

# ROLLINS

FALL 2017

EMORY | Public Health



## The face of CLIMATE CHANGE

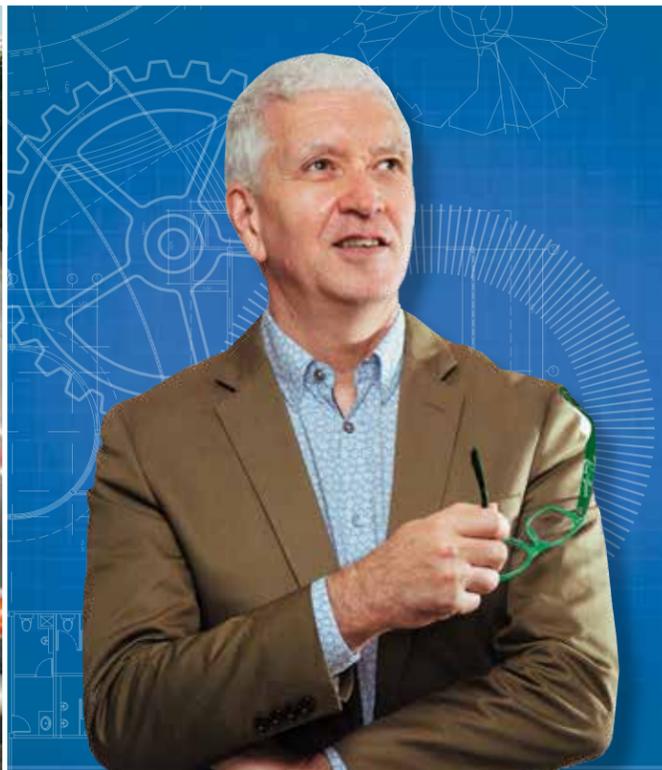


## Standing up for science

THE MARCH FOR SCIENCE | Rollins students, faculty, and staff took to the streets in April to join the March for Science Atlanta. The event was among hundreds of Marches for Science around the world, including the one that got the movement started in Washington, D.C. "I believe the march helped energize many people who never thought of becoming activists," says Alvaro Alonso, associate professor of epidemiology, who helped organize Emory marchers. "It has helped scientists to realize that we need to be more engaged in the policy process and be advocates for investment in scientific research."



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Rollins researchers study the health effects of global warming on multiple fronts



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Two disparate interventions are both successful in curbing teen drinking in the Cherokee Nation

COVER STORY



Global warming brings myriad adverse health impacts. Rollins faculty and students are studying ways to prevent, mitigate, or deal with those impacts. Illustration by Tim Marrs.

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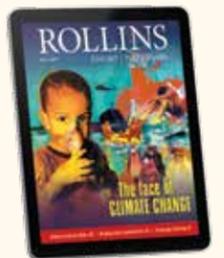
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**MEGAN PRICE O9PHD**  
As executive director of the Human Rights Data Analysis Group, Megan Price uses statistics to shine the light on human rights abuses.



The iPad edition of *Rollins* magazine is available by downloading Emory Health Magazines in the App store.



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## Climate's impact on health

**Even if countries come together to hold down the increase in global temperatures, adverse health effects from climate change are inevitable.**

In fact, impacts are already being felt—we're seeing vector-borne diseases expand their territory, ER visits for asthma jump on high-pollution days, and increases in injuries from wildfires, floods, and intense storms.

Rollins researchers, particularly those in our environmental health department, are working to discover best practices to mitigate such health outcomes. A university-wide organization housed at Rollins, Climate@Emory, is partnering with other academic institutions, industries, and governments to support education and climate remediation efforts. And, of course, we are educating the next generation of public health leaders who will be on the front lines when the fallout from global warming is felt. I'm proud of the vast and varied work of our school to deal with this looming public health crisis.

We recently welcomed James Lavery as the inaugural Conrad N. Hilton Professor in Global Health Ethics. Lavery is one of the leading experts in navigating the complex and nuanced world of public health research in global—often third-world—settings. He will enrich our many studies in the global arena.

Closer to home, Rollins is committed to helping fulfill the needs of our Atlanta community. A few of these efforts are highlighted in this issue, including community grants that help neighborhoods address environmental concerns, a project to help low-income first-generation Latino high school students gain work experience in health-related fields, and an initiative to identify public health benefits of the City of Atlanta's Climate Action Plan.

Finally, and sadly, we lost a good friend and valued colleague. William "Bill" McClellan Jr. passed away on March 9. All of us know Bill as an outstanding teacher and mentor for many years in the epidemiology of cardiovascular disease and other chronic diseases and aging. He was the ultimate physician and clinical epidemiologist. With his countless trainees, mentees, and colleagues, we will miss him greatly.

**James W. Curran, MD, MPH**  
*James W. Curran Dean of Public Health*



## Get moving to get good grades

**T**oday's youth are a sedentary lot. Most school-age children in the U.S. get less than the recommended 60 minutes of physical activity per day. A new study by Rollins researchers aims to provide evidence that increased physical activity improves academic achievement in order to motivate schools to improve policies and integrate more physical activity into the school day.

"Since the school environment serves more than 95 percent of youth, it is an important setting in which to impact both health and education outcomes," says Julie Gazmararian, associate professor of epidemiology. "Our study is using an established program that enables schools to easily integrate physical activity into their daily class time. With a rigorous study design and a program that fits into schools' busy schedules, this project will be valuable for those in the health and education communities who are developing programs and policies

to help students be healthy and achieve academic success."

The team will test the relationship between physical activity and education outcomes among fourth- and fifth-grade elementary students over two years, with specific objectives that include examining the relationship between student-level physical activity and academic achievement measured by standardized tests.

"We believe that the research and data from this project will be extremely beneficial to school administrators, policymakers, researchers, and educational and health agencies," explains Christi Kay, president of HealthMPowers, a nonprofit that is partnering with Rollins to provide the school physical activity programs. "Our project will provide crucial evidence about the association between physical activity and educational outcomes that can have a tremendous impact on school policies to support healthy lifestyles." ■

## Former slaveholding counties show slowest decline in heart disease among blacks

A new study found a potential link between U.S. counties with a history of slavery and slower rates of decline in heart disease mortality. The researchers, led by Michael Kramer, associate professor of epidemiology, found that while heart disease has decreased by approximately 60 percent in the past 50 years nationwide, the pace of decline was slower for blacks compared with whites and slower in counties that had higher levels of slaveholding in 1860.

"A challenge for public health professionals is understanding the reasons for racial and geographic differences in

the pace of progress in fighting heart disease," says Kramer. "Work by historians and sociologists suggests that the legacy of slavery persists today in the local institutions and norms of southern counties—enlarging racial disparities in educational attainment, poverty, and employment. We wondered whether this legacy also impacts the rate of decline in heart disease mortality."

Kramer and his colleagues found that the slower declines in heart disease in counties with a slaveholding past was partly explained by the racial gaps in education and economic opportunity. "Public health



action needs to go beyond simple individual messaging around heart health and engage with the historical legacy of places and their institutions to identify barriers to future progress," says Kramer. ■



## Insecticide resistance in some Zika mosquitoes

One of the most common insecticides used in the battle against the *Aedes aegypti* mosquito—which carries the viruses that cause Zika, dengue fever, and yellow fever—has no measurable impact when applied in communities where the mosquito has built up resistance to it, a new study finds.

The study is the first to show how vital insecticide-resistance monitoring is to controlling the *Aedes* mosquito. "The results are striking," says lead author Gonzalo Vazquez-Prokopec, a disease ecologist in Emory's Department of Environmental Sciences and assistant professor in environmental health at Rollins. "If you use the insecticide deltamethrin in an area with high-deltamethrin resistance, it's the same as if you didn't spray at all."

The results of the randomized, controlled trial are important because some public health departments in places where Zika and dengue viruses are endemic do not necessarily monitor for insecticide resistance.

"The recent epidemic of the Zika virus has raised awareness that we need to focus on what really works when it comes to mosquito control," Vazquez-Prokopec says. "The data from our study makes a bold statement: Any mosquito-control program involving spraying insecticides needs to be based on knowledge of the current levels of insecticide resistance of the local mosquitoes."

It's a natural biological process for mosquitoes to mutate in response to insecticide exposure.

Even more worrying are so-called "superbug" mosquitoes that show resistance to more than one insecticide.

"You can't stop evolution," Vazquez-Prokopec says. "That's why it's important for countries to have resistance-monitoring systems at both local and national levels to help manage the use of insecticides more efficiently and effectively." —Carol Clark

## CFAR gets \$10 million NIH renewal

The Center for AIDS Research at Emory (CFAR) received a five-year \$10 million renewal from the NIH.

Having CFAR at Emory has been critical to growing HIV/AIDS research funding at the university. When Emory received its first funding in 1997, the university had \$11.3 million in HIV/AIDS research funding and ranked No. 23 in the nation. Now, Emory ranks sixth in the country for HIV/AIDS NIH funding, with \$63.8 million in HIV/AIDS research support. Additionally, 20 percent of Emory's total NIH funding is HIV/AIDS-related funding, contributing to a 63 percent growth in research funding since 2010.

CFAR at Emory University is co-directed by Carlos del Rio, Hubert Professor and chair of the Department of Global Health, Dean James Curran, and Eric Hunter, professor of pathology and laboratory medicine at Emory University School of Medicine. ■



## Peace Corps connection

Rollins students joined Dean James Curran and members of Rollins staff for a lunch with Peace Corps Acting Director Sheila Crowley and her staff. They shared stories about their experiences abroad and discussed the Paul D. Coverdell Fellowship, which places returned Peace Corps volunteers in internships

in underserved U.S. communities. Pictured left to right: Breanna Wodnik 18MPH (served in Paraguay 2014-2016); Haley McLeod 18MPH (served in Cameroon 2013-2016); Crowley; Curran; Casey D. Hall 18PhD (served in Burkina Faso 2010-2012); and Jasmine Wilkins 17MPH (served in Nicaragua 2006-2008). ■



## Heart rate as indicator of depression

Rollins researchers have found a link between a heart rate variability biomarker (Dyx) and depression. Led by Amit J. Shah, assistant professor of epidemiology, the researchers evaluated middle-age male twins from the Vietnam Era Twin Registry who underwent 24 hours of ambulatory electrocardiography. They found a strong relationship between depressive symptoms and lower Dyx, indicating that those with increased depressive symptoms have a potentially higher risk of ischemic heart disease, arrhythmia, and death.

"We were impressed at how compelling the relationship was between Dyx and depressive symptoms," says Shah. "This supports the conceptual framework that depression has direct cardiotoxic effects mediated by the autonomic nervous system." ■

## Eley receives Charles R. Hatcher Jr. M.D. Award

J. William Eley, executive associate dean of Medical Education and Student Affairs and professor of hematology/oncology in the school of medicine, was awarded the 2017 Charles R. Hatcher Jr. M.D. Award for Excellence in Public Health. Eley has been at Emory since he was 17, and he has three Emory degrees under his belt—BS in chemistry, MD, and MPH. His research has focused on disparities in breast cancer incidence, biology, and outcomes. “Bill is an administrator, a researcher, and a professor, but I always think of him as a really good doctor,” says Dean James Curran. “Bill is a mentor and model for all of us.”

The annual award is named for Dr. Charles R. Hatcher, who advocated for the creation of the school of public health during his tenure as Emory’s vice president for health affairs. ■



WILLIAM ELEY (CENTER) ACCEPTS THE HATCHER AWARD FROM DEAN CURRAN AND JONATHAN LEWIN.

## Medicaid coverage gaps hurt those with depression

Lapses in Medicaid coverage can hit hard in people with severe depression. According to a study by Xu Ji, doctoral candidate in health policy and management, patients with disruptions in their Medicaid coverage visited the ER more often and stayed in the hospital longer than those with continuous coverage.

The study also found that breaks in Medicaid coverage were associated with state re-enrollment policies. The disruption rate was significantly lower among beneficiaries living in states with more streamlined re-enrollment policies (i.e., re-enrollment occurs annually) than among those living in states that required more frequent re-enrollment (i.e., every six months or more frequently). Policies that require more frequent re-enrollment can result in coverage lapses, perhaps because a person did not get their paperwork filed in time or because they moved.

Before the Affordable Care Act (ACA), states could, and many did, require beneficiaries to prove eligibility and re-enroll several times a year. The ACA required states to recertify eligibility no more frequently than once a year for those that qualified based on income. The health care proposals before Congress this year included the option of reinstating more



frequent recertification. For those with mental health problems, that could be bad news. “Without a constant source of coverage, patients could end up missing visits with their doctors until their depression worsens to the degree that emergency visits and hospitalizations are required,” says Ji. ■

## Thin and at risk for heart disease



Relying on overweight and obesity as the main criteria to screen for high blood pressure, high glucose, high triglycerides, or low HDL cholesterol will likely miss a substantial number of people who have high cardiometabolic risk. According to a

study by a research team from Rollins, the University of California at San Francisco, and Northwestern University, about one-third of people with a normal body mass index had risk factors for heart disease, especially those of South Asian and Hispanic descent. The study, led by Unjali Gujral from the Emory Global Diabetes Research Center at Rollins, recommends screenings for heart disease and diabetes in normal weight members of these populations. ■

## BMI remains stable through childhood

Children’s body mass index (BMI) tends to remain highly stable between kindergarten and 8th grade, according to a study led by Solveig Cunningham and Sandra Jackson, researchers in the Hubert Department of Global Health.



Analyzing data from the Kindergarten Cohort of the Early Childhood Longitudinal Study of U.S. children, they found behavioral factors such as eating habits, sedentary habits, and physical activities had little effect on changes in children’s weight over time. The more striking finding was the effect of weight on behaviors. When children became heavier, they started to watch more television and be less active, indicating that being overweight may negatively affect children’s behavior.

Given the stability of children’s weight status in elementary and middle school, researchers recommend that future interventions target younger children under the age of five. ■



## Minorities more likely to go off ADHD meds

Black and Hispanic children on Medicaid are more likely to go off their medications for attention deficit and hyperactivity disorder (ADHD) and to discontinue treatment entirely than their white counterparts, according to a study by Rollins researchers. Medicaid is the largest insurer of children in the U.S.

The study found high rates of medication discontinuation and treatment dropout for all youth in the study, but they were even higher for minority children. More than seven-tenths of youth who discontinued medication did not receive any type of psychotherapy services for ADHD—including behavioral therapy. Because so few of those who discontinued medication received any other services, the higher rates of medication discontinuation among minority youth translated into significantly higher rates of stopping treatment.

“If parents decide that they don’t want their child to take medication for ADHD, it’s crucial for health care providers and health care systems to make every effort to connect these families to therapy services,” says Janet Cummings, associate professor of health policy and management and lead author of the study. “One of the key challenges is that many communities have shortages of mental health specialists who accept Medicaid. It is critical for policymakers to invest in expanding the availability of psychotherapy services in settings more accessible to these families—such as federally qualified health centers and school-based health clinics.” ■

## HepVu maps prevalence of hepatitis C

While hepatitis C doesn't grab headlines like HIV/AIDS or tuberculosis, the disease claimed more lives in the U.S. than the combined total of 60 other reportable infectious diseases in 2013, according to the CDC. Compounding the burden, about half of the 3.5 million Americans infected with hepatitis C don't know it.

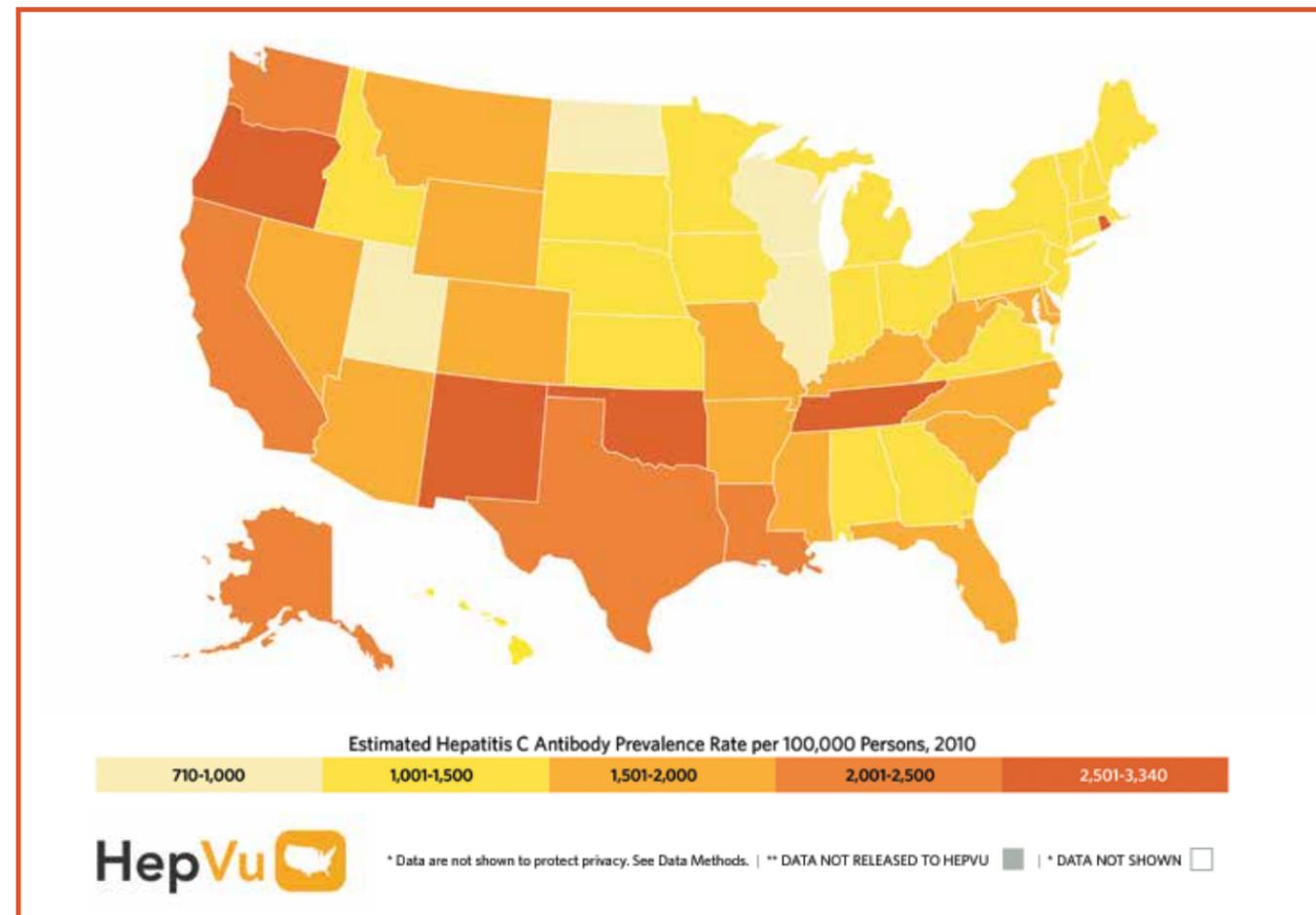
Researchers at Rollins partnered with CDC counterparts to develop a tool to help curb the hepatitis C epidemic. HepVu is an online interactive map that shows the prevalence of the disease and mortality rates by state. Since the type of robust surveillance system that is in place to track HIV/AIDS is lacking for hepatitis C, HepVu offers a first-time look at this level of information. Patrick Sullivan, Charles Howard Candler Professor of Epidemiology and the project's principal investigator, says he hopes the tool can be used to help policymakers allocate resources to combat the disease.

Hepatitis C is an infection with few symptoms that, if untreated, can lead to liver cancer or cirrhosis. Baby Boomers

account for 75 percent of hepatitis C infections, although many remain unaware. This cohort may have become infected during medical procedures in the years after World War II, when procedures involving injections and transfusions were not as sophisticated, according to a study in *The Lancet Infectious Diseases*. The opioid epidemic has spiked a new wave of infections. From 2010 to 2014, new cases of hepatitis C in the U.S. jumped 250 percent.

Eight states—California, Texas, Florida, New York, Pennsylvania, Tennessee, Ohio, and Washington—made up more than 50 percent of all people living with evidence of hepatitis C. The West had the highest regional rate, with 10 out of 13 states having rates above the national average. The South had the most people with hepatitis C (1,157,400).

As with AIDSvU—a similar tool developed by Rollins researchers that charts the prevalence of HIV/AIDS by state, county, and city—HepVu helps people understand the severity of the epidemic in their neighborhood. ■



### MEDIA SAVVY

“Blue Cross is clearly staking a claim here that we’re going to try to change patient behavior.”

**JASON HOCKENBERRY**, ASSOCIATE PROFESSOR OF HEALTH POLICY AND MANAGEMENT, TOLD WABE. HE WAS SPEAKING OF THE INSURER’S ANNOUNCEMENT THAT IT WILL STOP COVERING EMERGENCY ROOM VISITS IT DEEMS UNNECESSARY.

“She has the unique opportunity to be the CDC director who ends AIDS as a public health threat.”

**CARLOS DEL RIO**, CHAIR OF THE HUBERT DEPARTMENT OF GLOBAL HEALTH, TOLD MEDPAGE TODAY ABOUT THE APPOINTMENT OF BRENDA FITZGERALD TO LEAD THE CDC.

“We must reduce the weight of water on women’s shoulders.”

**BETHANY CARUSO**, POSTDOCTORAL FELLOW IN ENVIRONMENTAL HEALTH, WROTE IN AN ARTICLE IN *THE CONVERSATION* ABOUT HOW THE BURDEN OF COLLECTING WATER AFFECTS THE HEALTH, WELL-BEING, AND PERSONAL DEVELOPMENT OF WOMEN AND GIRLS.



Karen Andes, second from right, with three students, the Consul General of Mexico (far left), and a participating physician at MAPA's closing ceremony.

## Mapping a path to success for first-generation immigrant students

**Dinenson Cortez, a high school senior, spent his summer shadowing a physician treating HIV patients at the Grady Infectious Disease Clinic.** Classmate Selina Rodriguez interned at CIMA International Women's Health Services, taking vital signs, copying doctor's notes, and prepping exam rooms. And another classmate, Salma Ignacio, helped out in the front office of Blue Creek Dental.

Cortez, Rodriguez, and Ignacio were among 23 students participating in the Mexican-American Participatory Assessment (MAPA) Project. Conceived and implemented by Karen Andes, assistant professor of global health, MAPA places low-income, first-generation Latino immigrants in health services-related internships. The goal is twofold: give this cohort the training and experience to land an entry-level job after high school to help them pay for college, and help fill the need for more bilingual, bicultural health care professionals in Georgia.

Just finishing up its second year, the project recruits students from Atlanta's Cross Keys High School, which is about 80 percent Hispanic. Over the course of a month, the students go through a youth development program that helps them visualize positive futures and assess strengths and interests. Then the students receive three days of intense training in skills ranging from office etiquette to communication, and from medical terminology to recording and interpreting vital signs. Finally, the students are placed with outpatient clinics, academic hospitals, and local health providers, where they work four days a week over two months in the summer. One day a week, they meet at the Mexican Consulate of Atlanta for additional training.

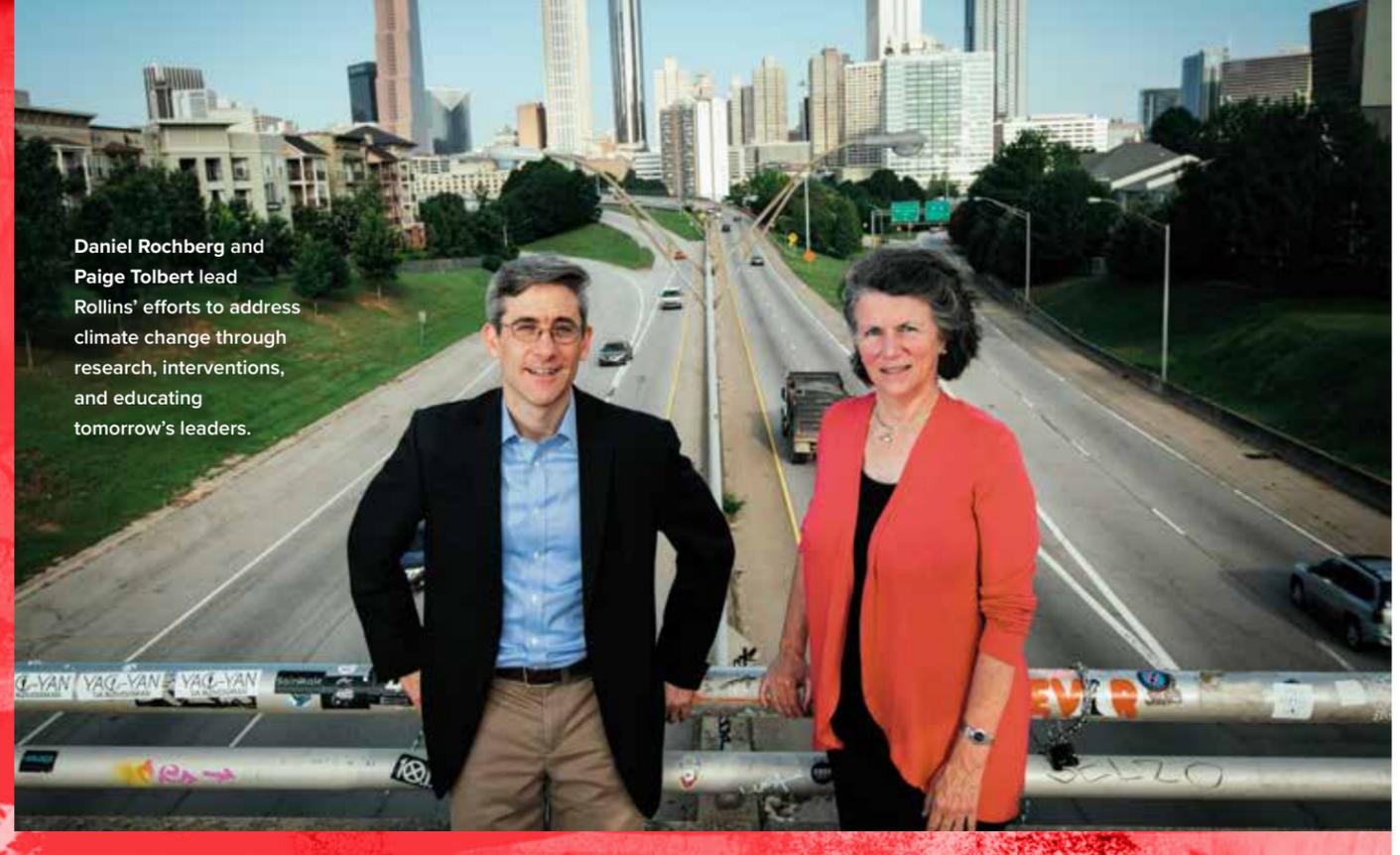
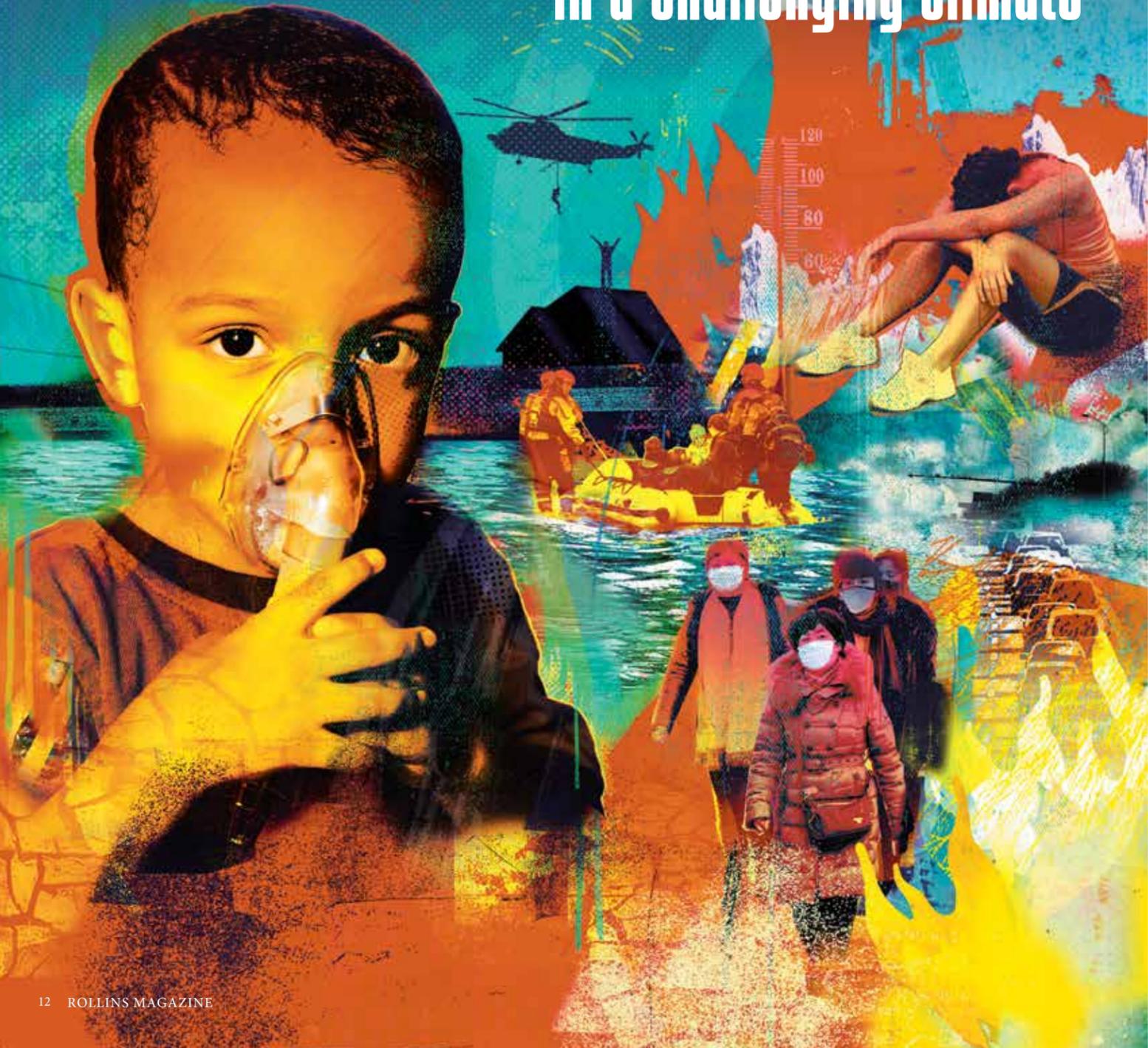
Funded by a grant from CIGNA Foundation, the students are paid for their time as they gain marketable skills. The students who went through MAPA said it was a confidence builder, improved their communication skills, and was their first exposure to working in a professional setting. These comments were echoed by their supervisors.

One student, Daniela Ramirez, was awarded a Posse scholarship, a four-year, full-tuition scholarship for low-income students who might have been overlooked by traditional college selection processes. A member of the selection committee told Ramirez her experience with MAPA played a role in her selection. She is headed to George Washington University this fall.

“The whole goal of this program is to give these kids a leg up on the path to success,” says Andes. “Daniela is a great example of how we were able to do that.” ■

ROLLINS RESEARCHERS ADDRESS GLOBAL WARMING

# Protecting health in a challenging climate



Daniel Rochberg and Paige Tolbert lead Rollins' efforts to address climate change through research, interventions, and educating tomorrow's leaders.

**CLIMATE CHANGE.** Partisan politicians debate its reality, and many citizens see it as a faraway threat, something that endangers the future of polar bears but not them personally.

The health effects of global warming, however, are already being felt. Extreme weather events such as wildfires, droughts, and flooding are becoming more frequent, resulting in more injuries, deaths, and relocations. Heat and air pollution are sending people with asthma and other respiratory ailments to the emergency room. Diseases carried by mosquitoes, fleas, and ticks are expanding their territory—dengue has become endemic in Florida, Lyme disease has worked its way up to Canada and over to California, and some fear that malaria may re-emerge in the U.S.

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By MARTHA MCKENZIE • Illustration by TIM MARRS • Photography by STEPHEN NOWLAND

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Tie these health burdens—which are only likely to worsen—with the current administration’s decision to pull out of the Paris climate agreement and dismantle environmental regulations, and the call to action becomes more urgent. “The federal government’s actions might be a headwind from a funding perspective, but they are also very much a tailwind from an inspiration and motivation perspective,” says Daniel Rochberg, an instructor in environmental health who worked for the U.S. State Department as special assistant to the lead U.S. climate negotiators under presidents Bush and Obama. “As others have said, ‘We are the first generation to feel the sting of climate change, and we are the last generation that can do something about it.’ We have to get busy doing something about it.”

Rollins has gotten busy. Faculty researchers are building the science of climate impacts, strategies for reducing greenhouse gas emissions, and approaches for increasing resilience to climate change. Climate@Emory, a university-wide organization of concerned students, faculty, and staff, is partnering with other academic institutions, industries, and governments to support education and climate remediation efforts. Through

Climate@Emory’s initiative, Emory University is an accredited, official observer to the UN climate talks and has sent students and faculty to the climate conferences in Paris in 2015 and in Marrakech in 2016. And, of course, Rollins is educating the next generation of scientists who will be dealing with the fallout of today’s climate decisions.

“For environmental scientists, it’s a challenging climate,” says Paige Tolbert, O. Wayne Rollins Chair of Environmental Health. “That means we have to be creative, because we can’t step aside and wait four years. It’s more critical than ever that we keep moving forward and make whatever contributions we possibly can.”

#### MANAGING THE UNAVOIDABLE

Response to climate change falls into two camps—mitigation (avoiding the unmanageable) and adaptation (managing the unavoidable). While the former—reducing greenhouse gas emissions—is generally outside the public health purview, the profession can still play an important role. “Everything we can do to strengthen the world’s understanding of the health impacts of



Yang Liu leads a team that is on the cutting edge of climate modeling. Using the latest scenarios and sophisticated downscaling techniques, Liu creates climate models that can be actionable by policymakers.



Karen Levy studies the relationship between climate change and diarrheal diseases in tropical and subtropical regions. She has found increases in temperature and in rainfall can result in more diarrheal deaths.

climate change strengthens the case for mitigation policy,” says Rochberg, who leads Climate@Emory.

The latter is solidly within the public health wheelhouse. “Measuring health impacts and devising interventions is what public health is built on,” says Karen Levy, associate professor of environmental health and epidemiology. “We have the knowledge and the tools to address water shortages, disease outbreaks, and sanitation issues. Investing in basic public health is perhaps the best climate change adaptation.”

Rollins researchers are tackling adaptation on several fronts:

#### ● Diarrheal disease

Levy first became interested in studying diarrheal diseases more than a decade ago, when she noted the paucity of studies about the relationship between climate and the disease that kills more than 700,000 children under the age of five each year. In one expansive paper about the relationship between climate and health, there was just one paragraph on diarrheal diseases, and that paragraph cited only two small studies.

So she spent the next five-plus years doing a systematic review of all the data about the incidence of diarrheal disease she could get her hands on, which was not easy since surveillance in the African and Asian countries where it is most widespread is patchwork. She then gathered data about temperatures, rainfall, flooding, and other weather conditions and compiled a body of work about the rather complicated relationship between diarrheal disease and climate change.

Levy looked at Bangladesh, which has better records about the incidence of diarrhea than many developing countries. She found that a 1° C increase in mean monthly temperature was associated with an 8 percent increase in diarrhea associated with one common pathogen—Enterotoxigenic *E. coli*.

“Eight percent might not sound like much,” says Levy. “But that would translate into an estimated 800,000 additional deaths in the near term. And that is from diarrhea from one specific pathogen in one country.”

In another study, Levy looked at the link between heavy rainfall and diarrheal disease in 19 rural villages in Ecuador. She



Matthew Gribble is building the body of evidence around ciguatera fish poisoning (CFP), one of the world's most common types of seafood-related food poisoning. Warming oceans have spread CFP's reach.

found that when heavy rainfall followed a period of drought, diarrhea rates rose by 39 percent. But when the heavy rainfall occurred during the rainy season, diarrhea rates actually fell. The most likely explanation, according to Levy, is that human waste accumulates on the ground and in unsealed latrines during dry periods and is washed into rivers and water holes during a heavy rain. However, human waste can't accumulate when light rains constantly wash it away. Also, communities that treated their water, usually by boiling or chlorination, escaped the drought/heavy rainfall spike in diarrhea.

#### ● Climate modeling

Climate modeling lays the foundation for action on climate change. Rollins researchers led by Yang Liu are on the cutting edge of climate modeling, using the latest scenarios and developing novel tools that allow the existing models to be brought down to a scale that is actionable for public health interventions.

To further explain, a climate modeling primer is useful. To make sure the research of different scientists can be compared

apples-to-apples style, all climate models use a standard set of scenarios that include starting conditions, historical data, and projections. In the 1990s, one set of scenarios was introduced—the Special Report on Emissions Scenarios (SRES) standards. These scenarios were replaced with updated versions in 2014 called Representative Concentration Pathways (RCPs).

Most scientists are still working with the SRES standards because data for those is more readily available. Liu and his colleagues, however, are using the latest scenarios. “Our group is one of the few that is publishing based on RCPs,” says Liu. “Using the RCPs makes our work more relevant and comparable with the latest IPCC [Intergovernmental Panel on Climate Change] work.”

But even new scenarios are limited because they are based on very crude grid sizes. Each data point represents 10,000 to 20,000 square miles on average—the size of a small state. While such coarse resolution can be useful on a national level, it is not particularly helpful for city, county, or even state planning for climate mitigation and adaptation.

Scientists can refine the model in one of two ways to make

it meaningful on a smaller scale—statistical downscaling and dynamical downscaling. The latter involves nesting another region-specific model within the global model—a highly complex undertaking and one that Liu's team has mastered.

“We have developed our own downscaling methods rather than using publicly available models, and there is a big difference,” says Liu. “We completed our first study on our models in 2013, so by now we are proficient in downscaling. Other institutions have started coming to work with us as a resource for their modeling efforts.”

Most climate modeling researchers are in atmospheric sciences or physical sciences departments, and they may collaborate with researchers in the public health department. “We are the other way around,” says Liu. “We initiate our study objectives within the school of public health, and we decide how the models are run. So instead of getting creative in using whatever data is out there, we are able to generate data that is as suitable as possible for public health applications.”

Such applications include calculating how many extra deaths will occur in the 2050s due to heat

waves at the county level or how much public health burden wild fires will place on the Rocky Mountain states. “With our climate models, we can talk about health impacts in a way that makes sense to policymakers,” says Liu. “Our goal is to provide meaningful scientific support for policymaking.”

#### ● Food poisoning

Matthew Gribble is helping to build an understanding of the epidemiology of ciguatera fish poisoning (CFP). This is thought to be one of the world's most common types of seafood poisoning, but exact numbers are hard to come by since its symptoms (vomiting, diarrhea, abdominal cramps, and blurred vision) mimic those of other types of food poisoning. Currently, there is no good way to test humans for CFP. The only way to officially confirm a case is to send a sample of the patient's fish meal to a lab to test for the toxin. As one can imagine, many cases are missed.

Preventing CFP is challenging. The toxin that causes CFP is tasteless, odorless, and colorless, so it's difficult to identify infected fish. It is also hardy—you cannot bake, broil, fry, or freeze it out of

the fish. It is found most commonly in popular reef fish, such as grouper and snapper, which become tainted by algal toxins.

Ciguatera-causing algae are abundant in the Caribbean, Pacific, and Indian oceans, and it may be expanding its territory as seas grow warmer. The impact will be felt most keenly in island communities that depend on reef fish for a main food source.

“This is partly a social justice story,” says Gribble. “These are not the communities that are driving climate change, but they are the ones being hammered by it.”

#### ● Respiratory diseases, asthma

Rising temperatures result in increased air pollution levels, longer pollen seasons, and more frequent extreme weather events such as thunderstorms. All are bad news for people with asthma and other respiratory ailments.

Stefanie Sarnat, associate professor of environmental health, has been studying how these factors translate into emergency room visits. Looking at just one contributor to air quality—ozone, a known respiratory irritant—Sarnat found a 5 percent to 10 percent increase in ER visits by asthma patients on days with the highest concentrations of ozone compared with days with low levels. Using climate and air quality models, she and colleagues projected that Atlanta may experience an 8 percent increase in the number of days that exceed the 75 ppb US National Ambient Air Quality Standard for ozone by 2041. Given today's Atlanta population, these higher ozone levels would result in 267 to 466 additional asthma ER visits per year.

Pollen may be even more troubling for asthma sufferers, since a large percentage of asthma cases are allergic. Sarnat found a 10 percent to 15 percent increase in ER visits on days with highest concentrations of pollen versus those with low levels, particularly among children.

Thunderstorms can also trigger asthma attacks. While pollen grains are usually too large to enter the smallest airways of the lungs when inhaled, rain can cause pollen grains to rupture and release particles tiny enough to be inhaled deeply; strong winds from thunderstorms can spread these particles far and wide. Sarnat found that a small increase in ER visits for asthma occurs after every thunderstorm.

All these findings are likely the tip of the iceberg, says Sarnat, since her team looks only at ER visits. It's a safe bet that for every person who goes to the ER, many more visit doctors or use their quick-relief medicine.

#### COLLABORATING ON CLIMATE

“The Paris climate agreement was like establishing base camp,” says Rochberg. “Now we still need to go up the mountain.”

That ascent requires teamwork and partnerships, which he is working to build through Climate@Emory. His goal—nothing less than finding a way to get past partisan politics and work collaboratively on climate change.

Part of that equation involves science—working with scientists from around the state to improve the collective understanding of what climate change means for Georgia and what can best be done to address it. In May, Rochberg was instrumental in hosting, along with University of Georgia and Georgia Institute of Technology, a two-day workshop to draft the “Georgia Climate Research Roadmap.” Scientists, researchers, and environmental experts from across the state gathered at Emory to define a set of key climate research questions that could eventually aid climate change-related decision-making and planning for Georgia policymakers, scientists, communities, and service organizations. “The idea is there are tons of experts around the state working on this issue. We can and should do a better job of pulling them together, working to advance our understanding of climate change, and putting forward ideas of how to respond to the challenges it presents,” says Rochberg. “The workshop was a great step in that direction.”

Another part of the equation involves changing the partisan nature of the conversation about climate change in Georgia. Toward that end, Rochberg has two projects in the planning phase. First, he is working with partners at UGA, Georgia Tech, and

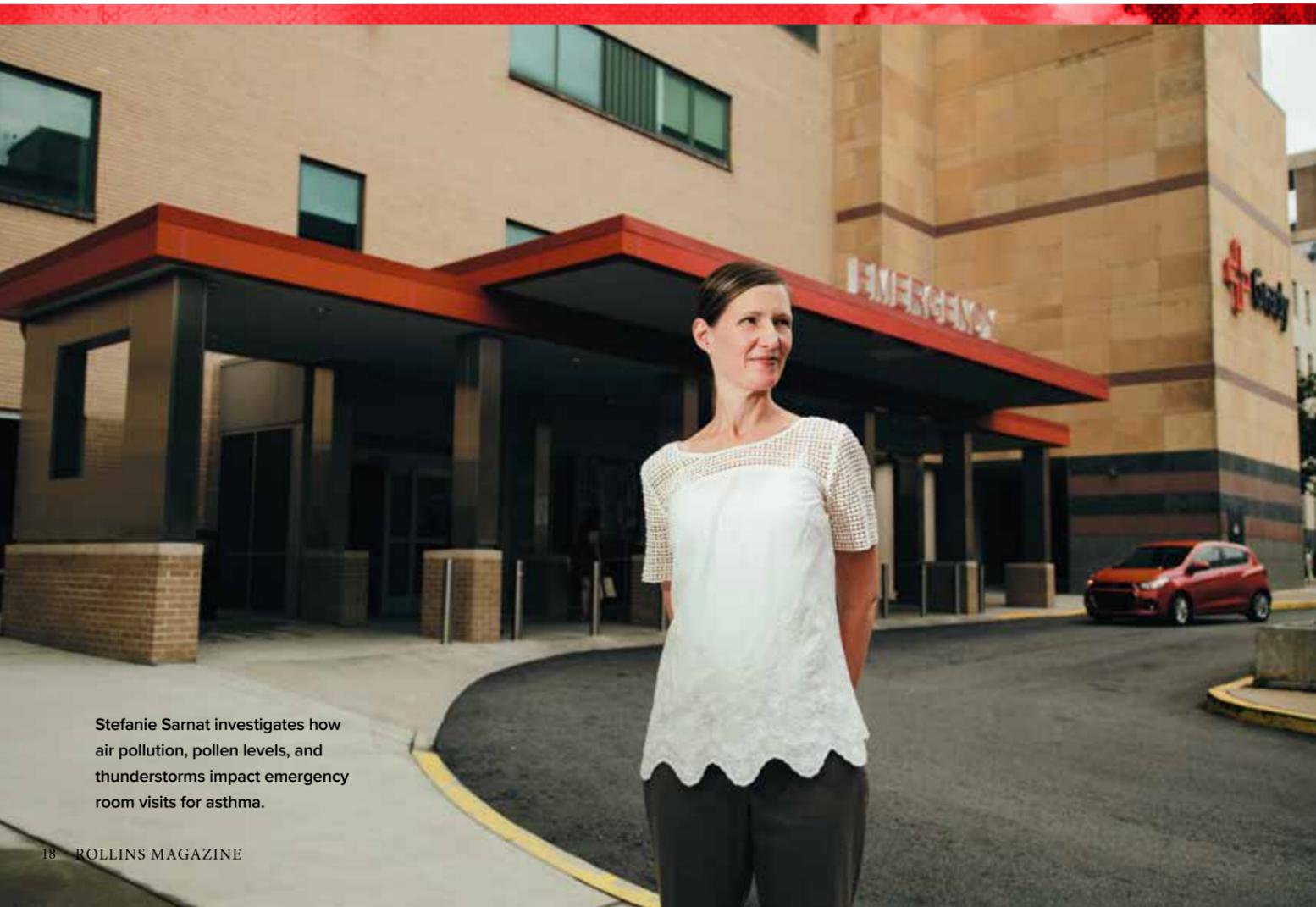
elsewhere to create “Georgia Climate Stories.” These will be two-to three-minute videos of people from all over the state and from all walks of life—ranging from peach farmers to children with asthma—talking about what climate change means to them. “Now you’re no longer talking about politics,” says Rochberg. “You’re talking about what is happening to you.”

Second, he plans to organize a workshop tentatively called “Red, Climate, and Blue.” It would bring together about 50 students from all over the state, half Democrats and half Republicans, all concerned about climate change. The workshop would encourage students to listen across political divides and develop an action plan for creating healthier conversations on climate change in their communities. “Students see climate change through a very different lens than their parents,” says Rochberg.

The final portion of the equation focuses on finding solutions. Teaming with Georgia Tech’s Climate and Energy Policy Lab, Climate@Emory has hosted two town hall meetings under the banner “Choosing Our Energy Future.” Participants from academia, government, NGOs, utilities, and the private sector discussed what the state can do to move forward on clean energy regardless of where federal policy goes.



Ian Buller 17PhD (left) and Sam Peters 19PhD worked with the City of Atlanta’s Office of Sustainability to identify health co-benefits of the city’s Climate Action Plan.



Stefanie Sarnat investigates how air pollution, pollen levels, and thunderstorms impact emergency room visits for asthma.

### PREPARING TOMORROW’S LEADERS

“Starting around 2030, global temperatures will start trending according to the policy decisions we make today,” says Liu. “In 10 to 15 years, our current students will enter the prime of their careers. As tomorrow’s public health leaders, they are the ones who will have to answer to this serious challenge of climate change.”

Cognizant of this, Tolbert has beefed up the environmental health department, more than doubling faculty and students in the past seven years.

“By having all the new faculty come on board, we are able to tackle climate change issues from so many sides,” says Tolbert. “We have experts in water and sanitation issues, air quality issues, chronic and infectious disease ecology, and policy issues. We’ve revised the curriculum, adding courses and shifting the focus of others. The department has been intentionally positioning itself to make a contribution on climate change because we think this is one of the most important issues of our time.”

Climate@Emory offers a way for students from across the university to engage with faculty and staff on climate-related projects through the Emory Climate Analysis and Solutions Team, or ECAST. Ten such projects are currently under way supporting climate-related efforts at Emory, Atlanta, and DeKalb County.

Ian Buller 17PhD and Sam Peters 19PhD are working with the City of Atlanta’s Office of Sustainability to identify health co-

benefits of the city’s Climate Action Plan. Finding few studies that focused on Atlanta, they broadened their literature review to other cities and were able to identify four broad public health benefits of climate mitigation: reduction in health care and emergency department visits; fewer cases of infections and poisonings; improved physical activity, mental health, and nutrition; and improved birth outcomes and childhood cancer rates.

While they did not get to the point of quantifying benefits, they laid the path for future efforts. “Right now, we are just laying out the general supporting evidence that is out there and identifying research gaps,” says Buller. “It could be a jumping off point for a whole research plan for Emory or partnerships with other institutions.”

The project could also help the city sell its plan to businesses and citizens. Says Peters, “If we can move the message away from ‘We need to save the planet’ toward a personalized message like, ‘Your child might have a better chance of avoiding an asthma attack if we can reduce emissions,’ we may be able to engage people in the conversation.”

Through its varied efforts, Rollins is positioning itself to help advance the science and interventions surrounding climate change. “Global warming will be a defining issue in the lifetimes of our students,” says Tolbert. “We will continue to devote as many resources as we possibly can to make significant contributions in understanding and meeting the challenge.” ■

# BUILDING A FRAMEWORK

for ethics in global health research

By SYLVIA WROBEL • Photography by STEPHEN NOWLAND

Global biomedical and public health research—whether introducing genetically modified mosquitoes to fight dengue or testing new medicines to prevent HIV transmission from mother to child—is aimed at finding and implementing solutions to some of the world’s most pressing health problems. That’s obviously a fundamentally ethical pursuit. Isn’t it?

Yes, says James Lavery, recently named the first Conrad N. Hilton Professor in Global Health Ethics. But, he adds, failure to understand the social and political context in which the work is being done, or to know and address how stakeholders perceive a project’s implications, has the potential to sink even the most well-intentioned, well-funded, otherwise well-designed research study.

Lavery, who is also a faculty member in the Emory Center for Ethics, likens what he does to being an architect. He works with people who may be designing lovely and functional structures to make sure they don’t build upon unstable foundations or in unsuitable locations. Consider the mosquito net program that died because the white color of the net represented death in the country where it was being tested. Or the HIV pre-exposure study that was abruptly shut down after the sex workers involved in the study, who felt their concerns had not been taken seriously, staged a protest at an international AIDS meeting. Both projects likely looked great on the blueprint but fell apart in the construction phase.

James Lavery wants to establish Emory as a world leader in the fast emerging field of global health ethics. What he brings from Toronto, National Institutes of Health, and the Bill & Melinda Gates Foundation—and the global health resources already here—give him a big head start.

Global research is especially tricky, says Lavery, since the majority of programs are conducted in low- and middle-income countries by researchers and funding from high-income countries. Researchers face different cultures, different languages, an imbalance of power and knowledge, and, sometimes, lingering distrust and fear of exploitation. Lavery's unique community engagement program addresses those and other problems.

Many bioethicists are philosophers, largely focused on theory and concepts. Although Lavery moves comfortably in that world, his focus is unfailingly practical, based on what works and what doesn't, for scientists and for the communities involved.

Lavery works in the space where core commitments and ethical intentions of global health research are translated into action and preserved through relationships with stakeholders, beginning with the scientists and people who fund them, and extending throughout the communities touched by studies. It's a space far more active and complex than what is usually considered bioethics, he says.

In 2006, the Bill & Melinda Gates Foundation was preparing to put almost half a billion dollars into scientific and biotechnology research to help solve the enormous health problems of the developing world. Hundreds of scientists sent proposals. Creating single-dose vaccines, ones that didn't require refrigeration and could be delivered needle-free. Developing genetic and chemical strategies to deplete or incapacitate disease-transmitting insects.

Improving nutrition, curing chronic infections, more accurately measuring disease and health status.

How, Lavery asked himself, would the Gates Foundation deal with the ethical issues that would inevitably arise? He and some Toronto colleagues called to ask. The answer: What do YOU think we should do? The team received a three-month contract and a two-foot stack of 46 proposals under consideration.

Reviewing them, they identified likely issues. ("We were pretty accurate," says Lavery.) They also created a proposal of their own to help deal with those issues. The Gates Foundation funded 43 of the original 46 programs and added a 44th: a \$10 million grant—at the time the biggest grant ever made in bioethics—to Lavery and a colleague as principal investigators of the Ethical, Social and Cultural (ESC) Program for the Bill & Melinda Gates Foundation's Grand Challenges in Global Health initiative.

Lavery and the ESC Program moved beyond Grand Challenges to work broadly with the entire Gates portfolio of global health and development, which has culminated in the community engagement program he brought to Emory.

#### WHAT IS COMMUNITY ENGAGEMENT?

The dimension of global health ethics that most interests Lavery is what he calls "human infrastructure"—the web of relationships between researchers and the diverse stakeholders who have interests in the conduct and/or outcomes of the research.

Community engagement is how this infrastructure comes about—how researchers identify and manage non-obvious stakeholder interests, demonstrate respect and trustworthiness, and build legitimacy by creating opportunities for dialogue and deliberation.

"I'm not trying to introduce additional obstacles for scientists," says Lavery. Instead, he consults with them—and the people who fund them—to help plan, design, manage, and evaluate strategies for engaging with relevant stakeholders in order to make their research more successful and more ethically robust.

Again, Lavery compares the task to architecture. Creating a community engagement strategy is like imagining and creating a building, he says. Lavery sits with the scientists, discussing their vision, what they hope their "building" will accomplish and for whom. Who are the stakeholders? What are constraints of space, budget, regulations? Will it fit? Be appropriate? Accepted?

When architects design buildings, they draw on a fairly finite set of architectural elements—doors, windows, walls, staircases—and put them together in a unique way, according to specific constraints of the space. Community engagement is the same, says Lavery. "Our work has been to figure out analogous elements, such as terms of research partnerships, ethical commitments and guiding principles, methods for integrating community engagement activities with program management. We then help researchers and funders integrate these elements to develop blueprints and project management strategies."

Based on years of investigating such "buildings," including many that never got off the ground, Lavery and his team are constructing a "Learning Platform" to facilitate the process for funders and researchers. Each new building/project is completely different, completely customized.

#### COMING TO AMERICA

Rollins Dean James W. Curran believes Lavery will "provide leadership in public health ethics across the university and serve as a resource to Emory's global ethics partners." Indeed, since Lavery arrived in November 2016, he has been making connections—and plans—with Emory colleagues and the university's rich array of global public health partners. His new office looks out on the Centers for Disease Control and Prevention. A mile away, he's welcomed by Carter Center leaders including President Carter himself. He spends time at the Task Force for Global Health, the Emory affiliate founded by global health pioneer and Rollins emeritus professor William Foege.

And then there are Lavery's ongoing connections with the Gates Foundation, colleagues at the University of Toronto, and other leading global health programs across the world. He's working to leverage those relationships to expand Emory's research and also its teaching, with visiting professors and videoconferencing. His commitment is cementing Emory's position as a leader in global health ethics. ■

## How a classical guitarist got to the new Hilton Chair: turning points

**When James Lavery was five, he and his parents emigrated from Glasgow to Toronto.** Years later, he was accepted into a musical performance program but soon changed majors, thinking biology and genetics might be more practical. (He still plays classical guitar, which he calls "brutal work.") Then, five turning points changed him from a not-so-great student to an internationally recognized expert.

**First,** as an undergraduate at McMaster University, he was captivated by a course in bioethics. He won a coveted slot in the University of Toronto's Institute of Medical Science and Centre for Bioethics, then and now one of the leading bioethics

institutions, and went on to earn an MSc and PhD at Toronto and a postdoctoral fellowship from the Social Sciences and Humanities Research Council and Canadian Health Services Research Foundation at Queen's University.

**Second,** in 1989, during the young couple's honeymoon in Kashmir, new wife Susan was hospitalized with appendicitis. People were "so outrageously kind," he recalls, "reaching out to help strangers in need" when they themselves were dealing with poverty and conflict. A door opened in his mind. Whatever his ethics career became, it would include global health.

**Third,** still a student, he met the

founders of *Medecins Sans Frontieres Canada* (MSF, *Doctors without Borders* in English). As the first editor of the MSF Canada newsletter, Lavery went to Rwanda, Burundi, and Zaire (later Democratic Republic of Congo) where he was deeply moved by the refugee camps and make-shift clinics. It strengthened his interest in marginalized populations.

**Fourth,** seeing firsthand the ethical problems encountered by investigators working with vulnerable populations. In 2000, Lavery became the first bioethicist at the Fogarty International Center, just beginning to develop its bioethics program, and a staff member in the National Institutes of Health's Warren G. Magnuson Clinical Center's Department of Clinical Bioethics, already one of the world's top programs.

One study in particular would dominate global bioethics discussions for a decade. U.S. studies had found giving the antiviral AZT to HIV-

infected pregnant women sharply lowered risk of transmission to their babies. But the protocol was long, expensive, and complicated—not possible in poorer countries. Would a shorter, simpler course provide protection? A study began in 16 countries in Asia and Sub-Saharan Africa, where women made up over 60 percent of HIV infected people and had no access to treatment. Some women in the study would receive the drug but others would get a placebo.

When activists protested this violated the women's rights, Lavery joined in international meetings discussing revision of ethical guidelines. Then he was put in charge of a Health and Human Services working group on how the U.S. regulations work in other countries.

**Fifth,** Lavery and NIH colleagues did a detailed analysis of 21 case studies of international research projects, with commentaries on their success or failure by leading experts in bioethics, global health, policy, and regulation. The

project was completed after Lavery returned to St. Michael's Hospital and the University of Toronto as an associate professor in the Dalla Lana School of Public Health. *Ethical Issues in International Biomedical Research* is widely considered one of the top books on the ethics of research involving human subjects in developing countries.

At Toronto, Lavery began to build a pioneering new program, looking for ways to be responsive to the issues he found in those studies. And that's when his long-standing relationship with the Bill & Melinda Gates Foundation began, which in turn led him to Emory.

"Jim Lavery is an international leader in global health ethics, community engagement, and the ethics of international research," says Paul Root Wolpe, director of the Center for Ethics at Emory. "I cannot think of a better scholar to enrich Emory's public health and ethics program."



**HERCULES**  
grants help  
neighborhoods  
address  
environmental  
concerns

Rayonna Thompson works with her daughter, Bella, and son, Ben, in her garden plot outside her apartment in Atlanta's Westside. The garden is part of a project that received a HERCULES community grant.

**Six-year-old Ben pulls a plump beet from the ground. “Mom, look at this one. It’s huge!,” he calls. Rayonna Thompson stops harvesting green beans from the 4-ft. by 4-ft. bed to admire her son’s bounty. “That one is big! Maybe we’ll have that for dinner tonight,” she says.**

Thompson took up gardening outside her Vine City apartment as part of the Garden Links Empower Neighborhoods (GLEN) program. GLEN works with low-income Westside Atlanta residents to help them plant food gardens in their yards. The goal is to give residents access to fresh vegetables, teach them about nutrition, and foster a sense of community through related events.

The fledgling GLEN initiative got a boost from a community grant from Emory’s HERCULES Exposome Research Center. The center was founded in 2013 to study the exposome, a relatively new concept that includes all of a person’s environmental exposures over a lifetime and the body’s responses to those exposures—think the environmental equivalent of the human genome. A community outreach component was built into the DNA of the center.

“A goal of HERCULES is to develop partnerships with the community, so the science we conduct is both improved by the local knowledge and can be translated into community action,” says Melanie Pearson, who co-leads the HERCULES Community Engagement Core with Michelle Kegler, professor of behavioral sciences and health education. “In addition, we wanted to find ways for the center to be an immediate benefit to the local Atlanta community. The grants are designed to help small community groups address the environmental health concerns in their neighborhoods.”

So far, 13 of the \$2,500 grants have been awarded for projects including preventing non-resident waste dumping in Clarkston, identifying and documenting adverse environmental and public health hazards in the Proctor Creek Watershed, collaborating to establish a park along Peachtree Creek, and planting backyard gardens such as Thompson’s in English Avenue and Vine City.

In the near future, neighborhood groups that participate in a new HERCULES effort to identify exposome concerns in their communities can also apply for a \$1,000 planning grant, which offers support in the grant writing process. “The goal is to not only address neighborhood environmental concerns, but also to build capacity and skills within those neighborhood groups so that they can go on to apply for larger grants,” says Pearson. “We want our program to be a stepping stone.”

Here is a sampling of a few HERCULES-funded projects:

#### **Promoting smoke-free homes**

Women Watch Afrika, a social justice grassroots community-based organization working to address health disparities, received one of the first community grants. The project aims to reduce children’s exposure to secondhand smoke among the immigrant and refugee community in Clarkston, Georgia, by convincing their fathers to smoke outside.

“We recruited 20 women from nine different African countries who live in Clarkston,” says Glory Kilanko, executive director, CEO, and founder of Women Watch Afrika. “We trained them in the health dangers from secondhand smoke, and then they went back into their communities and trained at least six other women each.”

Those advocates went door to door to educate other residents, in their native language, about secondhand smoke and to urge them to sign a smoke-free home pledge card. Delivery had to be delicate to convince the male head of the household in a male-dominated culture to leave his home when he wanted to light up. But the group

# *From tiny seeds Communities Flourish*

By **MARTHA MCKENZIE** • Photography by **STEVE NOWLAND**



(Left) Community advocates in Clarkston championed a successful campaign for smoke-free homes. (Right) Rollins volunteers help Concrete Jungle prepare its farm in Southwest Atlanta for planting. Concrete Jungle harvests fruit from city trees to donate to food banks and shelters.

exceeded its goal of getting 30 homes to pledge to be smoke-free, signing up a total of 51 households.

### Feeding the hungry

Concrete Jungle used its HERCULES grant to expand its mission of transforming underutilized fruit trees and land to feed Georgia's hungry. The nonprofit relies on volunteers to map and harvest fruit and nut trees that grow untended all over the city—in yards, on the side of the road, and next to buildings. Instead of ending up on the ground and feeding wildlife, the produce is harvested and donated to local food banks and shelters that serve the city's poor and hungry.

A few years ago, the founders of Concrete Jungle decided to expand the operation by starting a small farm on an abandoned lot in Southwest Atlanta. The HERCULES grant helped address naturally occurring challenges on the lot—namely a polluted creek that runs through the property and the relentless advance of kudzu, which threatens to choke out every other plant in its path. To date, the less-than-one-acre farm has produced and donated more than 8,500 pounds of vegetables.

"Fruit picking is still our main program, but the farm is a nice way to keep produce donations going throughout the year," says Katherine Kennedy, the organization's executive director and sole paid employee.

The grant also taught Kennedy enough about grant writing that she has been able to win more. "HERCULES was our first official grant, and it was a nice boost in our confidence and in our ability to share our story with people who didn't know anything about Concrete Jungle," she says. "I know that helped us win more grants."

### Growing communities

The GLEN program allows Westside residents such as Thompson to create small but abundant food gardens in their yards. GLEN provides the materials to build containers, supplies the soil and plants, and schools the residents on what to plant, when to plant it, and how to nurture it. It organizes classes on nutrition, cooking, and gardening without pesticides. The program also converted an abandoned lot into a hub where residents who cannot have a garden in their yard or who want more gardens can plant.

The HERCULES grant allowed Historic Westside Gardens ATL, which runs the GLEN program, to add more gardens and to recruit two people from the neighborhood and train them as master gardeners so they can serve as coaches to the local growers. The coaches visit each garden once a week to help, answer questions, and offer encouragement.

In addition, a monthly breakfast in the hub brings all the gardeners together to share stories and get to know one another. "We see this as a way not only to give residents access to fresh vegetables, but also as a way to build a sense of community," says Gil Frank, executive director of Historic Westside Gardens ATL.

For Thompson, who had never gardened before she joined the GLEN project, gardening offers many benefits. She can feed her husband and three children nutritious, organic food fresh from the two beds next to her apartment and the four beds she maintains in the hub garden. She sells extra produce to bring in income. She has met neighbors. And she uses the time in the garden as a chance to connect with her children. "They love helping me in the garden," says Thompson. "It's a chance for us to talk and to laugh. I look at the garden as a great way to grow our relationship." ■

## Interventions curb teen drinking in Cherokee Nation

# Underage and under the influence

BY MARTHA MCKENZIE

As parents and auto-insurance adjusters can attest, teenagers tend to make really bad decisions. Add the influence of alcohol, and those decisions can go from really bad to catastrophic. While underage drinking is a problem across the country, costing some 4,300 youths their lives each year, it is perhaps most keenly felt by the country's native population.

L to R: A CONNECT poster displayed in a community convenience store; one of the CMCA community action teams discusses strategy; Dallas Pettigrew, director of CMCA, discusses strategy with a CMCA community organizer; a CMCA community action team-designed banner to support the social norm that adults in their community do not provide alcohol to underage youth.

## REDEFINING THE UNACCEPTABLE



American Indian teens start drinking earlier and have higher rates of alcohol-related problems than their non-American Indian counterparts. Kelli Komro, professor of behavioral sciences and health education, tested and compared two interventions in the Cherokee Nation in northeastern Oklahoma that take aim at those sobering statistics. One of the initiatives was community-based and focused on encouraging adults to more actively engage with community leaders and law enforcement officers to change attitudes and practices toward underage drinking. The other engaged teens themselves, providing specialized counseling within the schools to support healthy choices.

“So many people—adults and teens—think of starting to drink as a rite of passage,” says Komro. “But before the early 20s, the brain is still developing, so alcohol is all the more damaging. And teens who drink are more likely to have problems in school, be injured, and engage in other risky behaviors, such as drinking and driving, unplanned and unprotected sexual activity, and use of other drugs.”

### It takes a village

The adult-focused intervention, Communities Mobilizing for Change on Alcohol (CMCA), that Komro and her Cherokee Nation Behavioral Health partners used can seem counterintuitive. Why target adults instead of the teens themselves?

Because, says Dallas Pettigrew, a social worker whom Komro

recruited to oversee the intervention, there is no legal way for someone under age 21 to obtain alcohol. But obtain it they do. The younger kids typically steal it from their parents’ alcohol cabinet. Middle teens, aged 15 to 17, usually get it from older kids or young adults. And 18- to 20-year-olds just buy it themselves. CMCA aimed to shut down all avenues.

“This strategy is not common,” admits Pettigrew, who is a member of the Cherokee Nation. “It’s much more typical for adults to appeal to teens to not drink, or if they do, don’t drink and drive. That puts the responsibility on the teens to make safe decisions, but their brains are not wired that way yet. We wanted to put the responsibility back on the adults. It is their job to protect children.”

Toward that end, Pettigrew and Komro recruited people within the Cherokee Nation communities who were concerned about underage drinking. These people then organized community action teams to identify problems in their particular neighborhoods and

address them. “The fact that these teams were made up of concerned residents rather than outside professionals made a huge difference,” says Pettigrew. “It’s much harder to ignore a person you know, who you might see in the grocery store or the bank.”

The action teams focused much of their work on convincing law enforcement officials to be more diligent in enforcing existing laws. For example, people in the community generally know where the kids go to hang out and drink. They asked police to patrol those hideouts to keep the teens from having drinking parties.



**Kelli Komro studied two interventions to curb teen drinking. One put the onus on adults to keep teens safe and the other targeted teens themselves. The results were surprisingly similar.**

The action teams also pressed police to step up surveillance on liquor stores to make sure they were properly checking IDs and to increase the penalty for those that sold alcohol to minors. Rather than just impose a penalty on the minimum-wage clerk who made the sale, as is typical, the groups pushed police to send the penalty up to the store manager and owner with the threat of the loss of their liquor license.

And one team found that police were reluctant to go break up a party where there was drinking because they didn’t know what to do with all those kids in the aftermath. “That was a concern the police had that community members weren’t aware of,” says Komro. “In the end, they were able to get a bunch of volunteers who said they would be willing to come when a party was raided and help supervise all the kids until their parents could pick them up. That was a great example of the community figuring out where the problems were and then strategizing to solve them.”

### Taking the “high” out of high school

For the intervention that targeted teens, Komro took a program typically done in a clinical setting—screening and brief intervention—and redesigned it for universal application to all high school students. The new program is called CONNECT. Partnering with the Oklahoma Department of Human Services, Komro used grant money to help hire a full-time social worker at each of the three participating schools. The social worker was then trained in motivational interviewing skills and served as a CONNECT coach in their school.

All students were screened about their alcohol use and then classified as low, moderate, or high risk. Then every student—so none felt stigmatized—got an individual counseling session each semester for the 2 ½ years of the study.

“With motivational interviewing, you aren’t directly telling the students not to drink,” says Komro. “Instead, you draw them out, find out what their dreams are, what their goals are, and then ask

them to assess how alcohol use fits in with those dreams and goals. You’re guiding the child to come to his or her own conclusion, which is much more persuasive than being told something.”

Even teens who were at low risk for alcohol use had these brief counseling sessions. “We used the sessions to provide affirmation to remain alcohol free and to help them plan to stay that way,” says Brady Garrett, a psychologist who oversaw CONNECT.

### Taking it to the streets

Both interventions were successful in curbing teen drinking, with surprisingly similar results. Both resulted in a 20 percent to 25 percent drop in current alcohol use, in heavy episodic drinking (five or more drinks at once), and in alcohol-related consequences. Even more surprising—when the interventions were combined, the results were similar. “I really thought we’d see a larger drop in the combination group,” says Komro. “I’m really not sure why it’s the same. Maybe that is as much of a reduction as we can currently achieve, given the larger societal context where alcohol remains actively advertised and marketed and is still thought of as a rite of passage.”

The biggest difference between the interventions is cost. Hiring a school-based social worker is quite expensive, and when funding runs out, the program stops. Only one of the social workers hired in CONNECT stayed on in that capacity after the study. The community-based intervention, however, costs less and changes policies, practices, and attitudes in a way that is potentially more sustainable long term.

Either approach is a much-needed step in the right direction. “Every day we can delay a child’s first drink, it becomes less likely he’ll have an alcohol problem later on,” says Pettigrew. “And I have to add, this study was a real blending of the research community, the intervention community, and local citizens. Typically, research gets done, it’s published, and it is not accessed by everyday citizens. This study is a model of how it should be done.” ■

## Lowé takes helm of Dean’s Council

**M**elissa H. Lowé has succeeded Anne H. Kaiser as chair of the Rollins School of Public Health Dean’s Council. Lowé founded and runs her own qualitative research company as well as Ribbons of Hope, a nonprofit that promotes education, health, economic independence, social well-being, and human rights for women and their children. She also sits on the board of Skyland Trail, a mental health treatment facility. Lowé’s daughter is a first-year MPH student in global health.

“We are excited to have Melissa take the lead of our Dean’s Council,” says Dean James Curran. “And we want to thank Anne for her years of fine service. Our school is the richer for it.”



Melissa H. Lowé (left) succeeds Anne H. Kaiser (right) as chair of the Rollins School of Public Health Dean’s Council.

## Lyddan joins development team

**B**rooks H. Lyddan has joined the Rollins development and alumni relations team as associate director of development. Lyddan comes to Rollins from Mercy Care Foundation, the fund-raising arm of Mercy Care, which serves the medical, dental, and social service needs of the uninsured and underinsured community. At the foundation, Lyddan served first as annual giving and membership manager and then as development officer overseeing major gifts and planned giving. In the latter post, Lyddan managed a portfolio of more than 75 major donors.

Prior to Mercy Care Foundation, Lyddan worked in journalism and in public relations in New York and New Orleans.



Atlanta, however, is her hometown, and she has close ties with Emory. Her father, William (Bill) Horton III, was an adjunct professor of orthopedic surgery for 22 years. Her mother, Leah McKell Horton, pursued a PhD in religion at Emory. One sister, Lindsey Horton De Beer, earned her MPH at Rollins in 2010, and another sister, Lauren Horton King, is currently chief resident in pediatrics at Emory. Her grandfather, William Horton Jr., graduated from Emory in the 1940s. “I guess it’s not surprising I ended up here,” says Lyddan. “Emory is in my blood.”

Lyddan holds a BA with honors in English and French from the University of Virginia in Charlottesville.

At Rollins, Lyddan will focus on annual giving and a portfolio of individual donors. ■



**Save the Date | Rollins will host an alumni reception on Monday, November 6, during the American Public Health Association’s 2017 annual meeting in Atlanta.** Emory President Claire Sterk and Dean James Curran will greet guests at the Capital City Club Downtown, beginning at 6:30 p.m. ■



MYRTLE TURNER HARRIS 86MPH



LUCY C. WILLIS 87MPH



NAOMI MARUTA 94MPH



HUI-YI HSU 12MPH

### 1980s

**MYRTLE TURNER HARRIS 86MPH** was awarded the Georgia Tech Faculty Honors Outstanding Professional Education Award for her work with the Georgia Tech Research Institute’s Occupational Safety & Health Training Institute Education Center.

**LUCY C. WILLIS 87MPH** met up with other Emory alumni at the Alabama State Society Daughters of the American Revolution State Conference in March 2017.

**MARRIED: NATALIE BLACKBURN 13MPH** to Shawn Sanders on September 17, 2016.

**CATHERINE CLAY MCCLURE 15MPH** was appointed as chief resident for the pediatric program at Colorado Pediatrics for the 2018-2019 academic year.

**JANE WHITNEY SEGEBRECHT 17MPH** began working at the Health Resources and Services Administration as a team lead.

### 1990s

**NAOMI MARUTA 94MPH** was recently appointed as director, business strategy and analysis, for the Alzheimer’s Association national home office in Chicago. Her new job will focus on strategic analysis to create a greater impact for those affected by Alzheimer’s and other dementias.

### 2000s

**FATIMA CODY STANFORD OOC 01MPH** was awarded the 2017 Women’s Health Award by the Massachusetts Medical Society. The award honors a physician who has made significant contributions to women’s health in Massachusetts. Stanford was recognized for her work in obesity medicine research.

**MARRIED: GILLIAN SHAKIRA CROSS-HOGG 06MPH** to Marlon Hogg on April 21, 2017, in Hollywood, Florida.

### 2010s

**HANNAH JAHNIN BADAL 12MPH** started a doctoral program in health communications in fall of 2016.

**HUI-YI HSU 12MPH** started a doctoral program in health policy and management at National Taiwan University in fall of 2016.

## In Memoriam

### Farewell to a valued colleague



**WILLIAM “BILL” MCCLELLAN JR.** passed away on March 9 at Emory University Hospital. Following his medical studies at University of Alabama, Birmingham, McClellan trained in

internal medicine at University of Pennsylvania and in renal medicine at University of California San Francisco. He also has an MPH degree from Rollins.

McClellan joined Rollins and the school of medicine as a full professor in 2005 after he retired from a successful medical practice in LaGrange. His long research career focused on racial and other disparities in health outcomes related to chronic kidney disease, end-stage renal disease, hypertension, and the quality of care for patients.

He combined strong expertise in clinical medicine, epidemiology, and health services research, and this was reflected in more than 240 publications and service to national and international advisory groups. In addition, he directly supervised 12 PhD students and mentored countless others. He is missed tremendously.

# Calculations for the greater good

**It was 2012 when the small California office of the Human Rights Data Analysis Group (HRDAG) got an unexpected call.**

The United Nations Office of the High Commissioner for Human Rights couldn't get its people safely on the ground in Syria to count how many Syrians were being killed in the ongoing armed conflict there. Could Megan Price O9PhD and her team at HRDAG come up with reliable ways to estimate deaths 7,000 miles away?

The answer was yes. As executive director of HRDAG, Price has made a career overseeing the novel development and use of statistical data to shine light on human rights abuses. Those analyses include a series of reports over the past five years for the United Nations and Amnesty International, part of an effort to fully understand the extent of mortalities in the Syrian conflict. (HRDAG counted 191,369 documented, identifiable deaths just between 2011 and 2014 as a result of the conflict, with the assumption that many more were unreported and unidentified.)

Other projects include the creation of a mathematical model to identify probable locations of mass graves in Mexico as well as a review of so-called "predictive policing" algorithms in the U.S. Predictive policing uses data related to past known crimes to anticipate locations of future criminal activity, which can perpetuate biased policing practices.

In Guatemala, HRDAG used random sampling of massive police archives to assess the national police's role in that country's civil war. In one particular case involving a missing student activist, their analysis provided compelling evidence that led to that chief of police's conviction for orchestrating that student's disappearance.

While the job of counting deaths and enumerating human



rights abuses may not be for everyone, for Price it's an important way to connect her passion for social justice with her love of biostatistics. "It's very true that the subject matter we work with every day is emotionally heavy," says Price, who was recently ranked in the Top 12 Women in Data Science by *Information Week*. "But when I was at

Rollins, I knew I wanted to do something that was working for the common good. From the beginning, I was interested in statistics as a tool. To do justice to the substantive piece, I have to get the technical piece right."

Price first heard about the HRDAG while completing her concentration in human rights at Rollins. For her, HRDAG's mere existence sparked an "aha!" moment.

"I thought, 'That's it! That's how statistics should be used!'" she says.

Price joined the group immediately after earning her PhD. Four years later, HRDAG became its own nonprofit, and she was promoted to director of research. In 2015 she became its executive director. Price also serves as a research fellow at the Carnegie Mellon University Center for Human Rights and as a member of the Technical Advisory Board for the Office of the Prosecutor at the International Criminal Court. She is also the human rights editor for the *Statistical Journal of the International Association for Official Statistics*.

Price is always glad when her statistical analyses help bring about justice, as was the case with the criminal prosecutions in Guatemala. In other areas where armed conflict continues—like Syria—she works in preparation for the day in which her analyses can be used for good. "What we do with this information is the million-dollar question," she says. "It depends upon what justice mechanism becomes available and how the conflict is resolved. There may be investigations and court cases. There may be a truth commission mechanism."

Despite dealing daily with sobering statistics, Price is grateful to have found a niche that fits her skills and passions—and buoyed by knowing her work can make an impact. "Every day I get to come in and do a job that feels so gratifying," she says. "And, of course, there's more to be done."—*Dana Goldman*

## Rollins School of Public Health

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Bella Thompson proudly displays green beans harvested from one of her mother's garden plots near her Vine City apartment. The garden is part of the GLEN (Garden Links Empower Neighborhoods) program, which works with low-income Westside Atlanta residents to help them plant food gardens in their yards. GLEN got a boost from a community grant from Emory's HERCULES Exposome Research Center.

