Heavy Metal
*The Chronic Disease Connection*

The ongoing debacle of lead in the water of residents in Flint, Michigan, has brought the hazards associated with acute heavy metal poisoning into sharp relief for the general public. Less well-known are the hazards linked to chronic low-level exposure to heavy metals. Physician-epidemiologist Ana Navas-Acien, MD, MPH, PhD, studies how exposure to subtoxic levels of arsenic, cadmium, and lead contributes to chronic disease. Research by the newly appointed professor of Environmental Health Sciences (EHS) includes an inquiry into the heavy metals inhaled by e-cigarette users, the health effects of arsenic that leaches through groundwater into residential drinking wells, and the role of leaded gasoline in the nation’s epidemic of high blood pressure and heart disease.

At the Mailman School, Navas-Acien has partnered with EHS Professor Regina Santella, PhD, on a clinical trial that explores chelation, a technique for reducing levels of lead within the human body, and whether it helps to halt the progression of cardiovascular disease. Ongoing work with Native American communities in South Dakota investigates interventions to mitigate the long-term health hazards of private wells contaminated with arsenic, which contributes to both heart disease and Type 2 diabetes. “In these and other rural communities in the U.S., arsenic occurs naturally in groundwater, and it’s a major challenge,” says Navas-Acien, who is collaborating with investigators in Columbia’s Superfund Basic Research Program, led by EHS Professor Joseph Graziano, PhD. “There’s no requirement to test well water, so families are left on their own, without any protection.”

Where There’s Smoke
*Tobacco Disparities, by the Numbers*

In New York City, a pack of cigarettes can cost $15, compared with less than $6 in parts of Pennsylvania. Flavored tobacco cannot be sold in New York City, but it can be purchased in New Jersey and Pennsylvania, and all three locations have slightly different smoke-free air laws. “Place matters,” says Assistant Professor of Sociomedical Sciences Daniel Giovenco, PhD. “Where we live has a huge influence on our behaviors and health outcomes, especially when it comes to cigarette smoking. But we don’t know enough about the promotion of other tobacco products, including reduced-risk products, and how it might contribute to disparities in cessation, harm reduction, or sustained addiction.”

With funding from an NIH Director’s Early Independence Award, Giovenco aims to find out, by integrating data from geographic information systems, field studies, and smoke shop surveys. In his pilot studies, he discovered that the deadliest tobacco products are heavily marketed in communities with a higher proportion of people of color, whereas reduced-risk products are more prevalent in majority white neighborhoods. His current project investigates how exposure to this marketing may be associated with disparities in residents’ harm-reduction behaviors and tobacco-related health hazards. Says Giovenco: “I hope my research can chart a course for risk-based regulation and answer questions about the validity and equity of tobacco harm reduction.”
Kidney Failure

*Biostats Team Solves SPRINT Puzzle*

In 2015, the *New England Journal of Medicine* published results of the randomized controlled Systolic Blood Pressure Intervention Trial (SPRINT). Involving 102 clinical sites and 9,361 participants, the trial was designed to reveal whether intensive blood pressure management could significantly reduce the incidence of heart and kidney disease, stroke, or age-related declines in memory and thinking, compared with the current standard of treatment. While the study confirmed that more aggressive blood-pressure control further reduces the risk of heart disease, it also yielded a puzzling finding: SPRINT participants with chronic kidney disease had a lower risk of kidney injury when intensively treated than did those with normal renal function. Yet doctors have long observed the opposite: that interventions to control blood pressure actually increase risk of kidney damage.

To unravel the mystery, a team of Mailman School biostatisticians worked with nephrologists to reanalyze the trial data. They traced the problem to a discrepancy in how kidney injury was defined among SPRINT participants with normal kidney function, compared with those with chronic kidney disease. After applying the same criteria to both groups, the team found that among people receiving more intensive treatment, baseline chronic kidney disease actually predicted a much higher risk of acute kidney injury.

Ongoing analyses will assess whether the benefits to heart health outweigh the risks of kidney damage from intensive blood pressure control.

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Not So Fast

*Biostatisticians Hit the Brakes on Screening*

In September 2016, the biotech company Abcodia pulled its $295 ROCa blood test for ovarian cancer from the market in the United States. The decision came just days after the Food and Drug Administration issued a “safety communication” for women and their healthcare providers highlighting the risks associated with such tests and recommending against their use.

Ovarian cancer, known as “the silent killer” because its symptoms often don’t manifest until the disease has metastasized far beyond its origins in the reproductive tract, is the fifth-leading cause of cancer deaths among women; effective screening for the disease promises to save thousands of lives every year.

That’s why results of UKCTOCS—a randomized controlled study of approximately 200,000 British women followed over 14 years, making it the largest screening trial for ovarian cancer to date—were so eagerly anticipated and so heavily scrutinized when they were published by *The Lancet* in December 2015. The nonprofit Ovarian Cancer Research Fund assembled a group of experts—including Mailman School biostatisticians Bruce Levin, PhD, and Cody Chiuzan, PhD—to review the UKCTOCS data and the analysis published in *The Lancet*. Their review yielded serious concerns about the research and underlined the significant downside of screening using the Abcodia test kit.

American Family Physician published their critique in a June 2016 editorial, which laid the groundwork for the FDA’s safety communication.

While there was nothing fraudulent about the UKCTOCS study, Chiuzan and Levin say its most promising results are the consequence of several misleading statistical contortions. The biostatisticians say the UKCTOCS team deserves credit for organizing such a complex and ambitious study, but further follow-up is needed before making any firm recommendations regarding the new screening tool.

Others have raised the possibility of financial bias in *The Lancet* paper—Ian J. Jacobs, MD, one of two lead authors, is also co-inventor of the risk of ovarian cancer algorithm (ROCA) and has a financial stake in the success of Abcodia’s test. “The real problem was the overenthusiasm of the investigators—with or without the financial impetus—to put spin on the findings that should not yet be touted as lifesaving,” says Levin. “The bottom line is that the screening test is not ready for prime time. We need more evidence of a benefit.”
A Critical Time

Members of the Class of ’17 Honored

This year’s commencement celebrations started early for 34 members of the Class of 2017, who were honored for outstanding achievements at a morning awards ceremony. Julie Kornfeld, PhD, MPH, vice dean for education, and Marlyn Delva, EdD, associate dean of student affairs and dean of students, presented the Campbell Award for “exceptional leadership and Columbia Spirit,” the Outstanding Teaching Assistant Award, and the Bernard Challenor Spirit Prize for “commitment to building community across department boundaries.” Department chairs presented 39 additional awards. “These awards honor the many ways the Class of 2017 have excelled as students, scholars, and leaders of the Mailman School community,” said Kornfeld. “They are exemplary members of a distinguished class, all of whom are entering public health at a critical time, poised to make an important impact on the health of communities and to advance progress in the field of public health.”

In the afternoon, family, friends, and faculty gathered to celebrate as more than 600 master’s and 26 doctoral candidates received their degrees. Shivani Bhatia—an MPH graduate in Population and Family Health chosen by students, faculty, and staff—spoke on frailty and the human capacity for empathy. Ertharin Cousin, JD, former executive director of the U.N. system’s World Food Programme (WFP), gave the keynote address. During her eight-year tenure at WFP, Cousin led a staff of more than 14,000 in meeting urgent food needs in 80 countries while championing longer-term solutions to food insecurity and hunger. More recently, she has been working to raise more than $5 billion needed to avert famine in conflict zones in Africa and the Middle East, where millions face starvation. In February, the U.N. declared a famine in parts of South Sudan wrecked by civil war and a drought that has been exacerbated by climate change; Nigeria, Somalia, and Yemen face a similar plight. Fighting has restricted access, making humanitarian aid difficult and costly. “During a time,” said Cousin, “when some political leaders question science, and when too many of our policy decisions regarding the availability and accessibility of food are driven by marketers and commodity markets, the Mailman School delivers the vital data and the analysis prerequisite for speaking truth to power.”
Into the Streets
A “Cultural Chameleon” Tackles Stroke Prevention

By the time neurologist Olajide Williams, MD, MS ’04, was 18, he’d lived as long in London as he had in southwestern Nigeria, where he was born. These days he splits his time between Columbia University Medical Center/New York-Presbyterian Hospital and Hip Hop Public Health, a Harlem-based nonprofit he founded to combat the health risks that go along with being poor and black in the United States.

“I’m what you might call a cultural chameleon,” says Williams, who co-directs Columbia’s National Institutes of Health–funded Center for Stroke Disparities Solutions. “I’ve lived and worked in the poorest parts of Africa, and I was educated in the fanciest private schools in England. I’m equally comfortable hanging out until 3 a.m. in the toughest projects in Harlem and giving a lecture at the NIH.”

During his first few years in the U.S., Williams worked at both Harlem Hospital and CUMC. The disparities were stark. “In Harlem I had really desperate patients with no resources, overwhelmed with emotional challenges and all of the other social determinants that drive risk,” he says. “My patients at Columbia always had a better chance.”

To level the playing field, the neurologist put prevention first. As a master’s student in Biostatistics, he homed in on high blood pressure, the root cause of 70 percent of strokes. People of color in the U.S. have long suffered higher rates of hypertension, as well as worse outcomes. Upping the ante, the low-income, high-risk New Yorkers Williams most wanted to reach were juggling multiple jobs and had more pressing concerns than healthy living. “What’s on their radar,” he says, “is how to put food on the table, look after their kids, keep a roof over their heads.”

Then the concept of “child-mediated health” caught Williams’s imagination. Unlike a doctor droning on about stress management, tobacco cessation, exercise, and a plant-based diet, kids are a lot harder to ignore. Especially when you share the same roof.

Where Williams saw kids, he saw earphones. So he tuned in to their soundtrack, then recruited recording executives and performers willing to craft kid-friendly rhymes with a stroke-prevention message. Later, as principal investigator for a series of NIH-funded studies, he tracked which concepts stuck with his pint-size listeners. “The results were beyond what I dreamt,” says Williams, who performs live at elementary schools as the Hip Hop Doc, clad in scrubs and an outsize gold chain. “The secret formula is hip-hop.”

Over the past decade, Hip Hop Public Health has reached more than 1 million people and broadened its school-based programming to include materials on diet, exercise, the hazards of soda, and—in a nod to the multigenerational families in which its target audience resides—dementia.

As co-director of Columbia’s Wellness Center, opening later this year on the new Manhattanville campus, Williams will have another chance to extend his reach through an array of peer education programs. “I don’t think that we, as physicians, will be able to realize the type of outcomes that our local communities desperately need,” he says, “if we do not venture out of the four walls of our hospitals.”
A Friend of the Court
Lawyer James Kim, MPH ’03

When the Supreme Court hands down its ruling in Trump v. Hawaii and Trump v. International Refugee Assistance Project later this year, James W. Kim, MPH ’03, will be listening intently. A partner with the Washington, D.C., law firm McDermott Will & Emery who studied Health Policy and Management at the Mailman School, Kim was the pro bono lead counsel for an amicus brief in the Hawaii case, supporting a temporary injunction against the president’s executive order barring entry to the United States for people—including refugees—from six Muslim-majority countries.

Filed on behalf of the National Asian Pacific American Bar Association, the brief situates the question in American history, drawing attention to policies blocking immigrants from Asian and Pacific Island countries, such as the Chinese Exclusion Act of 1882—the first federal law to ban a group of people on the basis of their race—as well as the internment of Japanese-Americans during World War II. The 40-page brief argues that the executive order is in violation of religious protections in the Constitution, as well as the 1965 Immigration and Nationality Act, which dismantled nationality-based discrimination, lifting caps on the number of people from countries in Asia, Africa, the Middle East, and Southern and Eastern Europe.

“A return to the kind of system that discriminates based on an individual’s place of birth,” says Kim, “goes against the diversity upon which this country was built and has worked so hard to preserve.”

The Hawaii case isn’t the government contracts expert’s first brush with immigration law. Since 2015, he has served as pro bono counsel to the National Queer Asian Pacific Islander Alliance and helped the group file an amicus brief in United States v. Texas, a Supreme Court case that blocked President Barack Obama’s Deferred Action for Parents of Americans program, which could have delayed deportation for millions of undocumented immigrants.

“We will be involved in this case until the end,” says Kim of the current immigration battle. “We’re committed to following this through.”

Book Report
Author Chelsea Clinton, MPH ’10

Since its inception in 1948, the World Health Organization has pursued a single objective: “the attainment by all people of the highest possible level of health.” With 51 signatory countries and myriad other stakeholders, pursuing that goal hasn’t been cheap or easy—and in the intervening decades the organization’s inner workings have grown ever more complicated.

For public health practitioners intent on understanding the WHO and other global public health players, a new book from Oxford University Press has a simple piece of advice: Follow the money. In Governing Global Health: Who Runs the World and Why?, authors Chelsea Clinton, MPH ’10, PhD, and Devi Sridhar, PhD, use case studies of four leading organizations—WHO, the World Bank, Gavi, and The Global Fund to Fight AIDS, Tuberculosis and Malaria—to explore how financing and administration affect international public health initiatives. Clinton, adjunct assistant professor of Health Policy and Management, serves as vice chair at the Clinton Foundation in New York. Sridhar is professor and chair of global public health at the University of Edinburgh Medical School. Both earned doctorates at Oxford University.

When it comes to imposing accountability, understanding who holds the purse strings is vital, say Clinton and Sridhar, whose book tour included a visit to the Mailman School. To prove their point, the authors use WHO’s tangled financing. Donors, while generous, can earmark funds for certain purposes or specific regions of the world, limiting the director-general’s discretionary ability, even in the face of an emerging crisis. Those hazards came into stark relief when a lack of readily available resources and a slow response to the 2014 Ebola outbreak led to more than 10,000 deaths. Yet not a single WHO employee lost their job, and while promises of change were made, very few have been realized.

“It is a bit of a classic chicken-and-egg challenge,” says Clinton. “Will donors step up and provide the necessary resources for WHO to do its job, or will WHO have to prove itself more fit for purpose? Hopefully, the world won’t face another crisis like Ebola or Zika in the meantime to remind us once again why it’s so important that the world be more prepared.”
March on Washington
Organizer Caroline Weinberg, MPH '12

In April, 40,000 people converged on Washington, D.C., for the March for Science to support well-funded, independently conducted, evidenced-based science to inform policy. The global movement—co-chaired by Caroline Weinberg, MD, MPH '12—included marches in 600 cities, sponsorship from 300 scientific partner organizations, participation by thousands of volunteers, and 1 million followers on social media.

Conceived less than four months earlier, the march brought together scientists, science teachers, and members of the general public alarmed by President Donald Trump’s promotion of deep cuts to science funding, most recently in his proposed 2018 budget. Weinberg, a science journalist and health advocate, calls any cuts to science “spectacularly shortsighted” because they ignore its value for health, the environment, and the economy. “All people will suffer,” she says, “regardless of whether they support science or not.”

Since the nonpartisan gatherings in April, Weinberg and her co-organizers have leveraged the outpouring of interest in the March for Science to form a nonprofit committed to strengthening the role of science in policymaking, improving science outreach and communication, advancing science education and literacy, and fostering a diverse and inclusive scientific community. “Who science benefits and what research is done are influenced by politics,” says Weinberg. “Science belongs in policy. People who think it shouldn’t be are devaluing science and scientific research. It must be involved in policymaking for the benefit of people worldwide.”

A Lasting Legacy
Benefactor Sanford Bolton, MS ’66

Sanford M. “Sandy” Bolton, PhD, was an established professor of pharmacy at the University of Rhode Island in 1964 when he determined to get a better handle on the number crunching that drives such efforts as assessing a drug’s efficacy or optimizing its formulation. He took a two-year hiatus and earned a second master’s degree in Columbia’s Department of Biostatistics. Bolton would go on to work in industry, chair the Pharmacy Department at St. John’s University, and author Pharmaceutical Statistics: Practical and Clinical Applications, a textbook in print since its publication in 1984 through its fifth edition, issued in 2009. In addition to having a passion for science and mathematics, he was an amateur guitar maker and music enthusiast.

Bolton, who died in 2011, was the first benefactor of the Mailman School’s Biostatistics and Epidemiology Summer Training (BEST) Diversity Program and established the Sanford Bolton–John Fertig Award in Biostatistics for the best doctoral dissertation. This year, the department received a gift of $313,000, the first disbursement from his estate. To honor Bolton’s commitment to supporting underrepresented students and those with financial need, Department of Biostatistics Chair F. Dubois Bowman, PhD, says the gift will be used to support graduate students with an interest in pharmaceutical statistics and expand the BEST program. “The Department of Biostatistics was such an important turning point in his life,” says estate trustee Eric Warren Goldman, who recalls visiting Bolton and his wife, Phyllis, an accomplished painter, during their years in Washington Heights. “The Boltons consistently wanted to share some of their good fortune.”
In October, the Mailman School honored New York City Department of Health and Mental Hygiene Commissioner Mary T. Bassett, MD, MPH, with the Frank A. Calderone Prize for her transformational contribution to the field of public health. In an original lecture she gave at the award ceremony, titled “Public Health Meets the Problem of the Color Line,” Bassett discussed how racism and white supremacy have undermined health for all Americans. The burdens of race and class are often conflated, she noted, obscuring the insights that emerge from directly confronting racism.

“An anti-poverty lens might look at the higher rates of obesity and diabetes among populations of color and conclude that the problem to address is the prohibitively high cost of good food. There’s truth to that analysis. It is more expensive to eat a healthy diet and avoid diet-related diseases. The solution to this problem, understood in this fashion, would be to subsidize fruits and vegetables or reduce prices somehow to facilitate their purchase.

Adopt a racial justice lens, though, and you will see [that] is not enough. Because of the legacy of redlining, neighborhood disinvestment, farmers markets (not to mention full-service grocery stores) are far less likely to open in low-income communities of color, and if they do, they tend to cater to residents who reflect a wave of gentrification. The answer here requires further action. We need to address what some are beginning to call ‘food apartheid’ in rapidly gentrifying neighborhoods.

An anti-racist lens doesn’t just see the factors associated with poverty, but the entire historical dossier of policies, norms, and actions—the joint social relations of race and class.”