutritious. “What you are putting in your mouth, now and for the rest of the century, may be carbon-rich and nutrient-poor,” he writes. “And the consequences for human nutrition, and human health (not to mention plant ecology), are only now beginning to be examined.”

The urgency of the Climate and Health Program’s mandate has a tendency to pull people in, and Darby Jack, PhD, associate professor of Environmental Health Sciences, is one of them. He came to Columbia to do postdoctoral research at the Earth Institute focusing on energy choices in developing countries. 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. “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.”

Underpinning much of the work at Columbia Mailman School are contributions from the Biostatistics Department. Kiros Berhane, PhD, its chair, likes to say his field “provides quantitative common sense to public health research and training.” He is leading a large, collaborative team on environmental biostatistics, with a focus on multiple outcomes, including synergistic effects of the environment with genetic and epigenetic factors. Berhane was the lead biostatistician of a 22-year-study that found children living in polluted communities close to motor vehicle traffic were more likely to suffer deficits in lung growth. He mines databases, but also collects primary data. (One emerging tool is data from

“We have a landmark program where, for the first time worldwide, we’ve started to study how climate impacts human health and how to make people resilient.”

Andrea Baccarelli, MD, PhD
satellites.) He uses machine learning to combine evidence from many sources. “You have to be able to extract the signal from the mountains of information,” says Berhané, who has just been awarded a grant as part of the Data Science Initiative for Africa.

Columbia Mailman School’s Climate and Health Program is training academic researchers, but it is also helping to build a workforce to better understand climate and health and create solutions via policy, health systems, and care. Andrea Baccarelli, MD, PhD, the Leon Hess Professor and chair of the Department of Environmental Health Sciences, says all the talk about stopping climate change ignores the fact that it is here. “We need to find ways for people to live in a changing climate,” he says. “There is no way we can stop climate change anymore. We’ve already had a substantial change in climate that we have to cope with. We have a landmark program where, for the first time worldwide, we have started to study how climate impacts human health and how to make people resilient and adaptive to our changing planet.”

Some graduates go on to teach. 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 MPH students seeking a certificate in the Climate and Health Program has increased steadily, and the program is averaging nine doctoral students per year. The Environmental Health Sciences Department has expanded as well in recent years, bringing on faculty with expertise in plant physiology, infectious diseases, and epidemiology, with a parallel growth in courses. Other schools are beginning to follow the Columbia Mailman School’s lead.

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 global 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 more than 200 members in 30 countries and is growing. Schools pledge to educate tomorrow’s leaders on the health impacts of climate change, and GCCHE hosts 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 convening webinars to discuss strategies, challenges, and success stories. It has also developed a set of core competencies in climate and health education.

Sorensen notes that the COVID-19 pandemic highlighted the holes in healthcare systems and revealed the inequalities of care. “It’s the same thing with climate change,” she adds. “Those who are vulnerable are going to become more vulnerable. And our health systems are not prepared to protect them.”

Jim Morrison’s Washington Post Magazine story on retreat from climate-endangered areas won the 2021 award for Excellence in Reporting from the American Society of Journalists and Authors.
FROM PAPER TO POLICY

By Alla Katsnelson

Research is a powerful thing. As one of society’s main engines for generating knowledge, it forms the bedrock for decision-making. But particularly in public health, the biggest impact happens where the rubber meets the road—when a study or a body of work moves beyond the walls of academia to affect our daily life.

Science to improve health and prevent disease, disability, and injury was the core mandate of the School at its founding, and scientific work by faculty and students at Columbia Mailman School has informed health policy, environmental regulations, safety rules, and other public health standards for a century. The School saw its influence surge, for example, during the leadership of Ray E. Trussell, MD, who directed the school from 1955 to 1968. A fierce advocate for improving healthcare for poor and underserved communities, he established strict evidence-based requirements for standards of care as well as regulations for informed consent in studies on human subjects at New York City hospitals that treated indigent patients. The informed consent system Trussell created eventually formed the basis for federal policy.

Through their testimony, consultations, partnerships, media appearances, and, of course, publications, the School’s researchers have helped shape legislative and policy decisions at all levels of government, from local municipalities to the U.S. Congress; they have also influenced litigation all the way to the Supreme Court and informed global health policymakers. Here are just some of the ways that impact is felt today.
Public health researchers are in a unique position to influence legislation relating to their areas of expertise, either by testifying at hearings or by offering informal advice to government officials behind the scenes. Michael Sparer, JD, PhD, professor and chair of Health Policy and Management with expertise in health insurance policy, has done both. He has had numerous opportunities to weigh in over the years—for example, when President Barack Obama, newly elected in 2008, launched an ambitious health reform agenda that eventually yielded the Affordable Care Act (ACA).

Sparer provided input to congressional and other staffers on drafts of legislation and testified for legislative task forces on insurance-related topics connected to the ACA. He worked with both state and federal officials to craft proposals to permit consumers to buy into the Medicaid program, a type of “public option” that remains on the national agenda today.

His publications have also added to the discourse. Sparer was among the first to call attention to the challenges of nonprofit health insurance cooperatives, which were meant to be a new kind of insurance company under the mammoth health law. “Our study pointed out why that particular piece of legislation was not especially well-designed,” he says, “and ultimately that program has not worked out nearly as well as planned.”

Other members of the School’s faculty, too, offered their knowledge as policies took shape. Work by Jamie Daw, PhD, assistant professor of Health Policy and Management, has significantly shaped the debate over postpartum Medicaid coverage and helped set the stage for the provision in the American Recovery and Reinvestment Act that authorized states to temporarily extend coverage to 12 months. Sherry Glied, PhD, while a professor of Health Policy and Management, offered extensive input to legislators on how to best provide access to care for uninsured Americans. (She later left the School to serve as assistant secretary for planning and evaluation at the U.S. Department of Health and Human Services, where she played a key role in policy development.) Wendy Chavkin, MD, MPH ’81, now professor emerita of Population and Family Health, provided testimony to District Court in California about the importance of including reproductive health services in insurance plans’ essential benefits. Sparer says academics who study policy can offer the perspective of an objective outside participant, but one with a research-based position. “We advocate for things that we believe in, but research is the basis for our advocacy,” he says.
Sometimes change happens not in the legislature but at the agency level. For decades, Charles Branas, PhD, Gelman Endowed Professor of Epidemiology and chair of the Department of Epidemiology, has been beating the drum for federal funding to study gun violence, which kills 40,000 and injures more than 100,000 U.S. residents each year. Until recently, funding was scant: In the 1990s, the gun lobby convinced Congress to pass a rider on a bill funding the Centers for Disease Control and Prevention that effectively barred the agency from funding research on gun violence. Later, a similar prohibition was added for the National Institutes of Health (NIH). “We’ve largely done these studies on a shoestring, if not for free, to be honest, and yet they are heavily used in shaping policy and public decisions,” says Branas, whose research revealing that there are more gun suicides than homicides in the United States and that there is a greater risk of being fatally shot in a rural area than in a city was cited in multiple landmark U.S. Supreme Court decisions.

But public sentiment is shifting, and in 2019, Congress finally appropriated $25 million annually to fund gun violence prevention research, effectively changing the agencies’ funding policy. “This is completely new; it has never happened,” says Branas, who helped lead the charge for this funding. “$25 million is nowhere near what we need, but what it is, basically, is a public acknowledgment that we can now do the work without fear of reprisal.”

Branas gives major props to now-retired U.S. Rep. Nita Lowey (D-N.Y.), who chaired the House Appropriations Committee, for getting the bill passed. Branas had her ear—most significantly at a roundtable she held in the summer of 2019. He and fellow researchers at Columbia and other institutions sought $100 million in research funding within two or three years. Today, after the second annual funding round, “we are about halfway to our original goal but need to sustain this beyond just four years of support for this lifesaving research,” says Branas. Researchers from across the country can now compete for federal grants and research is already producing innovative and lifesaving solutions.

Last year Branas and colleagues from other Columbia schools launched a new universitywide initiative called SURGE (Scientific Union for the Reduction of Gun Violence) to champion a scientific approach to gun violence reduction—“more science, less violence.” He expected a handful of researchers to attend SURGE’s first meeting, but three dozen showed up. SURGE is working with researchers from a dozen universities to promote the importance of science in developing policies to prevent gun violence. Branas says, “There are many, many great ideas out there that haven’t been given air or haven’t even been discovered yet, because as a nation, we haven’t put the resources forward, much less encouraged scientists to tackle gun violence—until now.”

Research on controversial issues in public health policy is nothing new for the School. As a professor of clinical Epidemiology between 1999 and 2011, David Vlahov, PhD, RN, FAAN, drew on his long-standing research on HIV in intravenous drug users to build the evidence base for and awareness of New York state policies on access to clean syringes. Crystal Fuller Lewis, PhD, now associate professor of psychiatry at New York University School of Medicine, extended that work while at Columbia Mailman School between 2000 and 2015.
It was rewarding to be part of such a clear example of science being used to affect public policy,” Rauh says.

Subsequently, California and New York state also moved to ban the chemical. Rauh, again invited by environmental advocates, presented her work to the New York State Senate’s Environmental Conservation Committee in 2019. Her presentation followed that of a speaker representing Dow, and Rauh had the opportunity to counter the speaker’s unsubstantiated remarks with convincing scientific data.

Usually, Rauh says, CCCEH works closely with community advocates, versus communicating findings directly. Her direct involvement in translating the chlorpyrifos results opened her up to industry efforts to discredit her work. “I am grateful that the university and Dean Fried have been so supportive,” she says. In 2020, Corteva, the largest manufacturer of chlorpyrifos, said that it would cease manufacturing the product. And last August, the Environmental Protection Agency announced that it would stop the pesticide’s use on all food. Rauh and her team are pleased to see the impact of their many years of work. “It doesn’t always happen that we experience the entire process of designing a study, analyzing data, disseminating results, and seeing real actions that protect vulnerable populations. This is a great lesson for public health students who are trying to make a difference. It can be done.”
Legal testimony can also evince change in public health policy, as many of the School’s faculty have seen firsthand. David Rosner, PhD, MPH, discovered its power as a historian, when he dug into the public archives of companies that produce materials deemed harmful to public health, such as lead and asbestos. Rosner, co-director of the Center for the History and Ethics of Public Health at Columbia Mailman School, and his close collaborator, historian Gerald Markowitz, PhD, at the City University of New York (CUNY), published books and articles revealing that executives knew of their products’ dangers decades before it became public.

In 1999, Sheldon Whitehouse, now a U.S. senator for Rhode Island but at the time that state’s attorney general, asked Rosner and Markowitz to testify in a lawsuit against the paint industry, which had used lead in products for decades until the substance was banned in 1978. Millions of young children nationwide licked or ingested the sweet-tasting paint after it chipped or dissolved into dust, and elevated lead levels in their blood caused brain damage that was often irreversible.

The attorney general explained that the testimony would help establish a new kind of public health law that would hold companies accountable not only for the harm their products had caused, but also for forestalling future damage by forcing them to pay for detoxifying the children’s homes. After seven years of preparation, the case went to trial in 2005. With the help of Rosner and Markowitz’s extensive testimony, the state won, putting the industry on the hook for $4 billion in cleanup costs.

That victory was short-lived; the case was overturned on appeal by the state’s Supreme Court. But a similar case in California, in which the duo also testified, succeeded. And over the past decade, the historical analysis they brought to the courtroom has become a powerful new tool for public health law. “Most lawsuits are not only about the damages done, but you have to prove that a product caused the damage,” explains Rosner. Nailing down that proof is notoriously tough. These new lawsuits took a true public health approach, with a goal of preventing damage before it could happen. Companies knew these substances were harmful, but marketed them anyway—and this conveys responsibility.

“History, which is usually seen as a bunch of nerds sitting in libraries, has become central to giant political battles over who should be held accountable for the damage caused by industrialization,” says Rosner, who is also Ronald H. Lauterstein Professor of Sociomedical Sciences.

Rosner is now working with California lawyers on a case against Monsanto, the sole producer of polychlorinated biphenyls, which are toxic, cause cancer in animals, and contaminate many environments and products, including foods. Their production in the U.S. was not banned until 1978, but Monsanto had identified multiple chronic conditions associated with exposure, dating back to the 1930s.

The legal strategy Rosner helped to pioneer is gaining steam. He fields calls from lawyers asking him to testify almost daily, and has established a program at the School that trains public health students in applying the approach to advance public health cases. In 2005, Merlin Chowkwanyun, PhD, MPH, then an intrepid undergraduate student, offered to build Rosner a website for the documents he had
collected. Now, as Donald H. Gemson Assistant Professor of Sociomedical Sciences at the School, Chowkwanyun oversees the open-source platform Toxic Docs (toxic-docs.org) in collaboration with the Columbia University History Department and CUNY, on which anyone can trawl the 19 million company documents that Rosner and others have obtained over the years.

Other Columbia Mailman School researchers have also provided powerful legal testimony in high-profile national cases. In cases underway in Ohio, California, West Virginia, and New York against manufacturers and distributors of prescription opioids and pharmacies, Katherine Keyes, PhD, MPH, associate professor of Epidemiology, is providing testimony on the health burden that opioids have placed on communities, and the role that companies played in the harm. And in 2010, while he was professor of clinical Sociomedical Sciences, Ilan Meyer, PhD, testified to the California Supreme Court against Proposition 8, a state constitutional amendment that banned same-sex marriage.

As the School educates future health leaders, it equips them to make the case for change, supported by science. First-year students try their hand at writing opinion articles about public health topics. The Career Services Office organizes annual field trips to Washington, D.C., so that students can meet with contacts in the policy world. As students hone these skills, they become the next generation of advocates changing our world for the better.

Alla Katsnelson has a PhD in mammalian brain development. Her work has appeared in The New York Times and many other outlets.
ONE STUDY, DECADES OF DISCOVERIES
By Tim Paul

Toward the end of World War II, a German blockade cut off food to the Netherlands. Over the frigid Hongerwinter (“hunger winter”) of 1944–1945, 4.5 million Dutch people experienced famine; to survive, many ate tulip soup. Data from this time would lead to some of the most influential public health research of the 20th century—studies led by Columbia epidemiologists Zena Stein, MB, BCh, and Mervyn Susser, MB, BCh, FRCP.

MEET THE RESEARCHERS
Stein and Susser took part in the war effort from their native South Africa. Stein worked in the Air Force doing aptitude testing. Among those she tested was her future husband. After the war, the couple reunited in medical school. They married in 1949 and, over the next seven years, built medical services in Alexandra Township, Johannesburg, where they emphasized the prevention of disease among the area’s poor Black residents. They were active in the struggle to end apartheid but eventually left South Africa. In 1965, Susser took a position as head of the Division of Epidemiology at what is now the Columbia Mailman School of Public Health. Stein joined as an associate professor and soon became head of the Epidemiology Research Unit at the New York State Psychiatric Institute.

A STUDY IS BORN
Stein and Susser were interested in the long-term effects of poor nutrition in the prenatal environment and shared the widely held notion that lack of nutrients increases a child’s risk for cognitive deficits. But evidence supporting this view was thin. Fast-forward to the late 1960s at Columbia when Stein and Susser hit on a novel way to get a definitive answer on their nutrition question: the Dutch famine. This nine-month calamity allowed them to make clean comparisons between individuals born to mothers who experienced famine and those who did not. Working with colleagues in the Netherlands, the Columbia researchers analyzed medical exams performed on 400,000 Dutch men, as part of the country’s mandatory military service, matched to birth records from the war years and immediately after. They published their report in the journal Science in 1972 and in the 1975 book Famine and Human Development: The Dutch Hunger Winter of 1944–1945.

SURPRISING FINDINGS
To their astonishment, they found that famine exposure had no effect on risk for cognitive deficits at age 18. The reaction in some quarters was hostile. Stein and Susser stuck to their guns (a sign on an office door at the time read “The Department of Negative Findings”). Subsequent research confirmed their discovery. One example was a Columbia-led study in Harlem that tested a program of nutritional supplementation during pregnancy to see if it had an effect on IQ; it didn’t. Stein and Susser worried their findings would be misinterpreted as excusing the horrors of famine; they asserted that their outcomes, from a relatively brief famine in a wealthy country, should not be universalized to other contexts.

While the famine had no effect on IQ, they did find other adverse consequences. In a 1976 paper published in the New England Journal of Medicine, they reported that famine exposure in the first half of pregnancy was associated with risk for excess weight in a mother’s offspring. The risk was twice as common at age 19 for the exposed group as for those who were not. The paper was among the first to indicate in a rigorous way that there were fetal origins of disease.
MAKING A DIFFERENCE FOR MOMS AND BABIES
Stein and Susser also uncovered evidence that babies conceived during the famine’s peak had elevated rates of congenital nervous system anomalies, including neural tube defects (NTDs). These results helped lead to clinical trials to investigate the role of folate in pregnancy, and eventually to a federal recommendation that all women who could become pregnant consume 400 micrograms of folic acid daily. In 1998, the U.S. Food and Drug Administration required that enriched bread, pasta, rice, and cereal be fortified with folic acid. NTDs have decreased 35 percent since then.

A SECOND GENERATION OF STUDIES
In 1995, Ezra Susser, MD ’82, DrPH ’92 (above left), one of Zena Stein and Mervyn Susser’s children, joined his parents on the Columbia faculty where he undertook his own studies of the Dutch famine cohort, finding an increased risk for schizophrenia in those conceived at the height of the famine. This research, first published in Archives of General Psychiatry in 1992, provided some of the first solid evidence on the fetal origins of mental illness.

He joined an extensive group of researchers inspired by Stein and Susser’s work. For example, in the late 1970s, Dutch epidemiologist L.H. “Bertie” Lumey, MD, MPH ’85, PhD ’88 (above right), obtained birth records from an Amsterdam hospital to shed light on the famine’s long shadow: He found that women exposed to famine in utero were more likely to have adverse reproductive outcomes when they gave birth. Today, he is a professor of Epidemiology at Columbia Mailman School, and his Dutch famine research continues. In a 2018 paper in the journal Cell Reports, he showed that naturally occurring variations in how the genome is programmed in the womb could give some babies conceived during famine a survival advantage in the form of a slower metabolism, only to later harm them in times of plenty, when their slow metabolism contributed to weight problems and diabetes. Another study found that the famine’s effect on DNA can be linked to diabetes decades later.

In a 1998 article in the American Journal of Epidemiology, Ezra Susser and co-authors reflected on how science and history were interwoven, and wrote, “The elucidation of the findings required the continuation of the study over a long period of time—something which depended upon the strength of familial and personal ties, as the study was literally passed on from the original investigators to their children and other students.” The Dutch famine research is celebrated for its rigorous design and influential findings about nutrition and the fetal origins of disease. But it is also a testament to the close relationships between investigators.
There are times when a class reading stops you in your tracks. Ben Steiger, MPH ’21, remembers one such moment during a course in the Columbia Mailman School MPH Core Curriculum (the Core), an integrated set of courses all first-year MPH students take. He read a study examining the poor health outcomes of children born in the United States to women with Arab-sounding names following September 11, 2001. The date made him flash back to his experience as a five-year-old on the day of the terrorist attacks, the toxic smoke blanketing New York City. The reading also conjured memories of another type of toxicity he had never before considered: “I remembered the jingoism of the period. It was everywhere, even among kids,” he says. The study struck a personal chord. “I asked myself, ‘How was I part of this?’”

Like many of his classmates, Steiger came to Columbia Mailman School with health-related experience. In college, he was pre-med and minored in global health and spent two years working in a lab doing lung cancer research. But through his time in the Core, he realized that there were gaps in his understanding of lung health. As part of a group project, he and his classmates focused on asthma, connecting the dots between the biology of asthma, environmental triggers, and social forces that contribute to disproportionately high levels of the disease in communities of color. “You could say asthma is the result of cockroach allergens, which is correct, but it’s also incomplete,” he says. “These exposures happen as the result of deferred public housing maintenance, which is the result of structural racism. I learned to look beyond the proximate cause. Public health demands that you see the big picture.”

Aha moments like Steiger’s are common. In fact, the Core is designed to elicit them. Over two semesters, MPH students are equipped with the fundamentals of public health—its history and ethics, study and program design, and data science—along with opportunities to apply their knowledge to real-world problems such as asthma or COVID-19. Through the Core, students come...
to rethink what they know about the world and their place in it. While aspects of the Core are today de rigueur across schools of public health, when it was launched in 2012, the curricular redesign was a transformation in public health education. Creating the new instructional model required a reckoning with what the future would demand of public health leadership and how to best deliver that to students.

From the Beginning

At the very origins of academic public health, the field was mandated to both create essential knowledge and to train practitioners to solve real-world challenges based on science. In 1913, the Rockefeller Foundation sponsored a commission to assess the need for public health science and education in the United States. Two years later, the physician William H. Welch, MD (1875 P&S) of Johns Hopkins Hospital and Wickliffe Rose of the Rockefeller Foundation co-authored the report that made the case for a well-trained public health workforce and the need for new academic institutions dedicated to science and discovery to prevent disease, disability, and injury and improve the health of the public.

In response, Columbia University created the DeLamar Institute of Public Health, in 1922. It started small, with just one course listed in the college bulletin. Its MPH program combined epidemiology, biostatistics, laboratory work, and a three-month internship in a public health department. After 1945, when the Institute became the School of Public Health, there was an influx of new students and of faculty scientists who would teach them. Columbia came to be regarded as the leading hospital administration program in the country. At the same time, the School innovated in many other areas. For example, it was the first to introduce methods from the social sciences into its curriculum, culminating in the creation of the Division of Sociomedical Sciences in 1968—the first such program of its kind in the country. Other subspecialties like environmental health sciences and reproductive and migrant health were initiated and grew in stature. The lens, from inception, was health in cities, especially New York, and global health.

Public health education in the U.S. was born of the opportunities created by science to solve the health impacts of urbanization and industrialization. Dominant issues were safe water and food, infectious diseases, and workplace safety and health, and then women’s reproductive health and child health. The second half of the 20th century brought sweeping public health changes. HIV/AIDS, SARS, and other novel infectious diseases demanded capabilities for prevention and treatment, and the collaboration of public, private, and nonprofit partners. Chronic conditions such as diabetes and heart disease were on the rise around the world, as people survived infectious diseases and lived longer; they all required new cross-disciplinary approaches. As the School entered the 2000s, issues emerged with complex implications for public health: climate change, rapid urbanization in developing coun-
tries, and longer life spans coupled with emerging evidence that good health across our longer lives is possible.

To align public health curricula with these evolving and interconnected needs for public health leadership and science, major reports in 2002 and 2003 by the Institute of Medicine urged that schools of public health become interdisciplinary in both education and their research. The National Institutes of Health, too, prioritized “cross-training students in multiple disciplines” in 2007 in the creation of its Interdisciplinary Research Consortia. By the time an international commission was convened in 2010 to review the education of public health professionals, it found “a slow-burning crisis.” The resulting report, published in *The Lancet* in 2011, said that public health education—along with medical and nursing programs—relied on “fragmented, outdated, and static curricula that produce ill-equipped graduates.”

### Transforming Public Health Education

Even before the *Lancet* report, the School’s efforts to change the curriculum were under way. Soon after Linda P. Fried, MD, MPH, became dean of the School in 2008, she began a strategic planning initiative to envision how the School could help solve the complex public health issues of the 21st century and train students for leadership on these issues across long careers. A new vision for education would need to take into account “what’s best for the field, what society needs from us to protect and improve millions of lives, and what a great school must do to get us there,” she said at the time. Students would need a broad understanding of public health and how to integrate their areas of focus into the big picture to have a scientific basis for decision-making and leadership.

And the teaching would need to be highly interdisciplinary. Like most schools of public health, the School was organized by academic departments, each with its own course offerings and requirements—a structure that didn’t easily lend itself to interdisciplinary approaches. “We weren’t the first people to notice the need to do things differently,” says Melissa D. Begg, ScD, dean of Columbia’s School of Social Work, who led implementation of the Core when she served as vice dean of education at Columbia Mailman School. “The people who employ our graduates had been talking about it. And when we looked at our graduates, many of the most accomplished among them cited interprofessional engagement as a key to their success.”

Forged through a two-and-a-half-year process with input from faculty, staff, students, and alumni, the new MPH Core Curriculum ushered in some of the most sweeping changes in U.S. public health education in decades. The process was led by Fried together with Begg and Sandro Galea, MD, DrPH ’03, then chair of the School’s Department of Epidemiology and now dean of the Boston University School of Public Health. The resulting curriculum integrated long-distinct specialties through interdisciplinary teaching and added other novel components that focus on innovation, leadership, working in teams, and applied experience. More than 20 certificate programs enable students to pursue focused training in areas ranging from health in aging to food to the climate’s effects on health to chronic disease prevention.

### Tearing Down the Walls

The first step in the creation of the new MPH Core was to define the essential public health knowledge for the 21st century and then to ensure that all MPH students shared it: to teach the social sciences students to calculate, the biostatisticians to manage, and the healthcare managers to identify patterns of disease. Public health professionals needed a shared set of tools and perspectives—and the confidence to apply them.

The watchword of the Core is integration. Faculty instructors from across the School give students a shared foundation in the field, knitting together various specialty areas. Students then get a chance to apply their learning to real-world problems through case studies. Doing so helps them prepare for a summer practicum—a required internship completed between the first and second years.

Students enter in cohorts averaging 100 in size, drawn from all departments. In their first semester, each group moves through 16 modules focused on broad areas known as “studios” that stack together like interlocking blocks: historical and ethical foundations of public health; social, biological, and environmental determinants of health; program planning and evaluation; global health perspectives; health systems; and research methods. In each studio, topics in multiple modules relate to one another: For example, students consider the ethics of data science, and the interaction between socioeconomic status and environmental risk factors. Fully half the credits toward the MPH come from outside students’ chosen academic department. “Public health problems aren’t solved through a single discipline,” says Fried. “Students have to understand the language, the evidence, and the perspective that comes from different disciplines shining their light on the same problems.”

Take obesity. Its causes include globalization, cheaper prices for larger portion sizes, poor health education, increased reliance on cars over physical activity, the subsidization of corn, and industrialization that produces calorie-dense foods, food deserts, and challenges to affording healthy foods. Its solutions require all public health disciplines.

Or COVID-19, which Leah Hooper, MST, senior director of educational initiatives, says acted as a “flashlight that exposes the ways public health isn’t just a set of discrete disciplines.” The pandemic illustrates the connections between the biology of infectious disease, who is at risk due to preexisting chronic disease and/or older age, willingness to follow public health guidelines, ethics of who is first in line for vaccination, and so on. “If you’re only in one lane, you miss the large-scale ramifications,” Hooper adds.

In smaller learning groups of 20, first-year students from various academic departments work together in a two-semester course called Integration of Science and Practice (ISP) taught by a team.
of 23 faculty members from across the School. They begin with a workshop called Self, Social, and Global Awareness, which explores identity, privilege, and power and how to develop the understanding essential for meaningful cross-cultural relationships. From the start, each group forges a bond and a set of ground rules that creates a safe space of mutual respect for discussions on topics like race, class, or sexual identity that can be deeply personal.

Throughout the Core, ISP learning groups consider case studies that relate both to historical and current complex public health issues from the field. They weigh competing points of view, write policy briefs, and learn skills such as persuasion and public speaking, often working in teams. One case, for example, is drawn from some states’ controversial decision to introduce an “abstinence-only-until-marriage” curriculum in schools. Another examines police violence and the effectiveness of various reforms. The critical feature of all cases is that there’s no one correct answer. “Students take a critical approach to look at complex issues from the perspective of different stakeholders,” says ISP lead instructor Helen de Pinho, MBBCh, associate dean of educational programs. “We want them to incorporate perspectives, argue a case, and understand a problem before launching into solutions.”

Adds de Pinho, “We want every student to feel comfortable flexing their public health muscles. When it’s working well, we guide the conversation and students take over.” Indeed, students learn the most when they are learning from each other. Nikhil Ramnarayan, MPH ’21, remembers, “Having our learning group community was so helpful. I got to hear from classmates with different interests and different life stories who were applying public health in ways I hadn’t imagined before. It was eye-opening.”

For all its updated content and emphasis on interdisciplinary study, it’s the leadership component of the MPH Core Curriculum that may be the most revolutionary. In the second semester, students engage in theories of leadership, role-playing, simulations, case analysis, and group work to learn team leadership and management, communication, negotiation, and conflict resolution. Guest speakers share their own often idiosyncratic paths to leadership, which help students see how varied public health careers can be. “You don’t have to have aspirations to be a dean or health commissioner,” says Matthew Perzanowski, PhD, MPH, an associate professor of Environmental Health Sciences who has taught the course since it was first offered. “Students learn about personal leadership and how to interact with others in the workplace to accomplish what they set out to do.” At the conclusion of the course, students present their own leadership credos—a short pitch of the sort they might give in a job interview that briefly touches on their background, motivations, values, and goals.

From the student perspective, the Core is an intense experience—not only because the material is demanding and they learn at a rapid clip, but also because they are forced to switch gears fast, from thinking like an epidemiologist to thinking like a sociologist to thinking like a global health specialist. “It’s like a massive snowball that accumulates” between the fall and spring semester, says Lauren Westley, MPH ’15, who has a unique view of this process, which she experienced as an MPH student, a teaching assistant, and now as director of education in the School’s Office of Educational Initiatives, where she focuses on the Core. Ben Steiger, who is now working at the School doing research into wildfires and health, offers his own analogy: “All at once, all the jigsaw pieces snapped together.”

Evolving to Meet the Moment

Soon after the Core was introduced in 2012, a survey revealed high levels of enthusiasm for the experience among both students and faculty; follow-up surveys have confirmed the initial findings. The excitement for the Core was also reflected in a surge in MPH
applications, which are up 20 percent in the past nine years. The 2021–2022 class of public health students is the School’s largest yet.

The public health education community has been watching: In 2013, the School hosted a summit titled Innovations in Public Health Education. Deans from nearly every Association of Schools of Public Health member school gathered to learn about new developments in education, starting with the Columbia Mailman School Core. In 2016, the Council on Education for Public Health began requiring all schools of public health to offer an interdisciplinary core curriculum modeled on the Columbia Mailman School Core. Employers, too, have come to expect the kind of rigorous training the Core provides, as well as the opportunities for students to pursue specialized knowledge reflected in the certificates. Today, more than 95 percent of graduates secure public health employment by the end of the calendar year following graduation—a testament to employer interest in the School’s graduates.

The School continually makes tweaks to the Core and lays the groundwork for new directions. Since 2017, students in ISP learning groups have tried their hands at opinion writing by drafting op-eds on a topic of their choosing. The best examples sometimes reach the national stage, such as a piece by Rachel Alter, MPH ’18, on her experience engaging with the anti-vaccine community, a version of which was published by The Guardian.

In the spring of 2020, the Office of Education was moving toward an online MPH that incorporated asynchronous learning—a “flipped classroom” model where students watch prerecorded lectures on their own time to make more time for classroom exercises and discussion. The onset of the COVID-19 pandemic sped the School’s move to online teaching, and now the School is rolling out an online accelerated MPH program, which, like the existing Master of Health Administration and Master of Science curriculum, will incorporate key features of the Core. Columbia Mailman School has also been aligning its educational offerings with its commitment to being a fully anti-racist institution (see “Building a Healthy and Just World From the Inside Out,” page 18). A curriculum-mapping project is reviewing every syllabus to diversify the expert voices students encounter. Already, it has significantly expanded the number of Core discussions that cover the health implications of racism and ways of addressing disparities.

As a next order of business, Fried and the School’s new vice dean of education, Michael A. Joseph, PhD, MPH, envision a suite of public health learning opportunities, including those that target mid-career or senior professionals looking to update their skills or switch careers and retirees who want to invest in expanding their minds. “From establishing new pipeline programs that attract Black, Latinx, and first-generation college students to ensuring the public health workforce stays current through lifelong learning initiatives, the ubiquitous nature of public health provides us with ample opportunities to deliver public health education to a diverse audience,” says Joseph.

With an eye to the future, the School is also teaching public health to younger audiences through five-year BA-MPH programs in partnership with Columbia College, Barnard College, Vassar College, and other institutions. Says Joseph, “One of the reasons I took the job as vice dean of education was that I was drawn to the School’s passionate commitment to delivering an innovative public health education that will not only prepare students to tackle the pressing public health issues of today, but also those of tomorrow and decades to come. Our visionary Core Curriculum prepares our students with the ‘practice-ready’ skills and competencies they need to play active roles in improving the health of our communities.”
Time spent in our classrooms and among our community is life-changing. To learn the secret to the School’s ability to shape attitudes and careers in transformative ways, we asked faculty, students, and staff members past and present to share their standout stories about the Columbia Mailman School experience.

Interviews by Ruthie Fierberg
When I began my career here 18 years ago, public health was almost unknown to the world at large. How things have changed! I work with some of the greatest minds in public health, and when reporters call, I’m proud to hear them say their stories wouldn’t be complete without the words and wisdom of our professors.

Stephanie Berger, director of Media Relations

There is so much we know about public health and so much still to discover. It is a privilege to work and learn alongside faculty and students who are equally committed to shaping policy and practices to make the world a safer, healthier, more equitable, and more sustainable place.

Chelsea Clinton, MPH ’10, MPhil, PhD, adjunct assistant professor of Health Policy and Management, member of the Columbia Mailman School Board of Advisors, and vice chair of the Clinton Foundation

“This broad and deep training I received at Mailman, in addition to lifelong friendships and connections I made there, formed the backbone of my career successes. Our school is 100 years old, and has never been more relevant.”

Thomas Campbell Jackson, MPH ’98, venture partner at the Easton Capital Investment Group and member of the Columbia Mailman School Board of Advisors

“When I came uptown, I never looked back. People here are dedicated to working on important problems.”

Bruce Levin, PhD, professor of Biostatistics
“Each year, students astound me more and more with what they’ve done and what they want to do. They’re just amazing, these students. It’s been a joy to teach them and to learn from them.”

Linda Cushman, PhD, former associate dean of Field Practice and professor emeritus; faculty member since 1985

“We’re only as healthy as the least healthy member of our overall community. That’s where ethics comes into public health, where education comes into public health, and thinking about the allocation of resources. Mailman does these and many other things well.”

Robert Harvey, MPH ’07, member of the Columbia Mailman School Board of Advisors

“We love hearing the faculty talk about why an applicant is a fit for a department. The excitement they have is infectious!”

Julie Davenport, associate director of admissions

“Being a Black student, I wanted to make sure my voice was heard and that the voices of the other students who looked like me were heard as well. I joined the Graduate Student Association Officer Team. I was career and alumni chair, and we had career events that were co-sponsored by our Black and Latinx Student Caucus; we had a panel of BIPOC alumni giving advice targeted to students who have those identities. You really felt there was a network within the Mailman community, that we had people to turn to about professional opportunities and personal questions as well.”

Ibrahim (Bryan) Konaté, MPH ’20, clinical research coordinator at a New York City hospital system

“We’re only as healthy as the least healthy member of our overall community. That’s where ethics comes into public health, where education comes into public health, and thinking about the allocation of resources. Mailman does these and many other things well.”

Yvonne S. Thornton, MD, MPH ’96, pioneering obstetrician/gynecologist and author of *The Ditchdigger’s Daughters*
“Going to the School was a transitional experience for me. I never went back to clinical pediatrics. Instead of making patients healthier one by one, I decided to make whole populations healthier. Public health is at the crossroads of politics and medicine, and it’s about making small, creative changes that make the world a better place. If there are two things that shaped my life, I would say number one is my marriage to my wife and the other one was the School of Public Health and my choice of public health as a career.”

David Harris, MD, MPH ’65, former vice president of medical affairs for the Visiting Nurse Service of New York and a longtime health commissioner in both New York City and Suffolk County, Long Island; senior advisor on the Columbia Mailman School Board of Advisors

“Going back to school was daunting. I have a full-time job; I am a full-time mother to a second grader; and I hadn’t been in school for almost 27 years. It ended up being one of the best decisions I’ve made. The professors are simply incredible—so passionate it’s catching. The quality of education: top-notch. My classmates became lifelong friends. I am 100 percent better equipped to excel in my role, and my Health Policy and Management degree opened opportunities I had not imagined. I take a whole different view about my future as a result of my experience and I have Mailman to thank!”

Betty Chia-Wen Chang, MD, Executive MPH/MHA ’21, medical director of the Adult Emergency Department at the NewYork-Presbyterian/Columbia University Irving Medical Center and assistant professor of Emergency Medicine at the Columbia University Vagelos College of Physicians and Surgeons

“It’s an extraordinarily friendly place. In recruiting faculty, I had two criteria. Sure, you have to be smart and at the top of your field. But you also have to be nice.”

Joseph Graziano, PhD, emeritus professor of Environmental Health Sciences

“I was able to combine my fourth year of medical school with my MPH. It’s a powerful combination. I like to say that the definition of an epidemiologist is someone who loses sleep over denominators. The clinician may be tempted to look at just the person coming in, whereas we’re thinking of the entire population.”

Tom Frieden, MD/MPH ’86, president and CEO of Resolve to Save Lives, an initiative of Vital Strategies, and former director of the Centers for Disease Control and Prevention

“With classmates from my Social and Economic Determinants of Health course, I helped launch CIPHER (Citizen’s Public Health Literacy) at the start of the pandemic. We created a public health curriculum, reviewed literature, constructed a website and social media channels, evaluated our program, and built relationships with the Northern Manhattan community. It was a direct response to misinformation around COVID-19, and the inequities that the virus highlighted.”

Te Asia Hunter, MPH ’21, project coordinator at the American Medical Association Center for Health Equity
I was given the opportunity to create the first course I taught here, in 1988, and I designed a course on the ethics of public health that examined public health campaigns and how we got people to change. There were no such courses in the United States then. It was wonderful to have the freedom to develop this new material. It was exciting.

Ron Bayer, PhD, professor of Sociomedical Sciences and co-director of the Center for the History and Ethics of Public Health

When Mailman students see a problem, they also see a solution, and act upon it.”
Joanne Michelle Ocampo, current DrPH student

Our students’ creativity and drive is an unparalleled generator of exciting science. Their enthusiasm, together with their commitment to public health and service to society, is what makes working at the School one of the best jobs one can dream of.”
Ana Navas-Acien, MD, MPH, PhD, professor of Environmental Health Sciences

The reputation of academia is that it is detached and from 30,000 feet. But the policy analysis skills I learned at the School are applicable to almost every issue I cover. My education at the School was rooted in the real experience of people and communities in New York and around the world who live their lives downstream of corporate and political decisions that affect public health, and in how elected officials, community members, and journalists can work for the most just and healthy policy choices.”
Brian Lehrer, MPH ’96, award-winning broadcaster and host of The Brian Lehrer Show on WNYC

I co-founded a nonprofit called CovidWears that sells loungewear and donates 100 percent of profits to COVID-19 efforts. In six months, our organization raised $25,000 to help hospitals in the Mount Sinai system procure beds, ventilators, antibody tests, and personal protective equipment. My time at Mailman provided me with the skill set and confidence to create and lead this initiative, and I couldn’t be more grateful!”
Ipsita Praharaj, MHA ’21, healthcare consultant and co-founder of CovidWears
The unique relationships with communities in New York City is another plus. It allows for true communication between scientists and the real world, with a more meaningful impact.

Markus Hilpert, PhD, associate professor of Environmental Health Sciences

“I’ve never felt like I was at a job because I was surrounded by people who were doing meaningful things. You felt like you were a family, and that’s hard to find. I’ve always felt proud of my work here. Always.”

Yolanda Roman, administrative director of Human Resources and Payroll and 30-year member of the School’s staff

“Teaching Integration of Science and Practice was the highlight of my week, though with nervousness at times. Although they’re students, they’re also brilliant individuals who were soon to be my colleagues. I was trying to keep up with them as they were with me. You walk into that room with an idea of a conversation you want to have, and you leave there having learned something about yourself, about the students, and about the issue.”

Marlyn Delva, EdD, former associate dean of education and student affairs and dean of students at Columbia Mailman School, and current dean of students at the School of General Studies

“No solid news story is ever about a single incident. My education here taught me how to look at every story through a public health lens. Covering a car crash? What can that tragedy teach us about seatbelt or alcohol use? Learning to do that changed the course of my career and it also changed the trajectory of my life. It would not have happened without my education at Mailman.”

Perri Peltz, MPH ’84, current DrPH student, member of the Columbia Mailman School Board of Advisors, and award-winning journalist

“The unique relationships with communities in New York City is another plus. It allows for true communication between scientists and the real world, with a more meaningful impact.”

Cora Neumann, MPH ’03, DPhil, founder of Global First Ladies Alliance and We Are Montana, and member, Columbia Mailman School Board of Advisors

“Being at the School during 9/11 was a formative experience for me. To have a health disaster right in our own backyard was a lesson in real time about the importance not only of emergency response but also of the psychosocial side of recovery. The people who recovered best had a strong community. I carried that into my work—in addition to supporting local communities to find their own clinical health solutions, I have focused on the importance of psychosocial support. We’re going through a mass casualty event right now with the pandemic, and I’ve been applying my lessons to help communities cope and recover.”

Katherine Crew, MD ’99, MS ’05, associate professor of Medicine and Epidemiology at the NewYork-Presbyterian/Columbia University Irving Medical Center
“The Mailman culture is one of changing the world. You look around and know that the people next to you are dedicating their lives to building a better world for everyone.”

Mary T. Bassett, MD ’79, MPH, New York State Department of Health commissioner, former commissioner of the New York City Department of Health and Mental Hygiene, and former member of the Columbia Mailman School Board of Advisors

“I wasn’t surprised when students from Mailman greeted my 2014 appointment as New York City health commissioner with a package of smart ideas for expanded or new programming. The dean has always made clear that academic public health should be tied to public health practice.”

Ruthie Fierberg, a Barnard College alumna, is the former executive editor of Playbill and the creator and host of the podcast Why We Theater, which explores theatre and social justice.

Anna Huang, MPH ’21, quality improvement manager at the American Heart Association

“I have so much admiration for my professors, not only for their wisdom but also for the time and effort they spend to make students feel supported. Dr. Wan Yang taught my Infectious Disease Modeling course so well, working tirelessly during the pandemic. Dr. Marita Murrman made me think in ways I never had before. Dr. Yongmei Huang prepared us for careers as advanced statisticians. And my thesis advisor, Dr. Angela Aidala, has continued to aid me in my line of work past graduation. The professors really are the heart of the school.”

Kidd Duhe Solomon, MPH ’21, senior project manager for life sciences and healthcare initiatives at the New York City Economic Development Corporation
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1913: Columbia officially abolishes all forms of gender segregation.
1919: A League of Nations treaty is signed, with some of its provisions lost to time.
1922: The Edward Stephen Harkness family donates 22 million dollars to Columbia University.
1933: The Institute of Human Nutrition is established.

In 1947, the School launches the textbook, "Introduction to Public Health," which becomes standard nationwide.

In 1957, the School helps launch the first joint MPH/MBA program.

In 1964, the first methadone treatment program is established in the United States.

In 1973, the School creates a three-year fellowship in Global Emergency Medicine.

In 1978, the School becomes an independent body within Columbia University.

In 2002, the School helps launch the CPC (Child Protection in Crisis) program.

In 2014, the School establishes the Center for Population and Family Health.

In 2015, the School helps launch the Global Consortium on Climate and Health.

In 2019, the School launches the Program in Food Systems.

In 2021, the School enters its second century, with a focus on global health.

For more information, visit publichealth.columbia.edu/centennial.