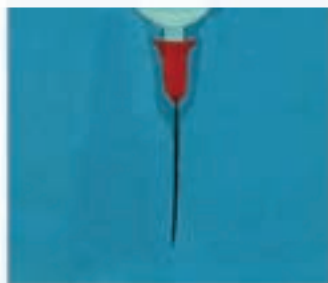
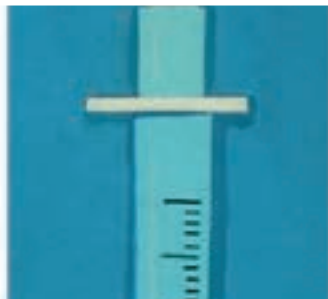


# Yale Public Health

SPRING 2014

## Challenges in urban health



[Brazil's favelas](#) | [HIV in Russia](#) | [Gun violence](#) | [Health consultants](#) | [Justice for Haiti](#)

Yale SCHOOL OF PUBLIC HEALTH



# Yale Public Health

SPRING 2014

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Yale SCHOOL OF PUBLIC HEALTH





## Dean's Message

Winslow's vision lives on

C.-E.A. Winslow, who established the Yale School of Public Health almost a century ago in 1915, put forth what is now one of the most widely used and cited definitions of public health: "The science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals."

Although organizations and universities appropriately adapt to changing times and circumstances, Winslow was truly prescient. Today in the United States there are 50 accredited schools of public health, and most have mission statements that reflect the values and vision that Winslow articulated. To highlight the importance of Winslow's vision and influence, this issue of *Yale Public Health* describes a report that he co-authored on sanitation in New Haven some 80 years ago. Indeed, Winslow's vision still guides and inspires our work today. Although many of our faculty do basic research in their home disciplines, many collaborate with scholars in other departments, various schools at Yale and around the country on research that directly impacts health in the United States and abroad.

In this issue we also highlight some of the research that is being done in urban areas in locations as disparate as Brazil, China and Russia, as well as in U.S. cities. The topics faculty are addressing are as varied as the locations in which they are working: environmental and air pollution, infectious disease, obesity, gang violence and HIV infection in intravenous drug users.

One of the cardinal features of YSPH research is the way in which our students and faculty work across disciplinary, departmental and school boundaries to form collaborative teams that can best address very complex health problems. A wonderful example of such a collaboration is the Global Health Justice Partnership, featured in this issue, which brings together students and faculty from across the university, in particular YSPH, Yale Law School and the School of Medicine, to address health issues, such as those affecting mine workers in South Africa. We also highlight in this issue the inspiring work of Akriti Singh and her efforts to address malnutrition in her native Nepal and that of Rosalyn Chan, who co-authored the report on the United Nations' culpability for the deadly cholera outbreak in Haiti.

As we approach the school's centennial in 2015, it is heartening to know that the vision of Winslow is still being realized and that our staff, students and faculty are working with colleagues throughout the university and at other universities to address some of the most pressing health issues throughout the world. I think Winslow would be impressed and pleased!

*Paul D. Cleary, Ph.D.*  
*Dean, Yale School of Public Health*

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## Editor's Note

A life dedicated to public health



### Yale Public Health

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With more than 4,000 Yale School of Public Health alumni living and working around the world to advance the mission of public health, it is a challenge to select just one for the annual Distinguished Alumni Award.

The school's alumni serve the entire gamut of public health, including hospital administration; nongovernmental organizations that fight specific diseases or address specific health issues; local, state and national health organizations; politics; and government, academic and independent consulting. Their training is put to good use on six continents and in some 70 countries as diverse as Canada and Cambodia.

But for the 2013 Distinguished Alumni Award, the committee had to look no farther than the Fair Haven Community Health Center (FHCHC) in New Haven, only about two miles from the School of Public Health.

It was at FHCHC that Katrina Clark, M.P.H. '71, worked as executive director for 40 years, building a vibrant and vital community health clinic that serves some of New Haven's most disadvantaged residents (see full profile on Clark in the Fall 2013 issue of *Yale Public Health*, "The end of an era," page 38).

As a young woman just out of graduate school and recently returned from Peace Corps service in Colombia, Clark took the reins of the fledgling health center that initially operated in a storefront and in a room in a local elementary school.

By the time she retired in 2013, Clark handed over to her successor a center that is a pillar not only of Fair Haven but also of the greater New

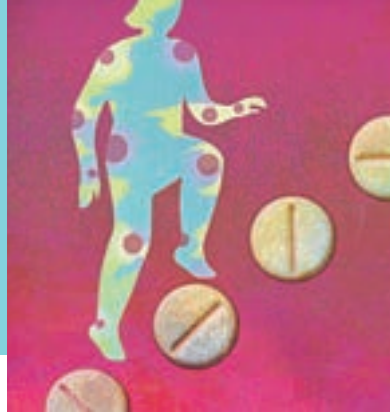
Haven community. Today it employs nearly 200 people, operates a \$14 million budget and has some 65,000 patient visits annually. Most importantly, FHCHC provides a range of health and medical services to people who might otherwise go without. In this mission, it is assisted by another city health clinic, the Cornell Scott-Hill Health Center. YSPH graduate Cornell Scott, M.P.H. '68, ran that center for years, and is another pillar in the city's health care landscape. Scott, who died in 2008, received a Distinguished Alumni Award in 1995.

FHCHC also provides School of Public Health and other Yale students with a valuable opportunity: students practice what they have learned in the classroom during a student-run, volunteer clinic that is held each Saturday. Students love the program and the hands-on training it provides.

In accepting the award, presented on October 11 as part of Alumni Day 2013, Clark was typically modest as she spoke before a large gathering in the Edward S. Harkness Lounge. She told her fellow School of Public Health graduates that the past 40 years had been challenging, rewarding and even fun. And, she noted, she couldn't have done it without the support and help of many who will never be so publicly recognized.

"I accept it [the award] with humility and gratitude," Clark said. "And even though I am retired, I share it with all the staff, colleagues and friends at the Fair Haven Community Health Center."

*Michael Greenwood*  
Managing Editor



## Exercise benefits women taking AI drugs

Breast cancer patients suffering from joint pain caused by certain medications may improve with regular, long-term exercise.

A Yale research team studied 121 postmenopausal women diagnosed with hormone-receptor-positive breast cancer who were undergoing treatment with aromatase inhibitor (AI) drugs, which block estrogen production and activity. All reported experiencing at least mild joint pain, and many described their pain as the “worst” they had experienced. As many as half of all patients taking AIs experience joint pain and stiffness, known as arthralgia, and this is the most common reason they stop taking the drugs.

In the study, 61 of the women engaged in twice-a-week supervised resistance training and were advised to increase their moderate-intensity aerobic exercise to 2.5 hours a week, either at the gym or on their own. Their “worst pain” scores decreased by as much as 30 percent, and overall joint pain severity also decreased significantly. The exercise also favorably impacted body weight and cardiorespiratory fitness.

“AIs are incredibly effective in lowering breast cancer recurrence and mortality risk,” said lead author Melinda L. Irwin, Ph.D., M.P.H., associate professor in the Department of Chronic Disease Epidemiology and co-leader of Yale Cancer Center’s Cancer Prevention and Control Research Program. “But too many women are choosing not to take these medications or are stopping them early because of the joint pain. Our study showed that

exercise can alleviate this joint pain and, in turn, may improve adherence to the medication. Exercise also improves quality of life and is associated with lower risk of recurrence and mortality.”

The findings were presented at the 2013 CTRC-AACR San Antonio Breast Cancer Symposium.

*Helen Dodson*

## Virus remains dangerous for up to six weeks

An accidental drop of the hepatitis C virus (HCV) can remain infectious on surfaces for up to six weeks at room temperature.

The Yale finding provides biological support for epidemiological data that hospital-acquired HCV infections may be due to contact with objects or substances capable of carrying an infectious organism such as HCV and that unhygienic surfaces may contribute to the rapid spread of HCV among people who inject drugs.

The scientists prepared tiny amounts of the virus in human plasma and measured its longevity at different temperature settings. They found that HCV remained infectious for up to six weeks between 4 and 22 degrees Celsius. Infectivity was further influenced by the concentration of the virus and the humidity of the storage environment. Commercially available antiseptics, meanwhile, were found to be effective disinfectants if used at the recommended concentrations, but not when diluted.

“Our findings clearly demonstrate that strict infection control practices and universal precautions are needed

in the clinical setting to avoid contact with infectious agents such as HCV that can survive on surfaces,” said Robert Heimer, M.Sc. ’80, Ph.D. ’88, professor in the Department of Epidemiology of Microbial Diseases and one of the study’s authors.

While there have been previous studies on HCV infectivity and stability on surfaces, the Yale research is believed to be the first that closely simulates the natural events likely to result in transmission.

Heimer collaborated on the study with colleagues from the School of Public Health and the Yale School of Medicine. The findings were published in *The Journal of Infectious Diseases*.

*Michael Greenwood*

## Cervical lesions on the decline in Connecticut

Precancerous cervical lesions are declining among young women in Connecticut, the first indication nationally that a vaccine for human papillomavirus (HPV) types 16 and 18 may be working.

Researchers led by Linda M. Niccolai, M.Sc., Ph.D., associate professor in the Department of Epidemiology of Microbial Diseases, used a statewide surveillance registry to examine the incidence of high-grade cervical lesions in women ranging in age from 21 to 39. Cervical and other types of genital and oropharyngeal cancers are known to be caused by HPV. A vaccine to fight HPV infections was introduced in 2006.

Use of the vaccine has risen sharply to include 61 percent of the state’s

adolescent female population, who had received at least one dose of the three-dose regimen. The six-member research team found that the incidence of precancerous lesions fell from 834 per 100,000 in 2008 to 688 by 2011 among women 21 to 24 years old.

The findings are consistent with the results of studies conducted in Australia and Europe.

Comparable declines, however, were not found for other age groups in Connecticut, including women ranging in age from 25 to 39. The researchers also discovered that the declines were not as pronounced among African-American and Hispanic women and among women living below the federal poverty line.

“While the decline in high-grade cervical lesions overall is exciting to see after only several years of vaccine availability, we need to be concerned about disproportionate impact for minorities and low-income women, who are most affected by cervical cancer,” Niccolai said.

Reasons for this disparity are not clear, but they may include different vaccination or screening rates or different distributions of HPV types in these populations.

The findings appear in the journal *Cancer Epidemiology, Biomarkers & Prevention*.

M.G.

## Treating depression with nutritional interventions

Nutritional interventions may be a cost-effective means of preventing and treating depression and reducing the need for psychotropic drugs.

A published review by Kaitlyn Rechenberg, a joint-degree candidate

in the schools of public health and nursing, examined the biological basis of perinatal depression and the potential benefits of nonpharmacological interventions.

Given the high cost of pharmacological interventions, a lack of availability in many countries and potentially harmful or unpleasant side effects, especially for pregnant women and their babies and fetuses, nutritional interventions may be a viable alternative in some cases, she said.

“The World Health Organization is calling for cost-effective interventions in the developing world,” said Rechenberg, whose review included more than 75 journal articles. “Nutritional supplements can have a positive effect.”

Treatments that include omega-3 fatty acids, folate and vitamins B6 and B12 may prevent and mitigate symptoms, taken alone or in addition to medication, Rechenberg said. Nutritionally, a woman is often deficient by the end of her pregnancy, which can contribute to further depression and the likelihood that her infant may have an epigenetic tendency toward depression as he or she matures.

While pharmacological drugs can be effective in fighting depression, they can also pose a threat to babies and fetuses. Possible risks include fetal malformation, pulmonary hypertension of the newborn and miscarriage. Nutritional interventions for mild depression would mitigate these risks.

According to the World Health Organization, depression is the leading cause of mental disability worldwide. While common, mental illnesses are hard to treat, and doctors rely on a few catch-all drugs, said Rechenberg.



Michael Woloschinow (3)

“There may be things we can do other than, or in addition to, standard medications,” she said.

The study appears in the *Yale Journal of Biology and Medicine*.

Denise Meyer

## Seasonal drivers of pneumococcus revealed

With winter and cold temperatures come the seasonal epidemics of pneumococcus, a potentially deadly disease for the young and the elderly.

And while the arrival of the disease is reliably predicted each passing year, the precise factors that affect its rapid transmission from person to person remain poorly understood.

A study led by Daniel M. Weinberger, Ph.D., assistant professor in the Department of Epidemiology of Microbial Diseases, examined data from children under 7 years old in two distinct populations—the Navajo and White Mountain Apache in the southwestern United States. The research sought to determine whether the increase in seasonal transmission of the bacteria or increases in viral activity is related to an accompanying increase in disease cases. Few previous studies have explicitly examined this relationship.

The harboring of a potentially disease-causing organism, known as carriage, is considered to be a prerequisite for pneumococcal disease, and the majority of young children carry the bacteria, often asymptotically, in the nasopharynx and inadvertently infect others.

Weinberger and colleagues found that the prevalence of



pneumococcal carriage and the incidence of an invasive form of the disease, known as IPD, both varied seasonally among the children studied. They also found that seasonal variations in the occurrence of non-pneumonia IPD were associated with changes in carriage prevalence, while seasonal variations in blood-based pneumonia were associated with a respiratory virus.

The results suggest that while carriage is likely necessary to cause pneumococcal pneumonia, in itself it is insufficient. Viral infections, or some other seasonal risk factor, are also needed.

The results were published in the journal *Clinical Infectious Diseases*.

Michael Greenwood

## Interventions found to reduce gender violence

Gender-based violence against women remains a pervasive public health and human rights issue around the world—one that has severe physical and emotional health consequences that can affect the victim long after the abuse has stopped.

New research led by the Yale School of Public Health, in partnership with the International Rescue Committee, found that a two-pronged intervention to address intimate partner violence (IPV) is effective in reducing the levels of such abuse in settings marked by armed conflict or civil unrest, where levels of IPV are often pronounced.

Jhumka Gupta, M.P.H., Sc.D., assistant professor in the Department of Chronic Disease Epidemiology, led the study, which surveyed 934 women in 24 rural villages in the West African

nation of Côte d'Ivoire (Ivory Coast). The research team found that both the levels and acceptance of IPV lessened, in some cases significantly, through a combined intervention that addressed women's economic empowerment and women's role within the household.

The randomized study examined the impact on IPV levels of adding gender dialogue groups to an economic empowerment group savings program (known as Village Savings and Loan Associations). The gender dialogue groups consisted of eight sessions with women and their male partners focused on joint decision-making regarding household budgeting, household contributions, the role of women and domestic violence.

The study found that those who took part in both the gender dialogue groups and the group savings program were far less likely to view wife beating as acceptable. Also, women who attended at least six sessions with their partners were 45 times less likely to report physical IPV than their peers who took part only in the savings program.

The findings were published in *BMC International Health and Human Rights*.

M.G.

## Social networks help to predict gun violence

A study of gun violence in Chicago revealed that a person's social network is a key predictor of whether he or she will become a victim of gun homicide, even more so than race, age, gender, poverty or gang affiliation.

"Risk factors like race and poverty are not the predictors they have been assumed to be," said Andrew V.

Papachristos, Ph.D., associate professor in the department of sociology and at the School of Public Health. "It's who you hang out with that gets you into trouble. It's tragic, but not random."

The study (see full story on Papachristos' work beginning on page 26) likens gun violence to a bloodborne pathogen. In the analysis, Papachristos notes that crime, like a disease, follows certain patterns. People in the same social network, he said, are more likely to engage in similar risky behaviors—like carrying a firearm or taking part in criminal activities—which increase the probability of victimization.

In the study, funded by the Robert Wood Johnson Foundation, Papachristos examined police and gun homicide records from 2006 to 2011 for residents living within a six-square-mile area that had some of the highest rates of homicide in Chicago. He found that 6 percent of the population was involved in 70 percent of the murders and that nearly all of those in the 6 percent already had some contact with the criminal justice or public health systems.

In addition, those in the 6 percent had a 900 percent increased risk of becoming a victim of gun homicide—suggesting that being part of a risky network might offer more insight into one's chance of becoming a victim than other risk factors. "You could easily identify who the dots are on these network maps and direct the resources accordingly," he said.

The study was published in the *American Journal of Public Health*.

M.G.



## Perspective

### More megacities

By Janice E. Perlman

Global urbanization is the expression of freedom of choice – it is driven by rural people “voting with their feet” by moving to cities in search of a better life and greater opportunities, if not for themselves then for their children. Better access to health care, along with education and jobs, is among the reasons given for this courageous migration.

The result is that cities are growing by some 70 million people a year. Currently, 51 percent of the world’s population is urban, and that number is expected to grow to 70 percent by 2050.

Virtually all of this growth will be in cities of developing countries and will be concentrated in squatter settlements or slums. Due to their exclusion from formal housing markets, newly arrived migrants build their own shelters on vacant land. Currently about 40 percent of urbanites in developing countries live “off the grid” of urban infrastructure and social services.

There are a billion people worldwide living in slums today; by 2030 that will double to 2 billion and by 2050 the number will grow to 3 billion, a third of the world’s population. Many will live in megacities, with populations of 10 million or more. There are currently 24 megacities worldwide. By 2050 there will be 36, with 19 of them projected to have populations over 20 million. We have no collective experience in managing cities of this size, and certainly our infrastructure, little changed from the end of the 19th century, is ill suited to meet 21st century needs.

Extreme weather has focused attention on climate change and is



of grave concern in the megacities of Asia and Africa. Of the 10 cities most vulnerable to rising sea levels, seven are megacities – Manila, Kolkata, Mumbai, Dhaka, Bangkok, Jakarta and Lagos. There will have to be concerted efforts beyond the city level to address this problem, drawing on technical and social organizational knowledge.

In part, this is a question of changing the way cities are managing their own metabolism. Just as health care moved from treating disease to inoculating against disease, researchers are in the phase of figuring out how to make our urban environments part of the solution instead of an underlying cause of the problem. The concept of “healthy cities” has been around for decades, but with new awareness of how our health is affected by the air we breathe, the water we drink, the land we live on and the food we eat, there is greater urgency and more impetus for action.

Most of us, including those working in public health, are well aware of the hazards of urban life. The litany of risks is familiar, but the health benefits of cities are less so. Urban concentration expands the

reach of health care and lowers the per capita cost of delivery. It increases access to basic health education, saving lives throughout the world’s burgeoning cities, and is doing this creatively in slum settlements through programs such as “Child-to-Child” in India and community health clinics in Rio’s *favelas*.

Increased education, incomes and access to women’s health care lead to steep declines in infant mortality in cities with a concomitant drop in family size. Being born in a city confers longer life expectancy than being born in a rural area, even in the same country. And, although cities are seen as polluters, the household emissions in cities are less than a third of those in suburbs, from both mobile and stationary sources (transportation and buildings).

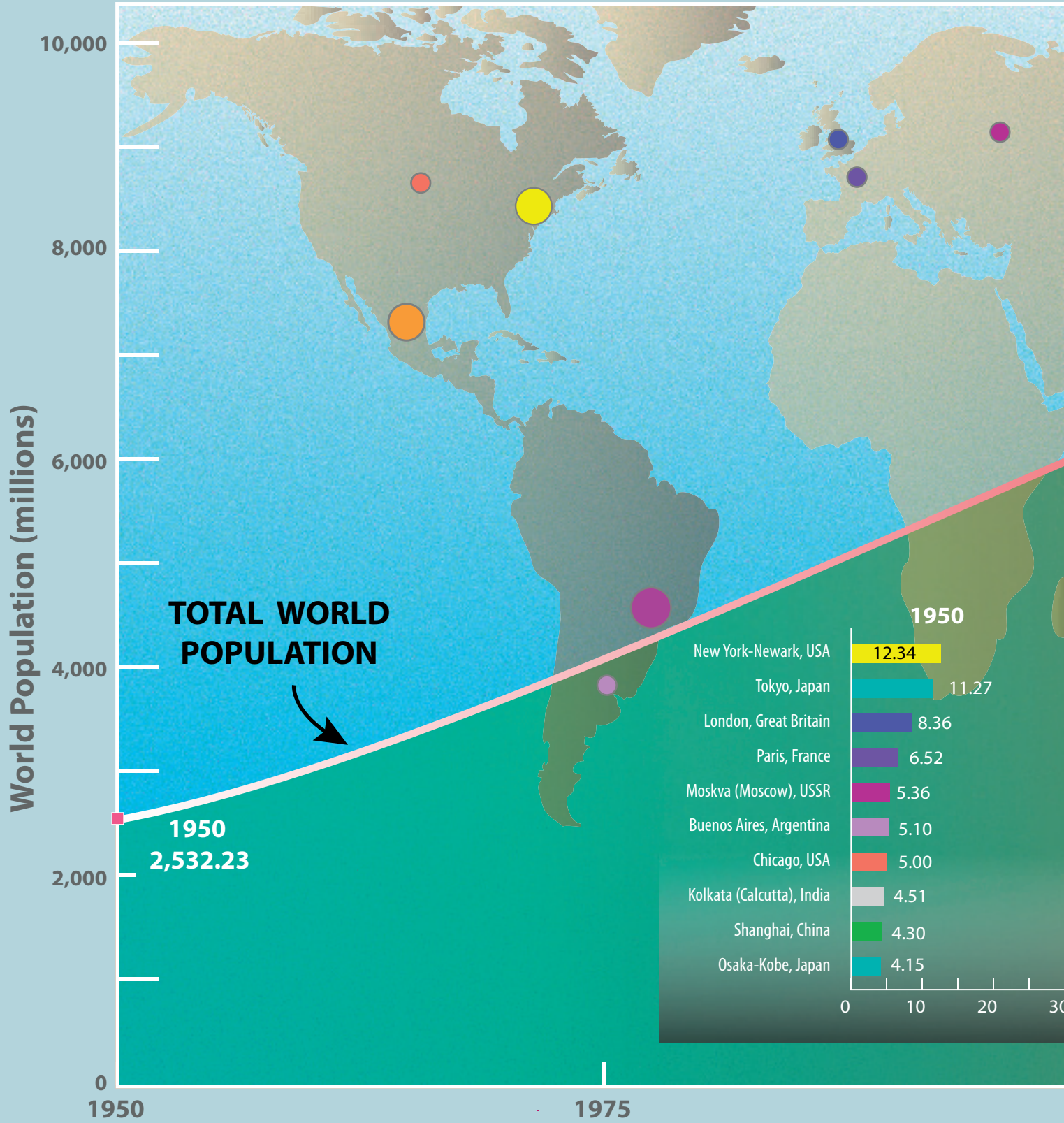
My research has shown that the greatest health threats in cities are poverty and extreme inequality. These play out in many ways, one of which is an epidemic of violence and drug abuse, taking the lives of a disproportionate number of young people, especially boys, in low-income communities. To have healthy sustainable cities, safe streets and secure communities, cities need to be more inclusive.

Our collective ability to integrate informal urban settlements into urban life and to welcome the energy and intelligence of their residents as part of the solution will determine the health and well-being of our urban future.

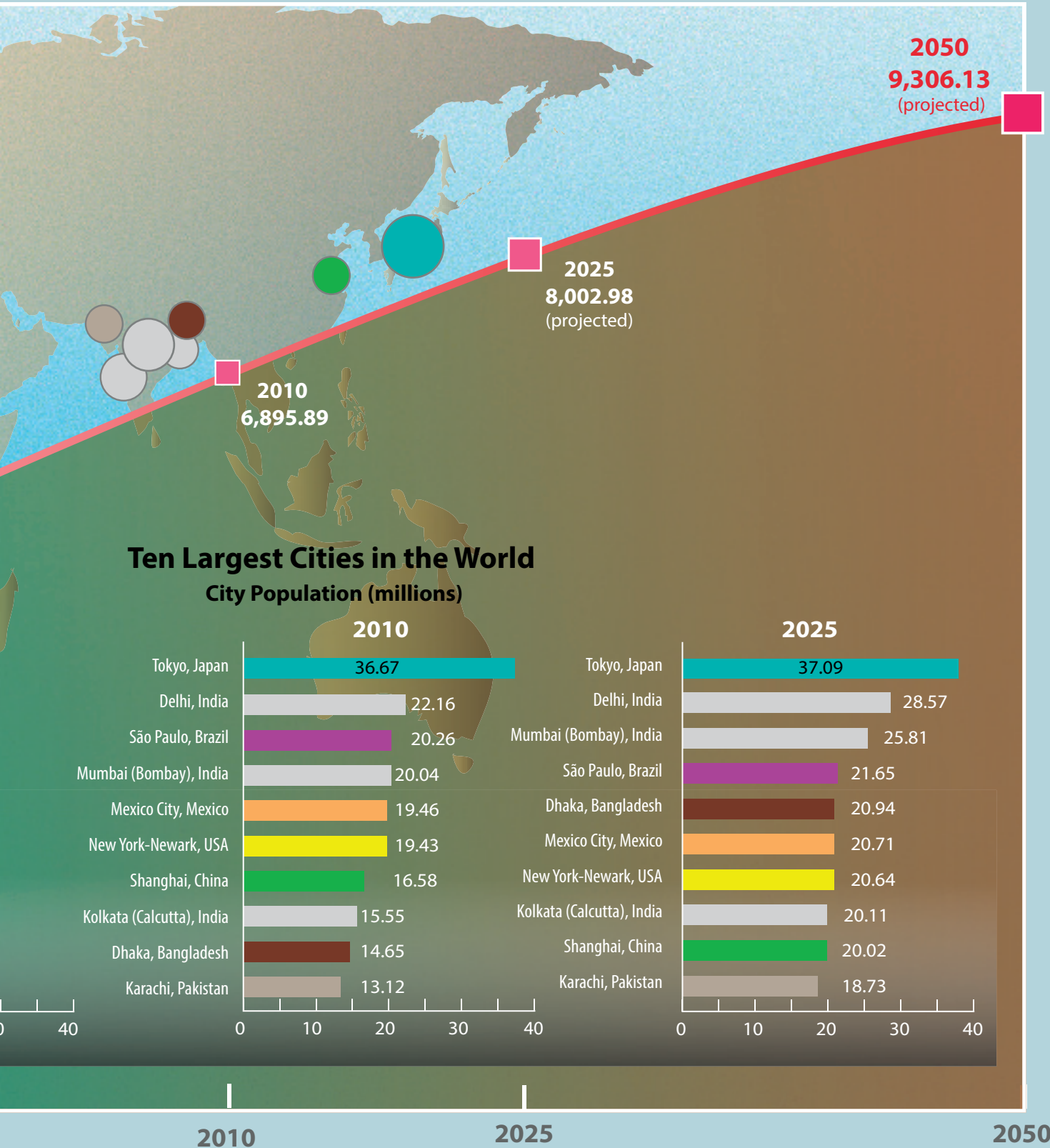
*Janice Perlman, Ph.D., is founder and president of the Mega-Cities Project: Innovations for Urban Life and the author of Favela: Four Decades of Living on the Edge in Rio de Janeiro.*



# BIGGER CITIES



Human population grew steadily throughout the 20th century and is projected to continue growing in the 21st century. This trend is giving rise to bigger cities and more of them.



*the outlook for*  
**URBAN**





## As human population increases and cities grow, urban health becomes increasingly challenging.

By Steve Kemper

In 2008, for the first time in history, more people were living in urban areas than in rural areas. This demographic trend has been accelerating for decades and is still gaining speed, especially in the developing world. London, for instance, needed 130 years to grow from 1 million people to 8 million, whereas Bangkok did it in 45 years, Seoul in just 25. In 2006 the population of Lagos, Nigeria, was 8 million; today it is estimated at 21 million. Many cities in China are expanding at rates of 10 percent per year. By 2030, the population will be 70 percent urban in Africa and Asia, where rural majorities once seemed entrenched, and 80 percent in the developing world overall. The worldwide urban population, now about 3.5 billion, could nearly double by 2030. Most of that growth will occur in the developing world.

These massive demographic shifts have created tremendous benefits and problems. Compared to rural dwellers, people who live in cities often have more abundant food and better housing; more opportunities for education and employment; and better health care. But rapid urbanization comes with a dark side. As population density increases, so do poverty and health problems. The association is not coincidental.

About a third of the world's urban population—more than a billion people—live in slums. That number is also expected to double by 2030. For these people, the advantages of urban life are often overshadowed by the adversities. Slum dwellers endure unsafe drinking water, lack of sewers and sanitation, ramshackle housing in densely packed and dangerous neighborhoods, high unemployment and unreliable food supplies. All of these conditions imperil health, yet slums are often the last places to get attention from the health care system.

### Social inequities

In 2010, a joint report by the World Health Organization (WHO) and the United Nations, *Hidden Cities: Unmasking and Overcoming Health Inequities in Urban Settings*, called the burgeoning urban population “among the most important global health issues of the 21st century.” Albert I. Ko, M.D., chair of the Yale School of Public Health's Department of Epidemiology of Microbial Diseases, emphatically agrees with that assessment. “The benefits of urbanization are not shared equitably,” says Ko, who has been researching health in the *favelas* of Brazil for nearly 20 years. “That's very clear in places like Rio de Janeiro or Salvador, where you see poor and rich communities living side by side, yet the social



## “In Mexico 12 million people now have diabetes, in India it’s 65 million, and in China it’s 110 million.”

– Paul Madden

distance between these populations is tremendous.”

The social inequities within urbanization are directly linked to many health hazards found in slum areas. These fall into three broad areas: infectious diseases, noncommunicable diseases (including mental health) and injuries caused by violence. Many of these are preventable.

Consider infectious diseases: a WHO report, *Water for Life* (2005), found that nearly half of all urban residents in Africa, Asia and Latin America were afflicted with at least one disease associated with polluted water and lack of sanitation. In 2010, WHO reported that a third of the people living in cities in the developing world do not have access to household latrines or flush toilets. About 170 million of these urban residents, said WHO, lack access to any sort of latrine and must defecate in the open.

“In urban slums, whether in Jakarta, Mumbai, Manila or Mexico City,” says Ko, “poor sanitation really sets the stage for the transmission of major infectious diseases.” He ticks off a list of them: typhoid, cholera, gastroenteric illnesses such as dysentery. “These emerging infectious diseases – which are actually re-emerging diseases,” says Ko, “are driven by urbanization of poverty and the rapid growth of slum settlements.”

The squalor and density of urban slums also attract disease-bearing insects and rodents. Dengue and malaria,

transmitted by mosquitoes and once found primarily in rural areas, have become urban health problems due to poor drainage. Open sewers and garbage heaps attract rats, whose urine can transmit leptospirosis, a bacterial disease that can lead to massive bleeding from the lungs, renal failure and death. Leptospirosis epidemics occasionally scourge urban slums. Ko studies the disease in Brazil and has found that the major risk factor for contracting it is to live in rat-infested *favelas* served by open sewers. Ninety-five percent of the cases in the city of Salvador occur in its slums.

The second major area of concern in urban health is noncommunicable diseases such as asthma, diabetes and hypertension. The causes, once again, stem from the unhealthy environments typical of impoverished urban areas. Slums may be near industrial areas where factories spew particulate air pollution, leading to respiratory diseases such as asthma. Another serious cause of respiratory ailments is indoor pollution caused by burning solid fuels for basic needs such as heat, cooking and boiling water for drinking. In Bangkok, 29 percent of the deaths from cardiovascular disease are estimated to be caused by these forms of air pollution, which can also lead to pneumonia, lung cancer and other severe health problems.

Slum dwellers often lack the dietary choices found in wealthier neighborhoods or may simply be too poor to eat



well. They may opt for highly processed fast food because it's cheap and available. Lack of proper nutrition makes them more vulnerable to their environment's many pathogens. Poor diet is especially calamitous for children, whose physical and mental development are tied to nutrition. Rural immigrants to the city often get far less exercise than they did previously. Lack of exercise combined with reliance on processed food leads to high rates of hypertension, obesity, diabetes and associated cardiovascular problems such as stroke, myocardial infarction and heart disease.

### Serious challenges

Paul Madden, M.Ed., Project HOPE's senior adviser for noncommunicable diseases, points out that in 2011 the World Economic Forum called noncommunicable diseases the biggest health care peril facing humankind. He is especially alarmed by the surge in obesity and its consequences in developing countries. "In Mexico 12 million people now

have diabetes, in India it's 65 million, and in China it's 110 million. There are also more than 400 million people in China with pre-diabetes, which means they have many of the conditions that lead to type 2 diabetes."

Dump all of these conditions onto poor people living in slums, toss in chronic unemployment, and the result is terrible stress. "If you can't feed your family, you get depressed," says Elizabeth H. Bradley, Ph.D. '96, director of the Yale Global Health Initiative and professor in the Department of Health Policy and Management. "You smoke more, and alcoholism or other drug use tends to come in, contributing to poor mental health. All of these are health care concerns."

Poverty, drugs and mental distress all damage health and frequently spawn violence within slum communities — another cause of physical and mental maladies. The violence is often directed at women and children, who are often the most vulnerable among slum populations.



Above: The JP Nagar slums in Bangalore, India.

Left: Poor urban areas, often marked by inadequate drainage and trash removal, attract disease-bearing insects, such as this *Aedes aegypti* mosquito, and rodents. Diseases such as dengue and malaria have become urban health problems.

As an example of these cumulative effects, Ko mentions the phenomenon of “flying toilets” in Kibera, one of Nairobi’s massive slums. To escape the violence and sexual abuse while waiting in line at public latrines, slum residents defecate in plastic bags at home and throw them into the street. Flying toilets have become the most common form of waste disposal in Kibera and other large slum communities. Violence and fear have thus worsened Kibera’s problems with sanitation and disease transmission.

Climate change is another worrying factor in urban health. Slums typically get shunted into a municipality’s least desirable areas, such as steep hillsides or swamplands and riverbanks prone to flooding. The extreme weather that is one byproduct of climate change can devastate these areas, as evidenced in recent years in India, the Philippines, Haiti and elsewhere, where natural disasters led to health care catastrophes. Ko has found that urban epidemics of leptospirosis are sparked when flooding causes open sewers and garbage dumps to overflow and spread contagion. A study in 2004 found that the widening distribution of more than 300 diseases was strongly linked to climate change and warned of an explosion of human vector-borne diseases.

All these social inequities breed civil unrest, crime and violence that spill beyond the slums’ boundaries. The economic consequences are also immense. Bradley notes that treating disease is far more expensive for a government than funding prevention. Sickness, especially chronic sickness, also costs billions of dollars in lost economic activity.

One obstacle to better health in poor urban neighborhoods is lack of research and data about this distinct population and their needs. Until recently, notes Ko, research in developing countries tended to focus on traditional rural-based infectious diseases.

“There needs to be a real paradigm shift in global health,” he says, “to address urbanization; the broader social processes which impact on disease transmission; and the needs of marginalized slum populations.”

Another paradigm shift involves the issue of who formulates the policies that affect health in slums. Typically this happens from the top down. Part of Bradley’s mission as faculty director of Yale’s Global Health Leadership Institute is to change that. “We’re trying to help governments and ministers of health understand the importance of inclusion,” she says, “and of having strategies grounded in the reality of what an urban area is really like. They need to put people on their steering committees who are living and suffering in these communities.”

### Modest successes

Some modest successes are pointing the way to better urban health. Though serious challenges remain, Brazil has done things well at several levels, says Ko, especially by investing in prevention. In 2000 the government launched a successful program called Bolsa Família that gives families cash for getting prenatal care, immunizing their children and sending them to school. Such initiatives, adds Ko, depend upon good governance, often in short supply in developing countries.

The Brazilian government also has increased its funding of research in slum communities to identify key diseases, transmission patterns and strategies for intervention. Ko’s own work in the *favelas*, including training more than 300 Brazilian public health investigators and establishing urban health councils that enable community leaders to address health problems on their own, fits into this. “We included the community as an equal partner,” he says.





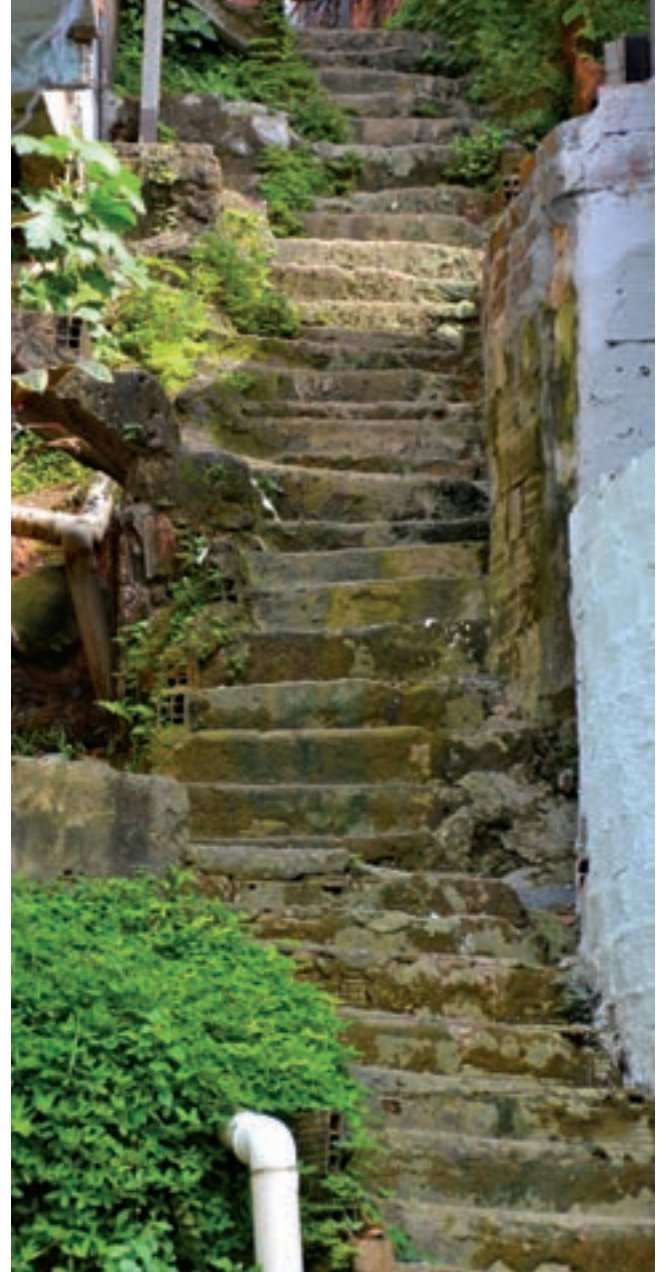
One piece of Project HOPE's extensive work in slums throughout the globe is a clinic, opened with the South African Ministry of Health and other partners, in the tin-and-cardboard slum of Johannesburg known as Zandspruit. The clinic focuses on the prevention and treatment of chronic diseases, and the organization hopes it will be a model for others.

But even simple, inexpensive measures can make a big difference. At a clinic in Mexico City, Madden talked to young women just diagnosed with gestational diabetes, which can wreak havoc on the health of both mother and baby. He noticed that all of these women were glued to their cell phones. He got an idea: why not send them regular text messages about healthy nutrition and lifestyle choices? Results from a pilot program that ended in January will soon be published.

"Within a month," says Madden, "using the influence of positive text messages, we reduced abnormal blood sugars of gestational diabetes to almost zero." He adds that even the poorest people in Latin America and Africa often have cell phones, which Madden now sees as potential health care tools.

As the numbers of urban poor swell in the next decade, this population's health will continue to worsen unless the primary causes – social inequities and environmental conditions – are addressed beyond the health care system. "We need to transition from disease-specific to process-specific responses," says Ko. "The major health benefits for urban slum communities will depend upon improved sanitation and water supplies, sewers, education, safety and good governance – in other words, social and political issues as well as public health." [YPH](#)

*Steve Kemper is a freelance writer in Connecticut.*



**“The benefits of urbanization are not shared equitably.”**

*– Albert Ko*

*Above:* Uneven, steep and slippery stairs in the Pau da Lima *favela* in Salvador, Brazil, are a daily challenge. People who live at the bottom of the area's ravines are often poorer and more vulnerable to certain diseases and live in less substantial housing than people living at or near the top of a ravine.

*Left:* Air pollution, often exacerbated in urban areas due to factories and large numbers of motor vehicles, contributes to noncommunicable diseases such as asthma, diabetes and hypertension.

Easing

# BUR

# BRAZIL'S

A School of Public Health researcher dedicates his career to fighting a tropical disease that afflicts the urban poor.

Yale School of Public Health Professor Albert Ko and members of his research team at work in Pau da Lima in Salvador, Brazil, on a neglected tropical disease known as leptospirosis.



# DEN

By Michael Greenwood

Leptospirosis is a disease of the poor and, increasingly, a burden of the urban poor.

Transmitted primarily by rats, the infectious and potentially life-threatening illness exacts a heavy toll each year on residents of Brazil's *favelas* (or slums) and in similarly disadvantaged settings worldwide – an estimated 1 billion people. This number is projected to increase sharply in the coming decades, and the incidence of diseases such as leptospirosis, experts predict, will likely increase apace.

The urban poor pay the heaviest price for leptospirosis because its transmission is aided by factors that define their daily lives, such as open-air sewers, poor or no sanitation control, and inadequate drainage.

Hence, the rats that spread the disease thrive, and despite efforts at rodent control, they move in and out of the densely packed neighborhoods with near impunity. They are big and bold and their presence strikes a chord of terror in residents. In one recent survey, 84 percent of inhabitants reported seeing the rodents in or near their homes.


All it takes is for the bacteria shed by the rats to come into contact with breaks or openings in a person's skin, which is not difficult in settings marked by poverty, urban crowding and inadequate infrastructure. And if that happens, the results can be catastrophic for the victim.

## Pau da Lima

One particular *favela*, Pau da Lima, in the coastal Brazilian city of Salvador is perhaps the world's leading laboratory for the study of this zoonotic disease. Researchers here want to understand its transmission dynamics and identify public health interventions that can slow, and eventually stop, its spread.

Pau da Lima is a place most visitors to Brazil, and many Brazilians, never see. It is on the outskirts of the city, a distance from the modern high-rise buildings and the gleaming new soccer stadium erected to host this year's World Cup games.

In many respects, Pau da Lima is a typical *favela*. It is crowded with people, vehicles and stray animals that vie for space on narrow streets and alleyways. The houses are mostly small, packed tightly together and poorly constructed. Dwellings are also built along the slopes of steep ravines, the least desirable land, and extend precariously



downward hundreds of feet to the muddy, trash-infested valley floor below.

It is here that the poorest of the poor reside. The houses are visibly less substantial than those on the upper slopes of the ravine and are especially prone to flooding from the heavy rains that punctuate spring. The rains wash everything down from the main streets and hillsides above and cause the network of open-air sewers to flood. The homes and dirt pathways that connect them are inundated. It is essentially impossible for the people who live here to avoid the filthy water – and all of its disease-causing pathogens.

**“Our aim is to diagnose patients more quickly, provide better treatment and, ultimately, prevent this disease.”**

—Albert Ko

This is where Yale School of Public Health Professor Albert I. Ko, M.D., chair of the Department of Epidemiology of Microbial Diseases, has dedicated much of his life’s work. Ko first came to Brazil as a young researcher more than 20 years ago and quickly became captivated with the country’s vibrant culture and its people. Fluent in Portuguese and possessing a detailed knowledge of the city and its many health challenges, Ko now leads a collaborative research project with Brazilian and non-Brazilian colleagues who share a commitment to lessening the burden of diseases such as leptospirosis among the urban poor in Brazil and beyond.

“We are trying to tease out all the pieces of transmission and understand them,” says Ko, a soft-spoken man who came to Yale three years ago from Cornell University. “Our aim is to diagnose patients more quickly, provide better treatment and, ultimately, prevent this disease.”

His work in Salvador is based at Fiocruz (more formally known as the Oswaldo Cruz Foundation), the research arm of the Brazilian Ministry of Health. Neglected tropical diseases such as leptospirosis are a priority here, and Ko and his longtime colleague, Mitermayer G. dos Reis, a Brazilian senior researcher at the center and an adjunct professor at

YSPH, have assembled an international team of scientists that is working on a comprehensive field- and lab-based study to better understand all aspects of the disease and how to disrupt the rat-to-human transmission.

They have their work cut out for them. Places like Pau da Lima arose quickly and with little planning, the result of a mass migration beginning in the 1960s of the rural poor into urban areas in search of jobs, health care and educational opportunities. In short, people were searching for better lives. But many have not found what they or their parents were after. The poverty here is grinding and the health problems are severe. There is little government money available to improve the infrastructure in these communities, and the sheer number of communities in Salvador and in Brazil as a whole with living conditions similar to or worse than those in Pau da Lima is overwhelming.

### **Ko’s study**

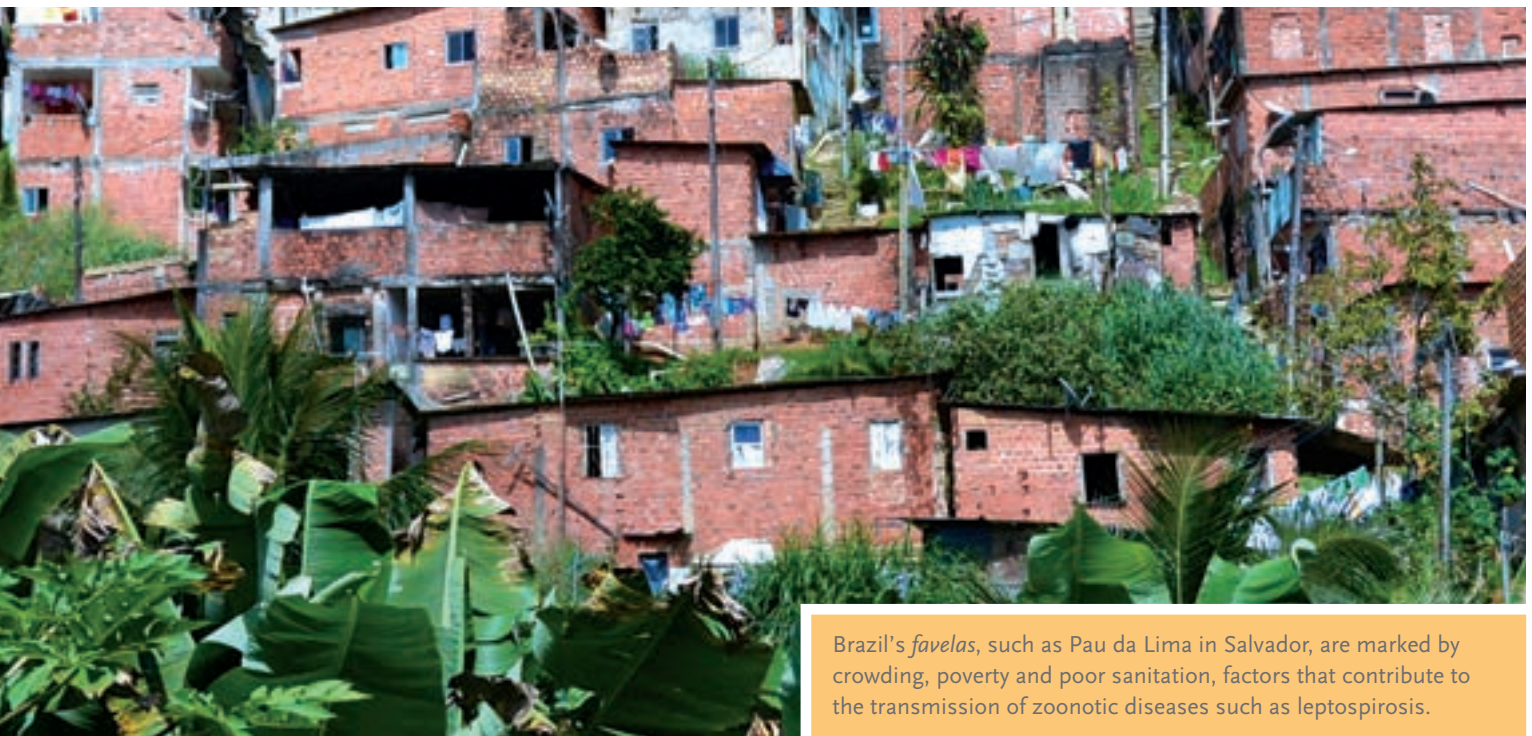
The study under way in Salvador could become the gold standard for leptospirosis research and provide new insights into the relationship between poverty and poor health outcomes.

Ko’s research effort draws on scientists from Brazil, the United States, Europe and elsewhere who are investigating multiple aspects of the disease, even mapping Pau da Lima’s fetid sewers. More broadly, they are gathering data on the ecology, pathology, genetics and epidemiology of leptospirosis that will be used to develop disease models that inform public health interventions.

One of these scientists, Federico Costa, M.Sc., Ph.D., is looking at the rodent reservoir – the common brown rats that carry in their kidneys the microscopic pathogen responsible for the disease. “Once a rat is infected, it is able to contaminate every time it sheds urine in the environment,” he says. “This is one of the most important components of the disease’s transmission.”

Originally from Argentina, Costa is interested in various facets of the disease’s eco-epidemiology. How do rats, for instance, become infected with leptospirosis in the first place? How does their movement affect disease dispersion? How do rats contaminate the environments in which they live?

If these and other dynamics involved in the initial spread of the disease can be better understood, Costa notes, health officials will come closer to formulating public health responses that are effective in protecting *favela* residents and people living in similar urban settings around the world.



Brazil's *favelas*, such as Pau da Lima in Salvador, are marked by crowding, poverty and poor sanitation, factors that contribute to the transmission of zoonotic diseases such as leptospirosis.

This investigation complements the work of Costa's colleague, Kate Hacker, a Ph.D. student and Fulbright Fellow at the Yale School of Public Health, who is also working in Salvador on Ko's study. Hacker is looking at the factors that drive the seasonal epidemics of the disease. Each rainy season certain "hotspots" arise, but the locations vary from year to year, even within the same *favela*. "We don't know what is driving that change," Hacker says.

Is the density of a particular rat population the main factor behind these disease hotspots? If questions such as this can be answered, health officials will be able to more accurately predict where outbreaks will occur, intervene earlier and prevent many illnesses and deaths.

Meanwhile, Janet C. Lindow, Ph.D., an associate research scientist at YSPH, left her job in Burlington, Vt., to work on Ko's urban health project. She is studying the human immune response to the disease and travels into some of the most remote sections of Pau da Lima and the many other *favelas* surrounding Salvador in order to draw blood from people recovering from the disease. It is tough, challenging and even risky work, as crime is a serious problem in the *favelas*. Lindow wants to understand the role of the human immune response in the development of severe

forms of the disease, which results in pulmonary hemorrhaging. Also of interest is whether people can develop immunity to the disease after their initial exposure and, if so, how long this immunity lasts.

Finding the answers to these questions could help unlock the Holy Grail of leptospirosis research: a vaccine.

Far from Salvador, research on such a vaccine is under way in Ko's laboratory at the School of Public Health. Elsie Wunder, Ph.D., D.V.M., a Brazilian veterinarian and an associate research scientist at Yale in Ko's group, discovered a mutation that knocked out a protein in the flagellum, the whip-like appendage that enables such life forms to move. This mutation literally stops the bacteria in their tracks, preventing them from causing infection. Wunder then proceeded to identify that immunization with this avirulent mutant bacterium elicits protection against infection with leptospirosis, thereby providing the basis for developing a vaccine for the disease.

Another researcher on Ko's team, Jose E. Hagan, M.S., M.D., an associate research scientist at YSPH who is stationed in Brazil and working in the Pau da Lima community, is examining human elements of the disease and how certain behaviors might increase the risk of infection.



Given that there are so many rats in the *favelas* and other resource-poor settings, why doesn't everyone get the disease? Does it depend, for instance, on how close someone lives to an open sewer? Leptospirosis, Hagan says, is a good model for understanding the nexus between infectious diseases and poverty. And the data that he and others are collecting can also be used to buttress arguments for increased sanitation and other infrastructure investments and to further educate people about the dangers of the disease and what steps they can take to decrease their risk.

## Leptospirosis

Under the lens of a powerful microscope, the spirochete that causes leptospirosis comes into focus as a corkscrew-shaped rod, a design that facilitates burrowing into and through flesh.

Once in the bloodstream, the bacteria multiply and attack bodily systems. Symptoms such as fever, chills, headache and severe myalgia mark early phases of leptospirosis. As it advances and the infection becomes more pronounced, jaundice, renal failure and hemorrhagic pneumonitis set in. In the most severe cases, the result is death.

In Brazil's *favelas*, the spirochete is spread primarily through rat urine—a single deposit contains up to millions of the microscopic bacteria. Many are absorbed either into the *favelas'* muddy roads and pathways (where they can survive for long, though undetermined, periods of time) or into the uncovered sewers that residents negotiate on de facto bridges made of shaky planks of lumber. These sewers crisscross neighborhoods in Pau da Lima and other *favelas*, and the heavy rains in springtime usher in the disease's peak epidemic season.

Scientists identified leptospirosis in the 19th century, but then it was largely a rural disease, an affliction of farmers

and other agricultural workers. The burden of the disease has since shifted from the countryside and now shadows rapidly growing urban areas that are teeming with people and inadequately planned.

Occasionally, leptospirosis surfaces in other areas and climes far from settings like Pau da Lima. Soldiers at Gallipoli, for instance, had to contend with the pathogen in addition to the horrors of trench warfare that marked World War I. More recently, in 2010, a British rower and former Olympic gold medalist, Andy Holmes, died of the disease in London. This case was relatively unusual, however, and the disease remains rare in most developed countries.

It is in poor urban settings in developing countries, Ko maintains, that the disease is a new public health threat. One study performed by his group identified 25.1 cases of the disease per 100,000 people annually. Another found *Leptospira* antibodies in 15.4 percent of residents tested, indicating that a significant proportion of slum residents have been infected, and are likely repeatedly infected, with leptospirosis. Ko's research has determined that people living in Salvador's poorest districts, such as Pau da Lima, are 20 times more likely to contract the disease than their peers in more prosperous neighborhoods that are often just a short distance away. Ko and colleagues recently completed a global burden of disease study of leptospirosis and estimate that there are more than 1 million cases and 60,000 deaths from the disease each year.

Almost all of those infected end up at the Hospital Couto Maia in Salvador, a large, century-old whitewashed building overlooking the expanse of the Atlantic Ocean, which is dedicated to the treatment of infectious diseases.

The hospital is a trove of information for Ko and his research colleagues. Each new case of the disease is documented, providing researchers with accurate numbers



*Opposite, Left:* The transmission of leptospirosis is aided by poverty. Many people navigate the muddy areas where the pathogen thrives wearing only basic footwear, if any at all.

*Opposite, Right:* Loosely constructed from pieces of scrap wood, makeshift bridges span open-air sewers that are infested with the bacteria that cause leptospirosis.

*Left:* A woman discusses her life and the living conditions in a *favela* in Salvador, Brazil. An open-air sewer that traverses her neighborhood can be seen in the background.

regarding the incidence of the disease from year to year. This also allows researchers to become acquainted with patients early on, to learn more about how they might have contracted the disease and to do follow-up blood work to see whether *Leptospira* antibodies remain in their systems.

There is evidence, meanwhile, that the Brazilian public and government officials are becoming more aware of the danger of leptospirosis, thanks in part to public health campaigns and outreach work by Fiocruz and other organizations, and some people are taking measures to reduce the risk of infection.

A recent study published by Ko and his colleagues found that the vast majority of the people interviewed were at least aware of the disease and that a sizeable minority understood that walking barefoot and coming into contact with flood-water dramatically increased their chances of infection.

Still, education and public awareness campaigns alone are unlikely to bring about a marked reduction in the incidence of the disease, Ko says. Investments in the communities, such as wastewater systems and trash collection, are needed, as are scientific data on its pathogenesis.

### **Fiocruz and Salvador**

Salvador, with about 3 million people, is Brazil's third-largest city, and its public health challenges do not begin or end with leptospirosis.

Ko is quick to note that urban violence is a serious and growing health problem, particularly in the *favelas*. High rates of chronic diseases, such as hypertension, obesity and heart disease, also affect these communities.

And there is a wide range of other infectious diseases that threaten health in the *favelas*. In addition to leptospirosis, Yale and Fiocruz conduct research on dengue, meningitis and

influenza and other respiratory infections in Salvador. They also investigate schistosomiasis and hepatitis C virus and are now initiating studies on noncommunicable chronic diseases.

While rats are not involved in the transmission of most of these diseases, many of them, Ko notes, are borne disproportionately by Salvador's poor.

This issue — disparity and inequality in the face of disease — is at the foundation of Ko's work.

Notions of social justice are as much a part of his conversation about disease and health as are antigens, serological surveys and molecular genetics. They also recur in his formal academic lectures. Almost all of Ko's presentations feature a photograph that once appeared on a magazine cover, showing a Brazilian neighborhood divided by a high wall. On one side are swimming pools, tennis courts and high-rise luxury buildings. On the other side is a *favela* where misery and disease abound. The contrast is striking.

The health challenges in Brazil's *favelas* will take many generations to adequately address. To this end, Ko and his colleagues at Fiocruz have worked for years to train a wave of Brazilian health experts to respond to the severe health challenges posed by rapid urbanization and poverty. Ko estimates that some 340 Brazilian scientists have been trained, many of whom are now deans and professors who are leading the effort for a healthier Brazil.

Ko has also helped to develop a rapid diagnostic test for leptospirosis. In many cases the device, about the size of a card deck, allows the disease to be detected early, when antibiotics are most effective.

The Brazilian government, meanwhile, is also expanding the reach of Fiocruz deep into Brazil's interior and at points along the Amazon River delta. There are currently six other

*Continued on page 72*



Corbis

# R U S S I A S



# E P I D E M

Four or five times a year, Robert Heimer travels to Russia, where he has been doing research for 15 years. Each time he makes the trip, the news about his main subject, the country’s epidemic of HIV/AIDS infection, gets worse. If the epidemic remains unchecked – and there are few signs to indicate otherwise – Heimer estimates that by the end of this decade, 4 percent of Russia’s general population will be HIV-positive. That would be a staggering figure.

“About a million people in the United States are HIV-positive,” says Heimer, M.Sc. ’80, Ph.D. ’88, professor in the Department of Epidemiology of Microbial Diseases and director of the Connecticut Emerging Infections Program at Yale School of Public Health, “which is about one in 300 people, or 0.3 percent of the population, versus 4 percent in Russia – more than tenfold higher in an upper-middle-income country. That’s unheard of.”

What makes the epidemic even more surprising, not to mention frustrating for scientists such as Heimer, is that it’s spreading from a treatable, containable source: people who inject drugs (PWID). As the number of PWID in Russia has risen, the incidence of HIV has exploded. The link is direct – shared needles contaminated with HIV spread infection – and familiar to epidemiologists.

So are the steps necessary to break the link, including needle exchanges; opioid substitution therapy; and other preventative measures that have been effective in places such as New York, Edinburgh and Vancouver. But Russian officials have largely rejected these proven approaches and do not follow the recommendations from Russian and foreign scientists. The World Bank estimates that unless this changes by the year 2020 the number of people in Russia infected with HIV will rise to 5.4 million and more than 20,000 people will be dying of AIDS each month.







HIV has spread quickly in St. Petersburg and other major cities and the problem threatens to get still worse.

By Steve Kemper

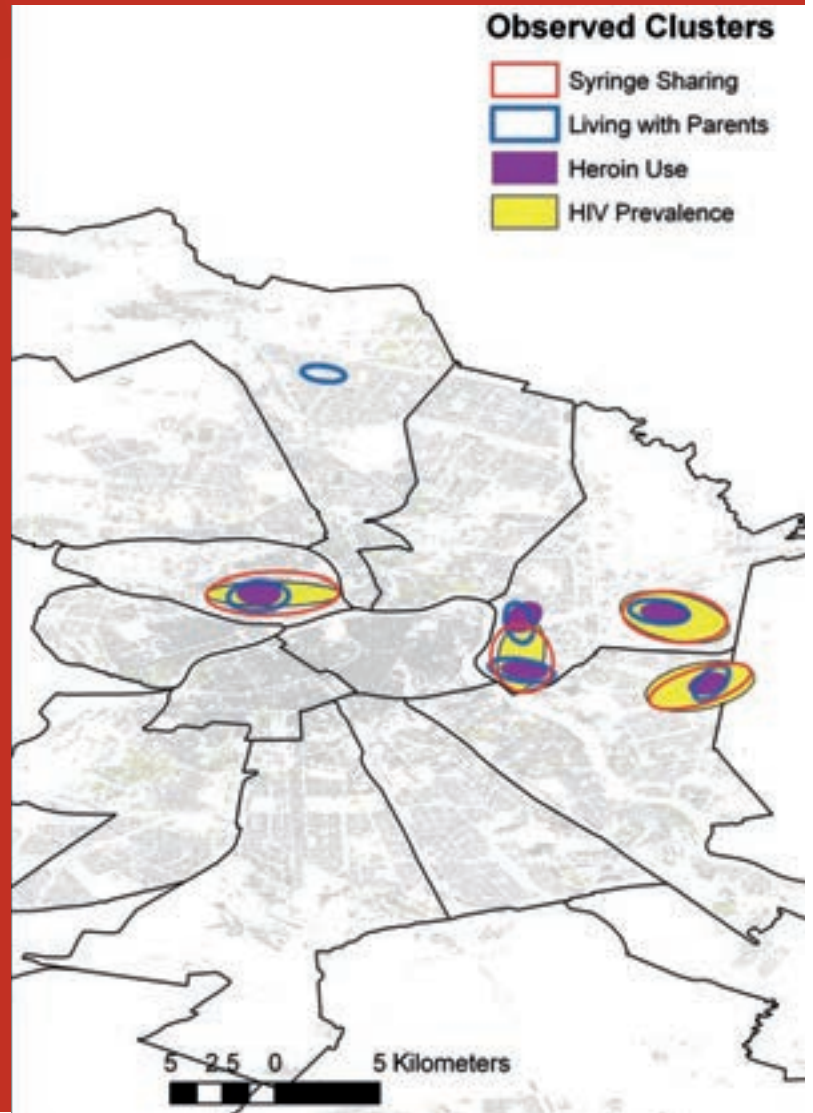


### Origins of an epidemic

The roots of the epidemic of addiction go back to the Soviet Union’s war in Afghanistan (1979 to 1989) and the breakup of the Soviet empire in the early 1990s. During those years, Afghanistan became the main supplier of heroin to Europe via Russia’s long southern border. In the lawless days of “desovietization,” heroin (and everything else) flowed across the newly porous borders into Russia’s major cities. Young people exercised their freedom by trying all things Western, including drugs. Because of Russia’s proximity to Afghanistan and the long-standing trade by smugglers, heroin was easily available. Another factor also played a role: in contrast to the United States, where injection is the mark of extreme drug users, syringes are commonplace in Russia, sold in pharmacies and widely used at home to inject medicines.

*Below:* The spatial distribution of HIV prevalence and incidence among injection drug users in St. Petersburg, Russia, is illustrated in this map created from data collected during ongoing studies in Russia by the Yale School of Public Health.


*Left:* Used needles are deposited between windows in the stairwell of an apartment building in Kazan, Russia.



Heimer does much of his research in St. Petersburg, a city of 5 million. When he started working there in 2000, an estimated 2 percent of the PWID population had HIV. By 2012, when he estimated that the city had 83,000 PWID, more than 50 percent of them were HIV-positive. Of the approximately 1.2 million HIV cases in Russia, 82 percent are PWID, and at least 75 percent of all new HIV cases come from that group. It’s clear that PWID are still driving the epidemic’s spread. “Without them the epidemic is not sustainable,” says Heimer. “Therefore, targeted prevention programs are an absolute must.”

The epidemic has started to move beyond PWID through what Heimer calls “sexual bridges” – PWID with HIV who have sex with people who aren’t drug injectors. Heimer’s research suggests that 40 percent of PWID partners are not PWID. More alarming, 40 percent

Reprinted with permission of the journal AIDS



of the sexual encounters between these groups are unprotected. This route of transmission accounts for a quarter of all newly diagnosed infections, and this proportion may rise.

The epidemic is largely urban, in places with enough money to support a heroin market. Most of Russia's big cities are suffering, says Heimer, mentioning Moscow, Kaliningrad, Yekaterinburg and Chelyabinsk, as well as St. Petersburg.

The PWID with HIV are mostly young, between 18 and 35 years old. About a third are women. About a third are fully employed. More than half live with their parents. In contrast to the U.S. stereotype of the criminal junkie, less than 15 percent of them fund their addiction illegally.

"They are young adults with lives ahead of them," says Heimer, "and they deserve to be the object of targeted HIV prevention programs. But given the current Russian disdain for antisocial deviant behavior, whether it be homosexuality or drug use or Western values of any kind, promoting and obtaining financial support for such programs has been very complicated."

### Obstacles to change

In Russia, PWID with HIV are doubly stigmatized. Addiction and HIV are judged to be sins rather than illnesses, a cultural attitude that can show up in unexpected ways. Pharmacies, for instance, can sell syringes without prescriptions to anyone, and clean needles could help slow the spread of infection. So why do so many PWID use dirty needles?

Heimer and colleagues from Saint Petersburg State University offered a partial answer in a study published last year. They found that about a third of the 108 pharmacies in St. Petersburg that research staff visited refused to sell syringes to people they suspected were PWID. The refusals were often accompanied by abuse or threats to call the police. Other barriers also discourage PWID from using pharmacies, says Heimer. The police watch these stores in order to identify drug users, who are then detained and extorted for money or arrested if they fail to pay. Similarly, many of Russia's poorly paid police moonlight as security guards; in pharmacies, they can note drug users who come in and then target them on the street. For PWID, buying clean needles can be risky as well as humiliating.

These social attitudes are reflected in government policies that are punitive rather than preventative. Few needle exchanges exist. Opiate substitution therapies such as methadone or buprenorphine, which Heimer calls "the gold standard for treating heroin addiction," are illegal in Russia. The government believes that such therapies coddle PWID. Instead, the usual treatment is short-term detoxification – sweat the drugs out of an addict's system.

"So instead of treating it like a chronic condition," notes Heimer, "you've treated it like the flu. This approach has

failed everywhere it's been tried. Detox doesn't deal with fundamental issues of addiction, which is associated with long-term changes in the wiring and chemistry of the brain. Within six months, 90 percent relapse."

Another effective preventative measure is antiretroviral drug therapy, which lowers an HIV patient's viral load and hence the ability to transmit the virus. In Russia such treatment has been reserved for people with advanced disease who also have to be drug-free for six months. Recently, however, the St. Petersburg AIDS Center began accepting PWID for treatment with antiretrovirals, which Heimer says "will be a huge help."

Russian nongovernmental groups that work on behalf of PWID or people with HIV are harassed and sometimes prosecuted by the government. These groups depend on outside funders, but the government puts up obstacles, including the requirement that the groups register as "foreign agents." Heimer sometimes works with a nongovernmental organization in St. Petersburg named Stellit that is routinely investigated because of its foreign connections. Stellit does epidemiological research and consults with government agencies. Heimer's collaboration with the group has given him access to government officials.

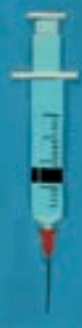
"After working in Russia for many years," he says, "I realized that if anything was going to happen, it would have to be done by government. To produce broad shifts in policy, it isn't sufficient to publish scientific papers or to work with universities or nongovernmental organizations. But I see little or no hope for any resolution in the short term," he adds. "Russia will continue to suffer from inappropriate, ineffective and unethical treatment for people who become opioid-addicted."

His frustrations are not limited to Russia. Though the epidemic is worsening, grant money from U.S. funders has become harder to get. Despite Heimer's long history of productive research in Russia, funders are skeptical that he can work there effectively because of government interference. A funder recently declined a grant application for a collaboration between YSPH and Saint Petersburg State University to set up a social science research center, noting "specific concerns about the political and institutional barriers that exist and threaten success of efforts."

### Robust collaborations

Still, the research has generated robust collaborations at the School of Public Health and with a growing number of scientists in Russia.

Colleagues at the School of Public Health are now leading projects that Heimer initiated. Nadia Abdala, Ph.D., research scientist in the Department of Epidemiology of Microbial Diseases, has received grant support to conduct interventions for reducing alcohol-related HIV sexual risk taking; Lauretta E. Grau, Ph.D., associate research scientist in the same department, is now responsible for qualitative



aspects of a study on syringe availability through pharmacies and for developing approaches to study the role of family structure and how it contributes to drug addiction; and Linda M. Niccolai, M.Sc., Ph.D., associate professor in the same department, has taken the lead in studying the nature of both female and male sex work.

And in Russia, a collaboration that began in 2008 with Stellit has quickly matured with some tangible results: the training of a dozen staff members, the presentation of three Ph.D. theses, four research initiatives, the publication of multiple research papers and several ongoing projects.

Olga S. Levina, Ph.D., Stellit's development director, says that the partnership with YSPH has allowed the organization to provide its Russian partners with improved data and expertise.

"Not only has the nature of our work changed a lot ... but also [our] ideology and operation have been significantly modified to meet higher standards," she says.

While the obstacles are challenging, Heimer remains committed to Russia. He immediately cites the young Russian scientists who have been coming to YSPH since 1999 to learn about HIV prevention through the Fogarty AIDS International Training and Research Program. Nearly 60 researchers have passed through the program; most of them are now doing HIV-related work in Russia with continued support and mentoring from Heimer and his Yale colleagues.

"I like those people so much and have seen them grow and thrive," says Heimer. "That's why I keep doing this." YPH

*Steve Kemper is a freelance writer in Connecticut.*



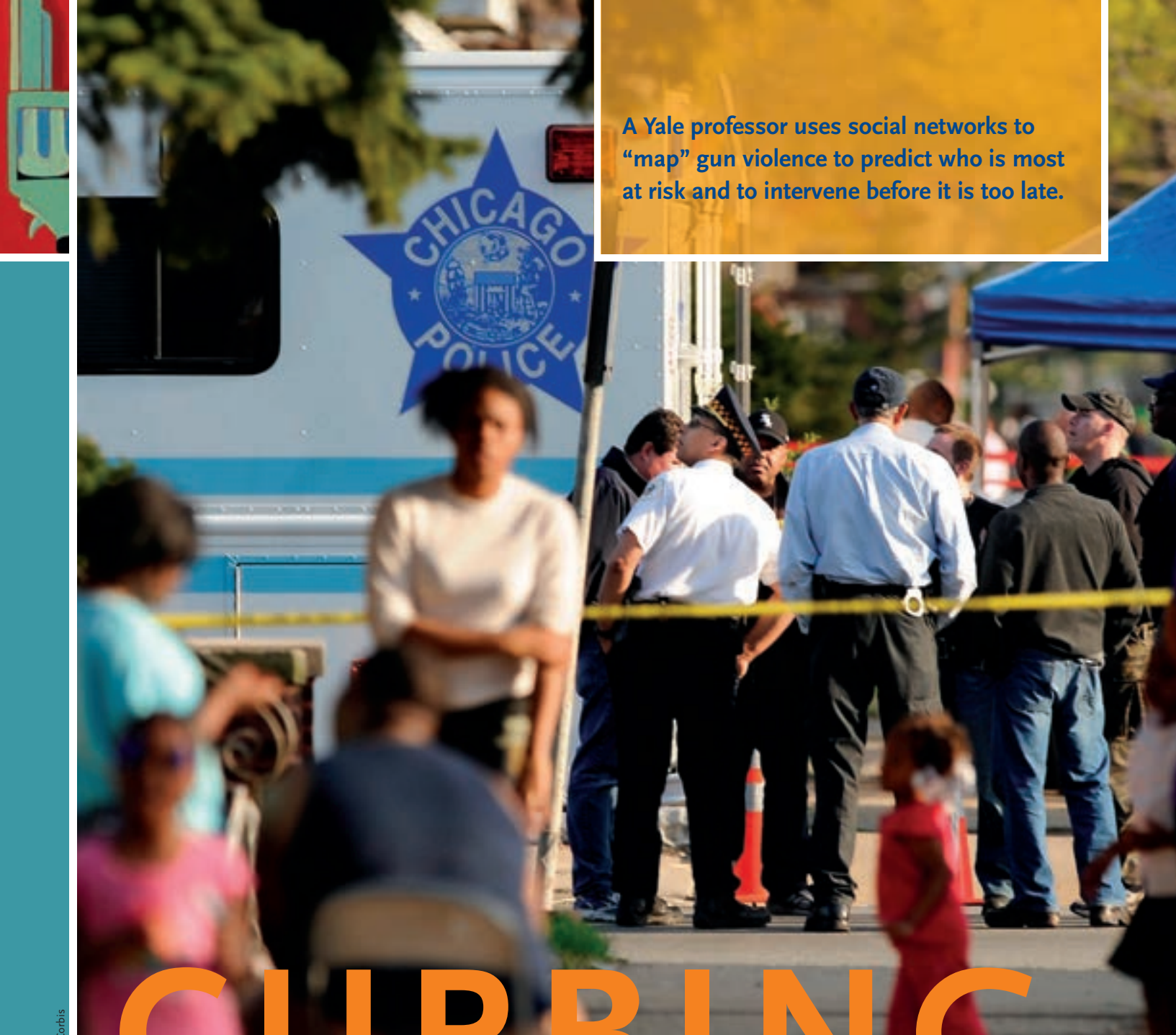
Associated Press

*Above:* Young Russian women hold candles during International AIDS Candlelight Memorial Day in Moscow.

*Top:* A view of St. Petersburg from the roof of Saint Isaac's Cathedral includes the Hermitage, Palace Square and the Alexander Column.

“They are young adults with lives ahead of them, and they deserve to be the object of targeted HIV prevention programs.”

– *Robert Heimer*



A Yale professor uses social networks to “map” gun violence to predict who is most at risk and to intervene before it is too late.

# CURBING

## urban gun violence

By Theresa Sullivan Barger

Since cities like Chicago began strategic campaigns to focus crime prevention efforts on the 6 percent of the population responsible for 70 percent of its murders, they’ve seen homicide rates drop by 20 percent. In 2012, the first year New Haven implemented the same method, murders were cut in half and shootings dipped by a third.

One vital piece of information helping to decrease shootings and homicides in cities as diverse as Chicago, New Haven, Cincinnati and Newark comes from Yale sociologist Andrew V. Papachristos’ research. A native of Chicago,

Papachristos has studied the city’s police records and concluded what law enforcement and community groups already suspected, but at a deeper, broader, more specific and scientifically verified level: one’s social network determines how likely a person is to be killed by a gun.

Papachristos, Ph.D., a former Guardian Angel who once considered becoming a police officer, analyzed the city’s gun homicide records from 2006 to 2011. He found that 41 percent of all homicides during this period occurred within a network containing less than 4 percent of a neighborhood’s

population. Put another way, the 4 percent of people responsible for a large number of the city's murders increased a person's odds of being killed by a gun by 900 percent.

Papachristos' analysis, co-authored with Christopher Wildeman, associate professor of sociology at Yale, was published recently in the *American Journal of Public Health* and funded by a grant from the Robert Wood Johnson Foundation.

The trajectory of gun violence is analogous to that of a bloodborne pathogen and needs to be treated as such, according to Papachristos. Such violence spreads through a community following a pattern of public health epidemics similar to that of HIV/AIDS, says Papachristos, associate professor of sociology, public health and law. Tackling gun violence as a public health epidemic is gaining steam. In 2012, the National Science Foundation gave Papachristos a CAREER program grant to expand his research to all of Chicago and three additional American cities.

### Taking science to the streets

Any good beat cop, teacher or pastor can identify a young man's friends, but one individual cannot see the much larger network beyond that.

"I'm taking what's in your head, my head and the other guy's head and mapping it out," Papachristos says. "The reality is, most people don't understand their social networks more than two or three handshakes away."

Living in a particular neighborhood puts someone in a risk zone, but researchers know that the vast majority of people do not get shot, he says. "Poverty sets the stage. But poverty doesn't pull the trigger."

The prevalence of guns in the United States is also an important factor driving homicide, he says. Americans are 20 times as likely to be killed by a gun as people from other developed countries, according to United Nations data. The only exception is Mexico, which has about triple the U.S. murder rate, due largely to an ongoing drug war. A fight involving a gun is far more likely to end in death than one involving a knife or fists, and the FBI estimates that one-third to one-half of U.S. residents own guns.

By treating urban homicides as a public health epidemic, Papachristos believes that homicides in small cities like Hartford and New Haven could be cut in half, at least, and reduced significantly even in Chicago, which led the nation in homicides in 2012.

"The solutions are not these broad, sweeping enforcement policies or measures like 'stop and frisk,'" he says. Identifying and notifying those most at risk is the first step. Providing strategic, individually focused community intervention will be far more effective than mass incarceration. To this end, he's working with law enforcement and

**"I'm taking what's in your head, my head and the other guy's head and mapping it out."**

—Andrew Papachristos

other researchers, including Tracey L. Meares, professor at Yale Law School, on violence prevention programs to make policing efforts smarter, fairer and more effective.

Using the results of such academic research, New Haven police and the community are working together on crime reduction initiatives as part of a multipronged strategy. Papachristos' discovery provides "another brick in the road to understanding how to correct criminal activity," says New Haven Police Chief Dean M. Esserman. As criminologists learn that effective policing involves collaboration and focused deterrence, he says, Papachristos "has helped us focus in the most thoughtful and effective way."

### Family influences

Papachristos comes from a family that cares about the community. He grew up in the racially diverse Rogers Park neighborhood on Chicago's North Side, where his parents ran a Greek diner that was a neighborhood institution.

His mother acted as a kind of community den mother, providing free food, holding fundraisers and looking out for neighborhood kids. His older sister, an assistant principal with the Chicago Public Schools, also served the community. As a Guardian Angel while in high school and



A former Guardian Angel who once considered a career as a police officer, Yale's Andrew Papachristos turned to science to find ways to stop the plague of urban gun violence.

at Loyola University, he talked to neighborhood gang members and tried to get them to stop shooting each other.

But after his father refused to pay extortion fees and his mother continued to help kids despite the threats, their diner was torched and never rebuilt. He was 16 years old. Papachristos studied criminal justice, took the police exam and got a job offer, but his university sociology and criminology courses intrigued him and drove him to choose graduate school instead.

He hopes his research can curtail the epidemic of gun violence that is rampant in many American cities. "You don't arrest your way out of this problem," Papachristos says. He is working with criminologist David M. Kennedy, who devised a three-point intervention method proven to stem the tide of violence.

In Chicago, police and community leaders implemented two programs that use Papachristos' data to demonstrate to individuals the high probability that they'll be the next shooting victim or killer, says Chris Mallette, executive director of Chicago Violence Reduction Strategy. In one program, gang leaders are called into meetings where the police say that they know their associates and enemies; police warn them that if anyone in their group kills someone, the police will shine an enforcement spotlight on the whole group. Next, a community member, such as the mother of a murder victim or a convicted murderer, talks about her anguish and says that the community has hopes and aspirations for them. Finally, a former gang member, often someone in a wheelchair because of a shooting, serves as the voice of redemption, telling them not to risk their lives or futures over what are likely petty disputes.

**"Andy's work is incredible stuff. He's helped more people than he'll ever know in more cities than he'll ever know."**

— *Chris Mallette*

Some people say they don't belong at this meeting, that they haven't done anything, Mallette says. "When the slide (based on Papachristos' research) pops up that shows all the faces in the group and all the arrows connecting everyone, there's a collective sigh and silence in the room."

The other prevention program, known as "custom notifications," involves going to the home of an individual at risk of being killed or killing another, based on Papachristos' analysis. Mallette says to the person and his mother, grandmother or wife, "We have a professor who is looking at the data, which say you're 700 times more likely to be the next shooting victim than anyone out there.' The guy is just looking at you. 'That means it's going to happen unless you make fundamental changes. We don't want you to be next.'"

Since the police and community started custom notifications in July 2013, none of the 35 individuals contacted has been a victim or been arrested for a violent crime, says Chicago Police Superintendent Garry F. McCarthy. And out of the nearly 600 members brought to the group meetings since August 2010, fewer than a dozen have been arrested for violent crime.

"Crime thrives on anonymity and the belief that nobody cares," Mallette says. "When the community comes to your house saying, 'We do care what you're doing. It's garbage and you need to stop it. We'll help you if you want help,' then Andy's work is incredible stuff. He's helped more people than he'll ever know in more cities than he'll ever know." YPH

*Theresa Sullivan Barger is a freelance writer in Connecticut.*

# China's challenge

By Leonard Felson

A YSPH scientist is leading studies in China, involving nearly 200,000 people, to address the steep public health costs associated with rapid urbanization and industrialization.





Chinese cities such as Beijing have grown rapidly in recent decades as the country has industrialized.

It is often referred to as “the world’s factory.” Such is the dramatic rise of China as an economic power over the past three decades, lifting 500 million people out of poverty. Yet this rapid industrialization has come at a deadly cost to the nation’s public health and its 1.3 billion citizens, and nowhere more so than in China’s cities.

Since 1980, China’s rapid growth has made it the second-largest economy in the world, but the country’s industrial revolution has polluted the environment along the way, exposing millions of workers and their children to dangerous chemicals in the air, water and soil.

Air pollution alone, from factories and the huge increase in the number of cars on roads, up to 240 million vehicles in 2013, is blamed for hundreds of thousands of deaths. Cancer has become the leading cause of death, often linked to toxic byproducts from factories and from pollutants in the water, soil and, by extension, crops and foods. The health issues are enormous.

Tongzhang Zheng, D.Sc., Susan Dwight Bliss Professor of Epidemiology (Environmental Health), can spend hours explaining these public health problems and what China is doing to address them. A native of China, Zheng arrived in the United States in 1984 to earn his master’s and doctoral degrees at Harvard. He’s been at YSPH since his postdoctoral training at Yale in 1990.

For the last several years, Zheng has been immersed in three ambitious studies to determine exactly how China’s rapid industrialization and economic growth are affecting the health of workers and their offspring, particularly in urban areas. The research is complicated, both in terms of the number of workers being studied and the variety of collaborative partners – not just at YSPH, but also at leading public health institutions in China.

Each study has different aims, but together they reflect conditions across China. “They’re representative of everywhere in the country,” he says.

### Three simultaneous studies

A prospective cohort follow-up study, launched in 2010, examines metal exposure among 50,000 active and retired workers within the Jinchuan Group, China’s largest nickel, zinc, copper and cobalt producer and one of the largest industries of its type in the world. It includes a retrospective study of mortality rates and the causes of death among



company workers, as well as a comparison of these factors among the Chinese population in general.

Another purpose of the Jinchuan study is to track mortality and disease incidence trends among workers by specific jobs and the chemicals that workers were or are exposed to. A third aspect of the overall study tracks risk factors that Chinese workers in metal industry occupations face, taking into consideration the roles that their environment and genetics play in developing diseases such as obesity, diabetes, heart disease and cancer. Results of those studies already have shown that the rate of occupational lung disease is much higher among Jinchuan workers than among the general population of Gansu province, where Jinchuan is based.

China is one of the largest producers and consumers of metals globally, and although the country has taken steps to improve pollution controls in toxic-metal industries, Zheng says that millions of workers have been exposed and will continue to be exposed. He says that large amounts of metals have been released into the environment, a key reason why the metals industry was targeted as a priority research area in environmental and occupational health.

The Jinchuan study dovetails with a second ongoing research project—one of the largest prospective cohort studies—which involves more than 120,000 active and retired workers, including 30,000 coal miners from the Kailuan Coal Group, one of China's largest state-run coal enterprises in one of the most polluted and dangerous working environments, says Zheng. That study assesses death rates among workers from 2006 to 2011 and prospectively tracks trends for cancers by occupation and identifies common cancers. It also screened workers, identifying those at high risk by assessing occupational, environmental and genetic factors, in order to detect disease early. More than 60,000 workers participated in three complete physical checkups, with preliminary results showing higher rates of lung cancer and other cancers than among the general population.

China is the world's largest coal producer and consumer, and coal is the cheapest available fuel. "It's unlikely to change dramatically in the future," Zheng says. That is why dust-based lung illness is China's number one occupational disease—among coal workers, an estimated 140,000 people die yearly—and why the industry was selected as a priority area for occupational health research.

Zheng's third cohort study is investigating the role of prenatal exposure to chemicals and pollutants in the development of diseases, considered to originate in utero, that are found in both childhood and adulthood. That study has recruited more than 27,000 mother-infant pairs. Among the conditions in which prenatal exposure to pollutants may play a role are adverse birth outcomes (such as low birth weight) and many adult diseases (such as breast cancer and testicular cancer). That study will not only help improve

children's health but also allow scientists to better understand how prenatal exposure leads to disease in adults.

"We're studying lifestyle factors such as smoking, drinking and diet among workers. We're studying environmental factors such as air and water, and we're also studying occupational exposure, collecting bio-samples, including blood and urine, to determine the chemicals such as metals that [workers] have been exposed to and how they are linked to human diseases," Zheng says.

### A greener future?

The rapid economic change has had a dramatic impact on disease. Before 1980, for example, there were about 9 cases of breast cancer per 100,000 women in China, a statistic that had not wavered significantly in generations. "But today it's climbed to 25 cases per 100,000 women. In Shanghai, it has reached nearly 60 cases per 100,000 women," Zheng says.

**"Overall it's getting worse, and it's going to get worse for a while, but measures are being put in place and things will start improving gradually."**

—Tongzhang Zheng

The problems are likely to get worse before they improve. China had only 518 business enterprises in 1985. By 2011, there were 16 million businesses, employing about 740 million workers. Urban highways are so jammed with cars that roads often look like parking lots. In some cities, air pollution is so bad that it blocks sunlight and midday looks like dusk. Energy use has increased about sevenfold in 34 years, Zheng says, with reliance on coal, the dirtiest source, for nearly 70 percent of energy needs. Lung cancer rates are also increasing. Shanghai has one-fifth of the world's construction cranes, with no signs that construction is slowing down. In short, the rapid industrialization, urbanization and related pollution are affecting social stability, Zheng says, as protestors commonly chant, "Return my environment. Return my peace at home."

However, Zheng says that evidence abounds that China is addressing the issues, and he also expresses hope. China's President Xi Jinping and other leaders are doing more than paying lip service to environmental protection measures. Along with Germany, China leads the global race to achieve

green economies. Investing \$100 billion yearly in clean-energy measures, China has increased emissions controls and boosted investment in renewable electric power such as wind, water and solar energy. It also has become a world leader in low-carbon energy technology, surpassing the United States in wind power capacity, and has launched a massive tree planting program that will cover 42 percent of the landmass by 2050 in an era when worldwide deforestation is the trend. Additionally, the three largest oil producers in China have pledged to reduce sulfur content in refined gasoline to standards similar to those in Europe, surpassing American standards by 2018.

“So it’s likely to get better,” says Zheng of China’s public health challenge. “Overall it’s getting worse, and it’s going to get worse for a while, but measures are being put in place and things will start improving gradually.”

### Partnerships formed

Zheng’s work stems not so much from his connection to his former homeland but from his dedication to researching environmental pollution and human health, particularly cancer epidemiology. His research at Yale also has focused on organochlorines such as PCBs and DDT and breast cancer. And he has studied the role of genetics and susceptibility to environmental exposure.

His interest in China’s public health problems came about eight years ago. He likens the problems there to the Great Smog of London in 1952, which killed 12,000 people and spawned an environmental movement. But Zheng says that unlike the pollution in England 60 years ago, China’s problems present an opportunity to investigate the health impact, given the sophisticated research tools available today.



Courtesy of Tongzhang Zheng (2)

Tongzhang Zheng addresses the Environmental Epidemiology Workshop in Suzhou, China. Zheng’s research focuses on his native China and the health problems associated with rapid industrialization and urbanization.

The Yale research projects also provide an opportunity to train a new generation of China’s scientists and epidemiologists, which, he says, that country desperately needs help with. That process is being accomplished through a number of collaborations. Among those participating in the research projects are China’s National Cancer Center and China’s National Institute of Environmental Health Sciences, as well as other universities and scientists in China.

At Yale, Deputy Dean Brian P. Leaderer, M.P.H. ’71, Ph.D. ’75, Susan Dwight Bliss Professor of Epidemiology (Environmental Health); Theodore R. Holford, Ph.D. ’73, Susan Dwight Bliss Professor of Public Health (Biostatistics); Yong Zhu, Ph.D., associate professor in the Department of Environmental Health Sciences; Yawei Zhang, M.D., M.P.H. ’03, Ph.D. ’04, associate professor in the Department of Environmental Health Sciences; and other scientists from the school, as well as undergraduate and graduate students, join Zheng in this work and often travel to China to conduct research and training activities and meet with Chinese colleagues.

Earlier this year, Yale and Zheng hosted 12 scientists from China who provided updates on their research projects. These scientists then traveled to the National Institutes of Health for additional meetings about public health projects in China.

So, Zheng says, besides studying the health issues and proposing preventative measures, “We’re creating infrastructures and using the critical mass created to train generations of Chinese scientists in the discipline areas.” **YPH**

*Leonard Felson is a freelance writer in Connecticut.*



The nickel production line at the Jinchuan Group in Gansu is part of a metal cohort study that is tracking mortality rates and the causes of death among company workers.

A long-term effort to curb obesity in New Haven is bearing results and garnering support.



# After CITY

By Jenny Blair

The 1967 children's novel *Mitch and Amy* portrayed its titular twin fourth-graders as typical American kids. They walked to school, the local mothers having agreed not to drive their children there. Amy enjoyed cooking, while Mitch snacked on bananas, bicycled and rode a skateboard he'd built himself. The book was published at a time when fewer than 1 in 20 children in the United States were considered obese.

But today, nearly 1 in 5 American children are obese, and they are only the youngest victims of the nation's striking obesity epidemic. About two-thirds of American adults today are either overweight or obese, up from well under one-half in the 1960s. There are a wide range of social and environmental factors driving these profound changes, including a lack of sidewalks; crime and feelings of safety; access to playgrounds and recreation facilities; access to healthy food; and health-related policies from the local to the federal level.

All of these factors and others erode health in cities like New Haven, where a group of Yale School of Public Health researchers at CARE: Community Alliance for Research and Engagement is working with local organizations, residents and city leaders to reduce rampant obesity levels.

CARE's goal is nothing less than better health for the New Haven community. It is a massive undertaking. The group's method is to address at once the many harmful social and environmental factors that contribute to obesity, an approach that seeks to undermine the so-called structural causes of obesity.

"The *causes* of obesity and consequent chronic disease are multidetermined, therefore, the *solutions* must also be multidetermined," says Jeannette R. Ickovics, Ph.D., professor at the School of Public Health and CARE's director. "There's not going to be any quick fix."

"If we all work together, if we support one another, we can reduce the cost of health care, reduce the prevalence of diseases related to excess weight."

—Toni Harp



## Multiple approaches

What's driving the epidemic?

Many factors contribute to the fundamental causes of obesity, which is too much caloric intake relative to caloric expenditure. These include easy access to cheap calories and sugary sodas; a culture of sedentary jobs and screen-heavy leisure time; and a built environment that increasingly revolves around cars. (In Mitch and Amy's day, almost half of elementary school students either walked or biked to school. Nowadays nearly 90 percent of American children get to school by motor vehicle.) Factors as divergent as ubiquitous endocrine-disrupting chemicals, altered gut bacteria from decades of widespread antibiotic use and the design of modern urban landscapes are also contributing.

"Clearly, it is not any one thing," Ickovics notes. "This kind of health shift and epidemic shift in several decades can only be driven by multiple forces."

In short, obesity may be a natural consequence of the modern life we've built for ourselves, from our technology to our cities, from our laws to the many structural injustices in our society. To solve it will require numerous, fundamental changes in the way we live.

Ickovics founded CARE in 2007 as a collaborative research center at the School of Public Health that involves community members, local organizations and other Yale researchers. In its first few years, there was not a specific focus on obesity; CARE instead concentrated on the "community alliance" and "engagement" parts of its mission,

building relationships with neighborhood associations and with organizations like the New Haven Health Department, Yale-New Haven Hospital and the local YMCA. This process delayed data collection, Ickovics says, but it helped CARE earn the trust and respect of city residents.

That respect is paying off. When CARE's 32 locally hired interviewers began knocking on doors to ask people about their health, they achieved an impressive 80 percent participation rate. As a rich and original database began to coalesce, it became increasingly clear to Ickovics and her colleagues that obesity stood out. The problem was widespread and it underlay many other serious health conditions faced by residents of New Haven, conditions like diabetes and heart disease. CARE concluded that the best way to improve residents' health would be to directly tackle obesity and its underlying causes.

Indeed, New Haven has been hard-hit by the obesity epidemic, and the statistics reveal stark inequities. Results from the community health needs assessment of 1,300 randomly selected households in the six lowest-resource neighborhoods in 2012 revealed that 7 of 10 adults were overweight or obese (well above the national average of 50 percent). In addition, one-third of adults living in these neighborhoods felt unsafe walking outside during the day and two-thirds felt unsafe walking outside during the night. Forty percent of the same adults reported some food insecurity – skipping a meal in the past 30 days because they didn't have food or money for food. All of these factors play a role in obesity.

Accordingly, CARE seeks to make healthy choices easier by changing the way New Haven residents eat, move and learn. It helped develop food policy recommendations for the city. In the public schools, it started a Health Heroes challenge program, set up learning stations in school cafeterias, reached out to parents and purchased books and equipment for school libraries and gyms.

CARE has also moved on other fronts, helping to plant community gardens such as the Little Red Hen and an orchard; initiating or enhancing farmers' markets in every New Haven neighborhood; launching fitness classes, health fairs and cooking classes; improving the food offerings at corner bodegas; and increasing food stamp outreach to



One of CARE's initiatives to address obesity in New Haven is the Health Heroes challenge program in local schools. The program encourages students to adopt a variety of healthy habits, including better diets and more exercise.



Shanti Madison, right, a New Haven resident and college student, helped create the Little Red Hen community garden. A healthier community, she says, is everyone's responsibility. New Haven Mayor Toni Harp, below, supports an initiative that challenges city residents to collectively shed 375,000 pounds, the equivalent of roughly three pounds per resident.



encourage healthier eating. More recently, it joined an effort to honor the city's 375th anniversary by encouraging residents to collectively shed 375,000 pounds, or the equivalent of about three pounds each. This Get Healthy CT initiative is supported with strong leadership from Yale-New Haven Hospital and numerous community partners.

### Growing support

Such efforts in the fight against obesity are attracting the attention – and support – of notable leaders within Yale, the city's government and beyond.

Last September, Marta E. Moret, M.P.H. '84, president of Urban Policy Strategies and Yale's "first lady," spoke at a CARE event and stressed the importance of culturally relevant community-based programs and strategies to curb obesity. She called for a groundswell of participation from New Haven partners who are willing to push for better health. "It will take a powerful, powerful partnership to improve health in this city," Moret said.

The city's new mayor, Toni N. Harp, also sees obesity as a threat to the city's overall well-being.

In January, during an event to kick-start the Get Healthy CT Weight Loss Challenge, Harp said that people could shed pounds and take greater control of their personal health through diet and by engaging in activities as simple as walking. And New Haven, she noted, is a city full of scenic walking areas, like the Green, East Rock, West Rock and along the Sound's shoreline.

"If we all work together, if we support one another, we can reduce the cost of health care, reduce the prevalence of diseases related to excess weight," Harp told a gathering at the Cornell Scott-Hill Health Center. The mayor also pledged to join the weight-loss challenge herself.



CARE's efforts to fight obesity and promote healthy eating are also drawing support from residents committed to creating a healthier living environment.

Ann T. Greene, a community activist in the city's West River neighborhood, said that when she first moved to New Haven from New York City she witnessed the obesity problem firsthand. The large number of obese young adults in motorized wheelchairs worried her, as did children who took buses across town rather than walking to school and teenage girls already showing physical signs of a sedentary lifestyle.

Greene, who is open about her own struggles with weight problems in the past, says that she "made a commitment" to her own survival. She has called for communal efforts and mutual support to help people adopt healthier lifestyles and to address larger policy issues such as improving access to healthy food and creating safer neighborhoods.

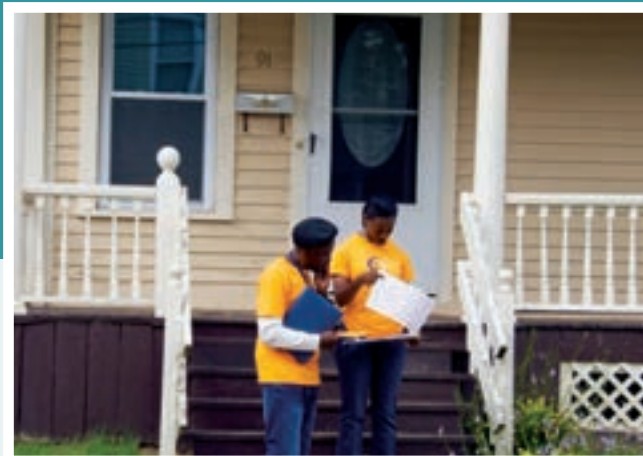
"I think that it is us nonmedical folks ... who can really lead the charge," Greene says.

That sentiment is crossing generational boundaries. Shanti Madison, a college student and New Haven resident who was involved in the creation of the Little Red Hen community garden, sees it as a responsibility to build better health locally.

"All of us, really, have a say and have a responsibility to our community, so why wouldn't we want to make it the best that it can possibly be?" Madison says.

### Urban obesity

Are city dwellers at higher risk of obesity than, say, people living in suburbs or rural areas? That's hard to say, and study results vary. In an inner-city neighborhood, pollution and crime may keep people indoors despite an otherwise walkable layout (Mitch was often attacked by a bully as he walked to school). And a neighborhood awash in cheap, convenience store junk food – a "food swamp," in the words of former director of the New Haven Health Department Mario Garcia, M.D., M.Sc., M.P.H. '02 – may also tempt residents to choose such foods, increasing the risk of weight gain.



By contrast, suburbanites may drive more and walk very little, yet they have an easier time finding healthful food at full-service grocery stores.

Juliet Sims, M.P.H., program manager at Prevention Institute, a private organization committed to improving community health, says that environment is the primary driver of health behaviors and health outcomes. “Health care can get us only so far,” Sims says. “If we really want to think about preventing illness and injury in the first place, we have to address these community conditions and social conditions that are driving poor health.”

Further complicating generalizations about city life and obesity is the fact that obesity depends heavily on complex factors such as race, class, gender, education and income. Wealthier non-Hispanic African-American and Mexican-American men are more likely to be obese than their low-income counterparts. Women who earn more and those who are more educated are less likely to be obese than low-income women; the income inequities are more pronounced among non-Hispanic Caucasian women. Among children, African-American girls and Mexican-American boys suffer especially high rates.

“It’s not so much a question of urban versus rural or urban versus suburban versus rural,” says Sims. “It’s really about income and race.”

In New Haven, CARE’s early efforts have been directed at disadvantaged neighborhoods and they seem to be paying off. When CARE compared survey findings from 2009 to the results from its 2012 survey, they found statistically significant improvements. More adults had health insurance and they reported more daily activity and less consumption of sugar-sweetened drinks and high-fat foods.

There was also welcome news from New Haven’s schools: children interviewed in 2009 had not increased their age-adjusted body mass indexes (BMIs) when re-evaluated in 2011. Heading off obesity in children is crucial, because the condition is so much easier to prevent than to treat; moreover, obese children are strongly predisposed to obesity and associated health problems in adulthood.

CARE’s most recent community health survey in 2012 mobilized 32 interviewers who questioned more than 1,300 city residents about their health status and health habits. The findings have informed CARE’s response to curbing obesity in New Haven.

“What we’re trying to do is move earlier and earlier in our prevention efforts,” Ickovics says.

Garcia agrees. “What really works to prevent obesity and to impact behaviors is to work in the schools,” he says. “I do believe that that’s the real way to turn the tide.”

## Promising signs

While some studies suggest that obesity may be leveling off, the country nonetheless remains on a troubling trajectory. One study estimated that even if obesity prevalence does continue to level off, 42 percent of the U.S. population will be obese by 2030, costing the country \$549 billion more over two decades compared to spending if current levels held steady. Moreover, the rate of severe obesity continues to climb unchecked. Obesity is set to overtake tobacco as the leading cause of death in people under age 70.

The associated health care costs are staggering. As a group, obese individuals earn lower wages, suffer higher rates of depression and have a lower quality of life. They run up annual medical bills that are, on average, \$1,429 higher than those of normal-weight individuals. That added up to a national cost of \$147 billion in 2008. The current generation of young people is thought to be the first to have a shorter life expectancy than their parents, erasing a century of public health gains.

Will the nation best the obesity epidemic? There are hopeful signs, particularly among the Mitches and Amys of today. Broad-based, multifactorial programs like those initiated by CARE have also met with modest success in other cities, such as Somerville, Mass. Several studies of Somerville schoolchildren affected by the city’s Shape Up Somerville initiative found small BMI decreases. And last August, the Centers for Disease Control and Prevention released a report noting that obesity among preschool children had dropped in 19 states between 2008 and 2011, while increasing in only three states.

Ickovics, for her part, is optimistic.

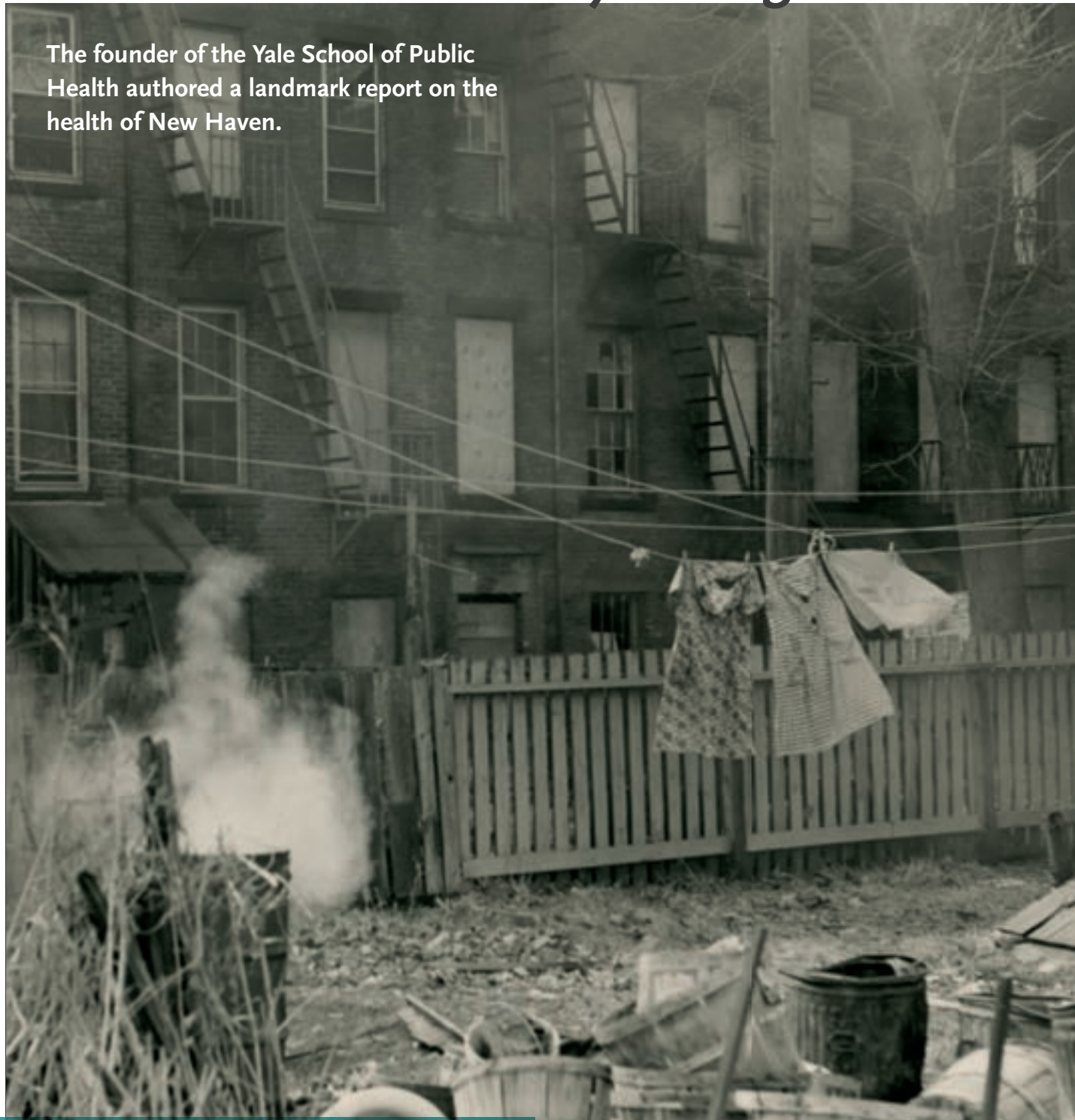
“People are coming together, creating strong and stable cross-sector partnerships to promote good health and reduce obesity. It will take sustained commitment, financial and human resources and continued vigilance. The alternative is, frankly, unthinkable. So it becomes really critical that we do break through.” YPH

*Jenny Blair, M.D. '04, is a freelance writer and editor in Texas.*



# An advocate for urban health nearly 100 years ago

The founder of the Yale School of Public Health authored a landmark report on the health of New Haven.



The backyard of a row house on Henry Street in New Haven's Dixwell neighborhood. The image is circa 1950, shortly after Winslow's retirement in 1945.



A scene from Oak Street circa 1950. The street is not far from where the Laboratory of Epidemiology and Public Health stands today.

### By Valerie Brown

New Haven, like most American cities nearly 100 years ago, had its share of health problems. In 1917, the Elm City was marked by some 3,200 tenements, their dingy hallways often lit only by candles, their privies magnets for flies, their rooms crowded with immigrants working in munitions, brickmaking, rubber and brass manufacturing.

Even in the city's better-off neighborhoods, milk was not pasteurized, water was not chlorinated, meat was not inspected and garbage was not collected. On top of this, malaria and typhoid were rampant.

This was the urban landscape confronted by Charles-Edward Amory Winslow when the Civic Foundation of New Haven asked him and two colleagues to survey the city's public health status. It was just two years into Winslow's long tenure as head of the Yale Department of Public Health. The resulting document, the Health Survey of New Haven, has become a classic.

The Health Survey of New Haven reflects Winslow's broad vision. The survey looked at everything: drinking water, sewers, school and visiting nurses, hallway lighting, ventilation, milk and meat inspection, mental health, sexually transmitted diseases, prenatal care, swamps, industrial pollutants. It considered malaria, typhoid, tuberculosis, diphtheria, measles, pneumonia and cancer.

As a student of William T. Sedgwick at the Massachusetts Institute of Technology, Winslow had specialized in sanitation and bacteriology. Thus he was especially attentive to New Haven's plumbing arrangements, noting that while Connecticut required "one water closet only to be provided for two apartments of less than three rooms each," the number of users per water closet was often much higher. He also carefully mapped New Haven's sewers and stressed that improved indoor toilets and municipal sewage treatment would reduce New Haven's high mortality rate from typhoid. In addition to studying city statistics and policies, he sent people out with cameras to find direct evidence of open-air outhouses, mosquito infestations and children playing on garbage piles.

Not only was Winslow concerned about communitywide issues such as these, but he understood the health risks in New Haven's urban work environments. He carefully analyzed the city's industries and enumerated the occupational health issues associated with each. In particular he was concerned with munitions, rubber goods manufacture, electroplating and stonecutting, all of which involved "the use of dangerous industrial poisons" and/or "inhalation of hard dust particles" that could lead to industrial tuberculosis.

But Winslow's tone in describing the city's extant urban problems avoided harsh blame. Instead he preferred more subtle critique, such as the following, aimed at the milk inspector: "Dr. Lewis, the bacteriologist of the department, believes that he can recognize certain spore-forming bacteria on the smears which he considers indicative of pollution, but this is a test which so far as we are aware does not rest on any basis of generally demonstrated fact," Winslow and his co-authors wrote.

Overall, Winslow praised the city's health department for performing the "classical powers and duties . . . with diligence," but stressed that the "newer possibilities of modern public health are unattained." The survey made 45 recommendations to achieve those possibilities. They included providing fire escapes for all buildings; chlorinating the water supply; banning swimming and shellfish harvesting in the New Haven harbor until city sewage was treated; instituting regular garbage collection; draining a nearby swamp; establishing a municipal slaughterhouse; and pasteurizing milk.

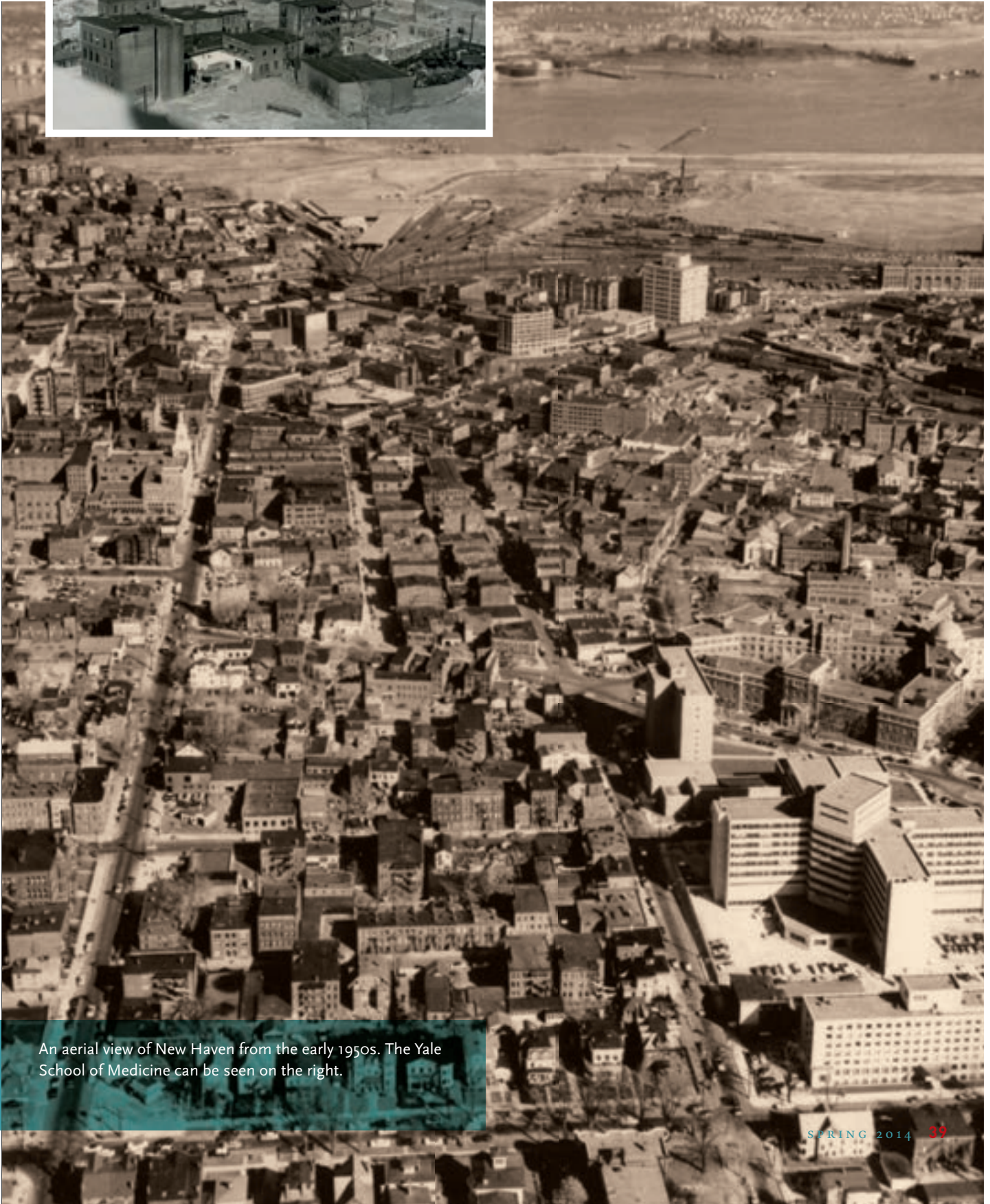
When he came to Yale, Winslow already knew what he wanted to do: infuse public health with the primary value of disease prevention rather than the more medical approach of treating disease after it sets in. He also felt that the successful application of public health principles "involves the cooperative effort of a score of different disciplines."

His sensibilities made the Health Survey of New Haven an exemplar for subsequent urban health studies by others. It also was the start of a nearly century-long collaboration between the School of Public Health (as it is known today) and New Haven to improve the city's health.

"He was very conscious of the importance of the community," Curtis L. Patton, Ph.D., YSPH professor emeritus, said of Winslow. [YPH](#)

*Valerie Brown is a freelance writer in Oregon.*





An aerial view of New Haven from the early 1950s. The Yale School of Medicine can be seen on the right.



## Q&A

### Gretchen Van Wye



Gretchen Van Wye

Gretchen Van Wye has worked for the New York City Department of Health and Mental Hygiene for almost 10 years. During that time, Van Wye, Ph.D. '04, has been involved in citywide campaigns to change public attitudes about consuming sugary beverages and directed health research, evaluation and planning programs in Harlem. Currently the assistant commissioner of vital statistics, she is responsible for overseeing the registration and analyses of all births and deaths in New York City each year. She was drawn to urban health, in part, because of her family's long and eventful history in New York City, dating back to the early 20th century. In this interview she expresses her own opinions, which are not necessarily those of the city or its health department.

#### **New York City's health department must be huge. Exactly how big is it?**

**GVW:** There are about 6,000 employees, from the people who register every birth and death in the city, to the people who develop policy, to the people who analyze data and investigate disease outbreaks. It's a great place to have a meaningful, dynamic career in public health, and it is big enough to have varied experiences.

#### **New York City has been on the cutting edge of public health in recent years. Has it always been that way?**

**GVW:** I think that New York City actually has quite a long history of being at the forefront of public health. We had the country's first permanent municipal public health authority, the first poison control center and the first school nurses. It has been said that public health can be purchased—that local health departments can do a lot to determine the death rates in their community. It sounds a bit radical, but Hermann Biggs, one of our early leaders, said that in 1905. So, now, we see that New Yorkers are living longer than ever before. What we are doing now to address smoking and consumption of sugary drinks is similar to the environmental and policy changes, i.e., improving sanitation and housing, that we promoted to address cholera and tuberculosis a century ago.

#### **Health inequities are an issue in all urban areas. How is New York City addressing this difficult problem?**

**GVW:** Our new commissioner, Dr. Mary Bassett, is committed to addressing health inequities. It's a top priority,

which I find very exciting. When she was at the health department previously, she established special offices, called District Public Health Offices, in three of the neighborhoods with the highest burden of disease and inequity. They serve East and Central Harlem, where I worked as director of research, evaluation and planning; the South Bronx; and North and Central Brooklyn, including Bedford-Stuyvesant and Bushwick. The offices develop interventions tailored to their neighborhoods by people working daily in those neighborhoods and serve as incubators for new ideas that might be implemented citywide.

#### **What do you consider some of the major public health accomplishments in recent years?**

**GVW:** I think that galvanizing public attention on chronic diseases and figuring out ways to address them have been key. That has meant focusing on the same kinds of policy, system and structural approaches that have long been used to address infectious diseases and other conditions. We are figuring out how to “take the handle off the pump” for health problems such as obesity and smoking in much the same way that John Snow did for cholera (which is one of the classic stories told in introductory epidemiology classes). So, things that fall into that category are passing the Smoke-Free Air Act, restricting trans fats, requiring calorie counts to be posted on restaurant menus and replacing the foods and beverages that are sold in vending machines with healthier choices.

#### **Are other urban centers in the United States and beyond starting to follow the city's lead?**

**GVW:** It's interesting. Nationally, many health departments are coming to a conclusion similar to the one we came to in this city, i.e., that you really need to put in place policy, systems and environmental changes in order to turn around some of these persistent causes of disease and death, like smoking, heart disease, cancer and infectious diseases. I'd say that different cities have been learning from each other.

#### **Are there indicators that these measures are having the desired effect? Are New Yorkers, for example, trimmer on average than they were a decade ago?**

**GVW:** Overall, we are doing better. Life expectancy is up dramatically in the past 10 years. But, we are not yet close

“Honestly, I think public health’s biggest challenge is making sure that people know what public health is.”

—Gretchen Van Wye

to a point where we have the type of wide-ranging social change that we need to reverse the obesity epidemic. While obesity levels have modestly declined among children, we need to figure out a way to really bring them down among both children and adults. I think we will need to see economic, social and structural changes to drivers of food systems and the food environment before we start to see dramatic changes in things like weight.

**Where would you like to see the city, in terms of health, by 2025?**

**GVW:** Clearly our city faces dramatic inequities in income, housing, education and health that must be addressed. My ideal would be that everyone in the city has an equal and good chance to be healthy. It’s exciting that our new mayor [Bill de Blasio] has said that he wants to go to the heart of inequity. I’d like to see a focus on public health that engages communities, institutions and everyday New Yorkers to make it happen. I believe Dr. Bassett will champion this goal and approach. She has deep experience in addressing these issues, and I am looking forward to learning from her. As a communications person-turned-epidemiologist, I’d also like to see more ways to make our data easier to understand. Epidemiological concepts can sound really complicated, but when you explain them in plain language, people understand them. With this, I’d like for individual New Yorkers to be able to better advocate for themselves and their neighborhoods.

**What do you see as the most important urban health challenges facing the city in the future?**

**GVW:** Honestly, I think public health’s biggest challenge is making sure that people know what public health is. I think we need to help people understand that public health is about helping all of us live healthy lives so that we can use our bodies to do all the other things we want to do in life. It means being well, both physically and emotionally. It’s about getting everyone to work together so that families can live and work in clean and safe environments, eat good food and get where they need to go in ways that are helping everyone stay healthy.

**You have been involved in measures to curb smoking and also in the city’s well-publicized efforts to limit the size of soft drinks. What has been your role in these initiatives?**

**GVW:** I had a variety of roles in the group in the health department that spearheads these efforts. I was involved in the discussions on how best to develop a policy to limit exposure to sugary drinks, and I led the efforts to develop many of our earlier media campaigns to reduce sugary-drink consumption, called Pouring on the Pounds.

**Can you describe one of the public health campaigns that you worked on?**

**GVW:** For Pouring on the Pounds we worked very closely with an advertising agency to figure out the best way to make the harms of sugary-drink consumption relevant and meaningful for people. We found that we could not just say that sugary drinks led to weight gain, because people felt there was a step missing—and they were right. It’s the excess calories that cause weight gain, and we had to come up with a way of showing that. We wound up showing that a 20-ounce soda was equivalent to 16 packets of sugar! I also managed the successful application process for and implementation of our \$20 million grant in stimulus funding to address obesity. It turned out that the grant-writing course I took at Yale really paid off. Thanks to Melinda Irwin and Loretta DiPietro for that!

**How did your education at the Yale School of Public Health prepare you for this career?**

**GVW:** Frankly, in every way. Yale helped me develop solid skills and a way of thinking that I now use daily. Whether it’s understanding the prevalence of a condition, developing a question about how to better understand it, applying for a grant or just having the basic grounding in that population-focused approach, Yale School of Public Health has prepared me well. [YPH](#)

*Michael Greenwood*

# HEALTH CAMPAIGNS AROUND

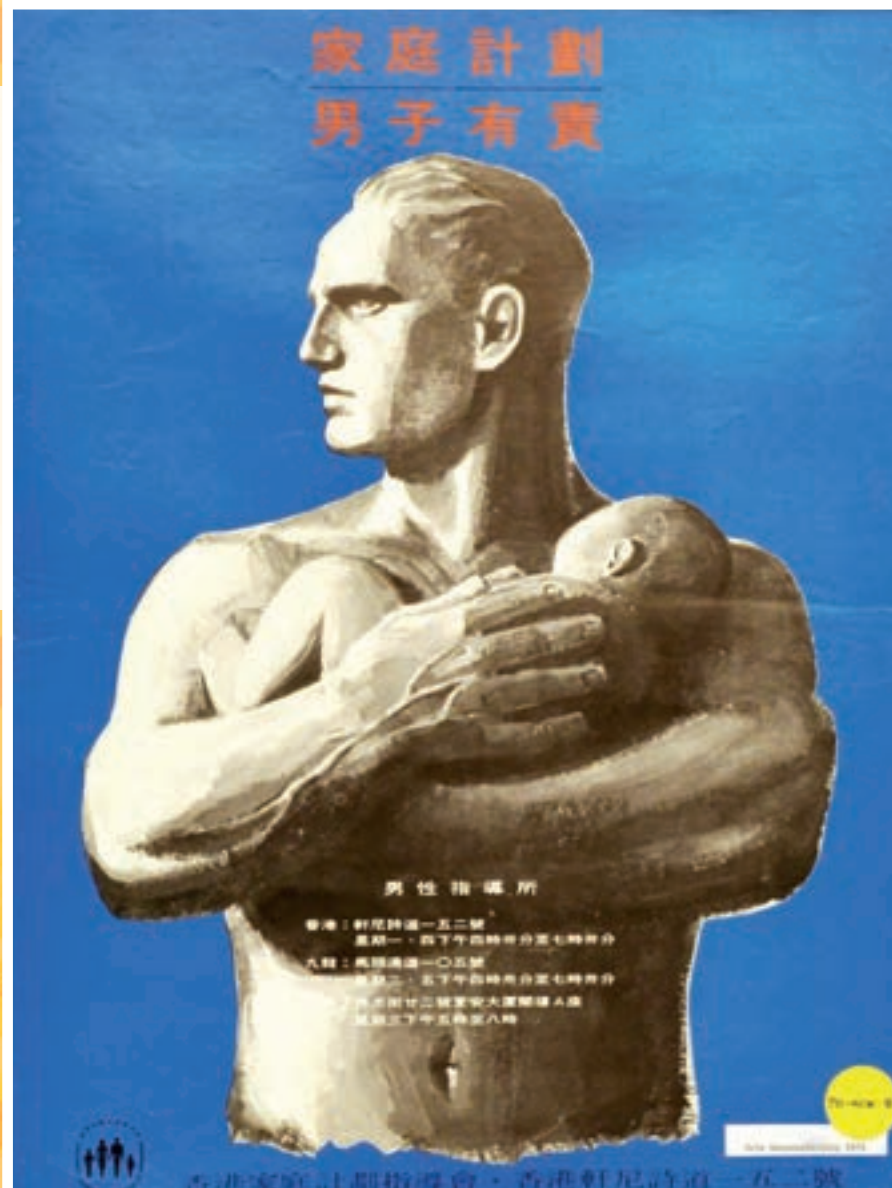
More than 2,600 health-themed posters, sometimes graphic, address a wide range of issues and disease.

By Melissa Grafe

## Family planning. The man has responsibility. (1975)

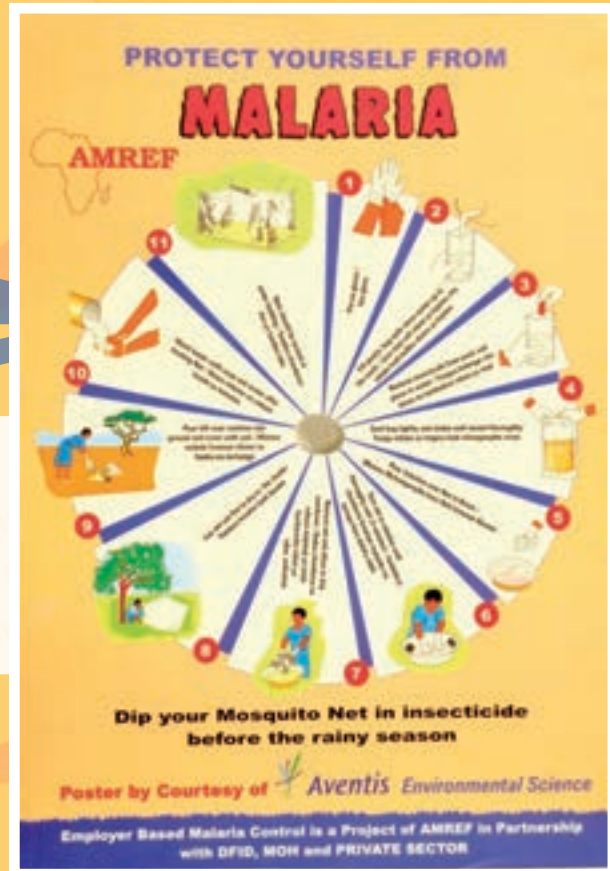
From 1950 to 1975, The Family Planning Association of Hong Kong played a pioneering role in family planning and fertility, serving over 400,000 new clients. One of the challenges it faced in the 1970s was promoting the concept that family planning should be the responsibility of both husband and wife. The campaign included celebrity endorsements, souvenirs, pamphlets and posters, which publicize the association's services for men and clarify misconceptions about vasectomies and male contraception.

The Yale Medical Historical Library recently acquired more than 2,600 global public health and safety posters, spanning 56 countries and multiple languages. The posters promote a variety of public health messages, including anti-drug and anti-smoking campaigns, maternal and child health, population control, clean water and the prevention of diseases such as malaria and cholera. The collection also includes posters issued by the World Health Organization and Doctors Without Borders.



### Protect yourself from malaria. (circa 2000)

This poster provides an illustrated and numbered guide to treating mosquito nets to prevent malaria in Kenya. The promotion was a joint project of Aventis Environmental Science and the African Medical and Research Foundation.



**WOULD YOU  
BE MORE  
CAREFUL,  
IF IT WAS  
YOU  
THAT GOT  
PREGNANT?**



**THINK ABOUT IT.**

For more information, guidance and counselling contact your nearest

**Family Planning Association of Kenya Offices**

### Would you be more careful, if it was you that got pregnant? (1980s)

Kenya experienced large population increases in the 1960s, causing concern for the country's economic future and leading to the creation of a family planning program by 1967. The Family Planning Association of Kenya (FPAK) was the largest nongovernmental organization to provide family planning services in the country, offering contraception in communities by 1986. FPAK also emphasized female education, encouraging girls to seek health services and stay in school.

# THE WORLD

**Diseases resulting from effects of climate change. (circa 2000)**

ActionAid works with country programs in Ghana, Bangladesh, Sierra Leone, Malawi, India, Vietnam, Brazil and Kenya to understand and deal with the impact of climate change. Concerns about climate change increasing the likelihood of hunger, disease and disaster have prompted the establishment of ActionAid projects to help communities “work out ways to adapt, take on sustainable forms of farming, and prepare for disasters.” This poster was informed by drawings done by schoolchildren from the Ijara District of Kenya.



**Show the truth. (2009)**

How can smokers be discouraged from lighting up? The World Health Organization (WHO), during World No Tobacco Day 2009, adopted the theme “Tobacco Health Warnings.” The WHO advocated for the use of “pictorial warnings” on tobacco products like the one depicted in this poster, as such warnings have been shown to be effective at raising awareness of the risks of smoking. Campaign materials included posters, brochures, fliers, stickers and mouse pads printed in English and French.

**Campaign against Nestlé. (circa 1996)**

The Nestlé food company has been the target of a boycott by Baby Milk Action since the 1990s, as the nonprofit organization believes that Nestlé “contributes to the unnecessary death and suffering of infants around the world by aggressively marketing baby foods in breach of international marketing standards.” According to Baby Milk Action, “Every day, more than 4,000 babies die because they’re not breastfed. That’s not conjecture, it’s UNICEF fact.” A variety of factors, including professional and commercial pressures, as well as gaps in maternity legislation, have contributed to poor breastfeeding habits worldwide.



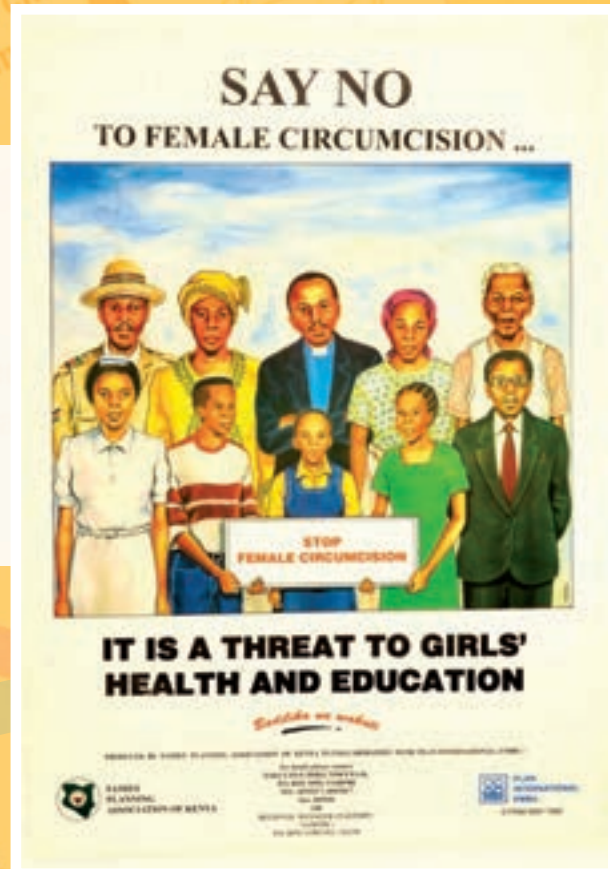


### Somalia: sobrevivir al olvido (surviving oblivion). (2007)

Somalia has been the site of an ongoing civil war since 1991, with devastating consequences for the population. Médecins Sans Frontières (MSF) has staffed therapeutic feeding centers for severely malnourished children and treated measles cases and other diseases. According to MSF, “Many areas in the country continue to suffer from serious humanitarian crises, characterized by widespread displacement, malnutrition, outbreaks of diseases, and lack of access to humanitarian aid due to continuing insecurity.” This poster is from an exhibit that highlighted the grueling daily challenges faced by a population without a functioning government or infrastructure in a violent world.

### Say no to female circumcision. (1998)

In some areas of Kenya, female circumcision is considered a traditional rite of passage, although many organizations, such as the Family Planning Association of Kenya and Plan International, recognize it “as a violation of human rights, as oppressive and inhuman, and as inimical to female reproductive health.” Kenya’s campaign against female circumcision involved health workers, teachers, opinion leaders and trained village-level “gender educators” in an effort to educate the community about the problems with the procedure and its consequences for young girls.



### Drugs lead to insanity, destruction and hell. (2005)

In 1987 the United Nations designated June 26 as the International Day against Drug Abuse and Illicit Trafficking. Each year, it promotes a different campaign to bring awareness to the larger issues surrounding drug use. In the 2005 “Value Yourself...make healthy choices” campaign, teenagers and young adults were targeted because of their susceptibility to peer pressure to use illicit drugs. Oman’s Ministry of Health paints a particularly stark picture of drug abuse.



# 8 million and counting

## YSPH-led study calculates the number of lives saved since the Surgeon General's landmark tobacco warning 50 years ago.

An estimated 8 million lives have been saved in the United States as a result of the anti-smoking measures that began 50 years ago with the 1964 release of the Surgeon General of the United States' groundbreaking report outlining the deadly consequences of tobacco use.

Published in *JAMA: The Journal of the American Medical Association* earlier this year, the Yale School of Public Health-led analysis used mathematical models to calculate the effect of the seminal report and subsequent anti-smoking measures over the past half-century. These cumulative efforts have significantly reshaped public attitudes and behaviors concerning cigarettes and other forms of tobacco.

Theodore R. Holford, Ph.D. '73, the Susan Dwight Bliss Professor of Public Health (Biostatistics), and six other researchers who are part of the National Cancer Institute's Cancer Intervention and Surveillance Modeling Network found that while some 17.6 million Americans have died since 1964 due to smoking-related causes, 8 million lives have been saved as a result of increasingly stringent tobacco control measures that commenced with the report's January 11, 1964, release.

Of the lives saved, approximately 5.3 million were men and 2.7 million were women. The total number of saved lives translates into an estimated 157 million years of life, a mean of 19.6 years for each beneficiary.

"An estimated 31 percent of premature deaths were avoided by this effort, but even more encouraging is the steady progress that was achieved over the past half-century, from a modest 11 percent in the first decade to 48 percent of what we estimate we would have seen from 2004 to 2012 in the absence of tobacco control," says Holford. "Today, a 40-year-old man can expect to live 7.8 years longer, on average, than he would have in 1964, and 30 percent of that improvement can be attributed to tobacco control. The gains for women have been slightly less – 5.4 years – but tobacco control accounts for 29 percent of that benefit."

Using data collected by the CDC National Center for Health Statistics from 1965 to 2009, the team recreated smoking life history summaries for groups born each year starting in 1890. These were used along with national mortality statistics and data from studies that followed large populations to calculate mortality rates by smoking status. This allowed the researchers to estimate the impact of alternative scenarios of what might have occurred without the era of tobacco control.

The tobacco warning was released by then-U.S. Surgeon General Luther L. Terry. It is seen by many as a pivotal moment in American public health and as the opening salvo in an ongoing effort to convince people to stop smoking.

Terry convened a committee of specialists who reviewed some 7,000 scientific articles and worked with more than 150 consultants to formulate the report's findings. It was released on a Saturday in order to generate maximum media coverage in Sunday's newspapers. Years after its publication, Terry described the report's release as a "bombshell."

The report has since spawned numerous other efforts at various levels of government to curb smoking. This has included the now-familiar Surgeon General's warning on cigarette packs, as well as increased taxation, restrictions on advertising, limiting public areas where people can smoke and programs and products to help people finally kick their smoking habit.

While the number of smokers in the United States has decreased significantly over the past several decades, there are still an estimated 44 million Americans who smoke, or about 20 percent of the U.S. population. Today, smoking continues to claim hundreds of thousands of lives annually and is the single largest cause of preventable death in the United States.

"Tobacco control has been a great success story for public health. We have essentially cut in half the number of tobacco-related deaths each year compared to what would have occurred in the absence of this effort. This is very encouraging, but the halfway point also means that there is more to be done," says Holford. [YPH](#)

*Michael Greenwood*



## Students

# Health and justice

A new group at Yale brings together public health and law students to address health inequities around the world.



Seyward Darby

Ryan Boyko (left), a doctoral student at the School of Public Health, talks with former mine workers in Lomati, Swaziland, about their experiences with the health care system and with occupational illness during and after their employment in mines. These particular workers worked in asbestos mines for decades and are suffering from lung diseases, such as asbestosis, in addition to infectious diseases, including tuberculosis. They are in the yard of one of the local community leaders who was hosting a mobile health clinic that day.

### By Jenny Blair

Underground mining is inherently dangerous work. But for gold miners in South Africa, the risk of silent disease rivals the risk of a deadly injury on the job. These workers suffer astronomical tuberculosis rates due to widespread HIV and lung damage from silica-laden rock dust. Workers sick with TB, silicosis or both can legally be sent home, where they receive little care or compensation. They often spread drug-resistant TB to friends or family members before dying in South Africa or in the neighboring countries from which they have come.

For a problem that complex and deeply rooted, there is no quick fix. It can't be resolved by doctors, lawyers, public health researchers, labor organizers or human rights activists alone. But if these professionals understand how to converse and collaborate, they stand a better chance of finding a solution.

That is the idea behind the Global Health Justice Partnership (GHJP), a new program between the School of Public Health and Yale Law School that trains students in cross-disciplinary health justice research and advocacy. The GHJP draws student fellows from both schools and from several others at Yale, including the Jackson Institute, the

medical and nursing schools and even the Divinity School and the School of Art, and it hosts fellows and speakers from abroad.

“Health and social justice are linked,” said Gregg Gonsalves, a Ph.D. candidate at YSPH and a GHJP co-founder along with Amy Kapczynski, J.D. ’03, associate professor of law, and Alice M. Miller, J.D., adjunct associate professor of law and assistant clinical professor at YSPH. As a public health student or professional, he said, “you’re going to have to face the political context in which the people you work with live.”

Gonsalves knows firsthand how effective a cross-disciplinary approach can be. In the 1980s, as a young gay college dropout living in the midst of Boston’s and then New York City’s AIDS crises, he joined ACT UP, an advocacy group whose members included people from all walks of life. At meetings, artists listened as a chemist explained how scientific research worked and a journalist taught them to harness the media. Gonsalves and others in the breakaway Treatment Action Group read widely in the HIV/AIDS literature and questioned scientists about AIDS research and drug development. Their report detailing the shortcomings of the National Institutes of Health’s AIDS program found its way to former U.S. Sens. Ted Kennedy and Henry Waxman, who drew upon it to pass legislation. The activists’ efforts, including Gonsalves’, were featured in the 2012 Academy Award-nominated documentary *How to Survive a Plague*. Gonsalves later worked on access to AIDS medication in South Africa.

His experience exemplifies how HIV/AIDS has transformed global health justice. Clothed in stigma and stark disparities, capable of arousing grass-roots activism like no other disease before it and responsive only to collaboration among medical, social, and legal experts, the disease has been “a teacher,” said Gerald H. Friedland, M.D., professor at the Yale schools of medicine and public health. Friedland has been a prominent AIDS clinician and researcher since 1981 and is a member of the GHJP’s steering committee.

“There’s something about the human rights content of AIDS from the beginning that’s really quite different than the way any other disease has been handled up to this point,” Friedland said. What we’ve learned from AIDS, he added, should be applied to diseases like tuberculosis and malaria as well.

Miller, who is a GHJP co-director, works on human rights, specializing in gender and sexuality and on HIV/AIDS-related issues. Decades ago, she realized that a legal framework wasn’t sufficient to do right by such issues.

In the law, for example, a single torture victim is enough to demonstrate a human rights violation; yet documenting a single death in childbirth doesn’t legally implicate a government. On the other hand, both human rights and health systems research can capture information about the structures of discrimination which may have led to that

death, so experts in both those fields could fruitfully work together to build the case for the state’s accountability for maternal health.

In the early and mid-1990s, Miller recalled, “there was a real explosion of global thinking about how health and law mattered together and how law could be either a barrier to health and human rights or a facilitator. I was lucky enough to be part of those discussions.”

In 2011, Gonsalves completed his interrupted undergraduate degree at Yale as an Eli Whitney student. He then considered doing a lab-based Ph.D. abroad. But Friedland suggested that, instead, he develop a center at Yale to study

“Health and social justice are linked.”

— Gregg Gonsalves

social determinants of health. Gonsalves discussed the idea with Miller and Kapczynski, both of whom were visiting faculty at the law school at the time. “Their faces lit up,” he recalled. The three soon secured approval and seed funding from the deans of the law and public health schools, and the GHJP began working with students in January 2012.

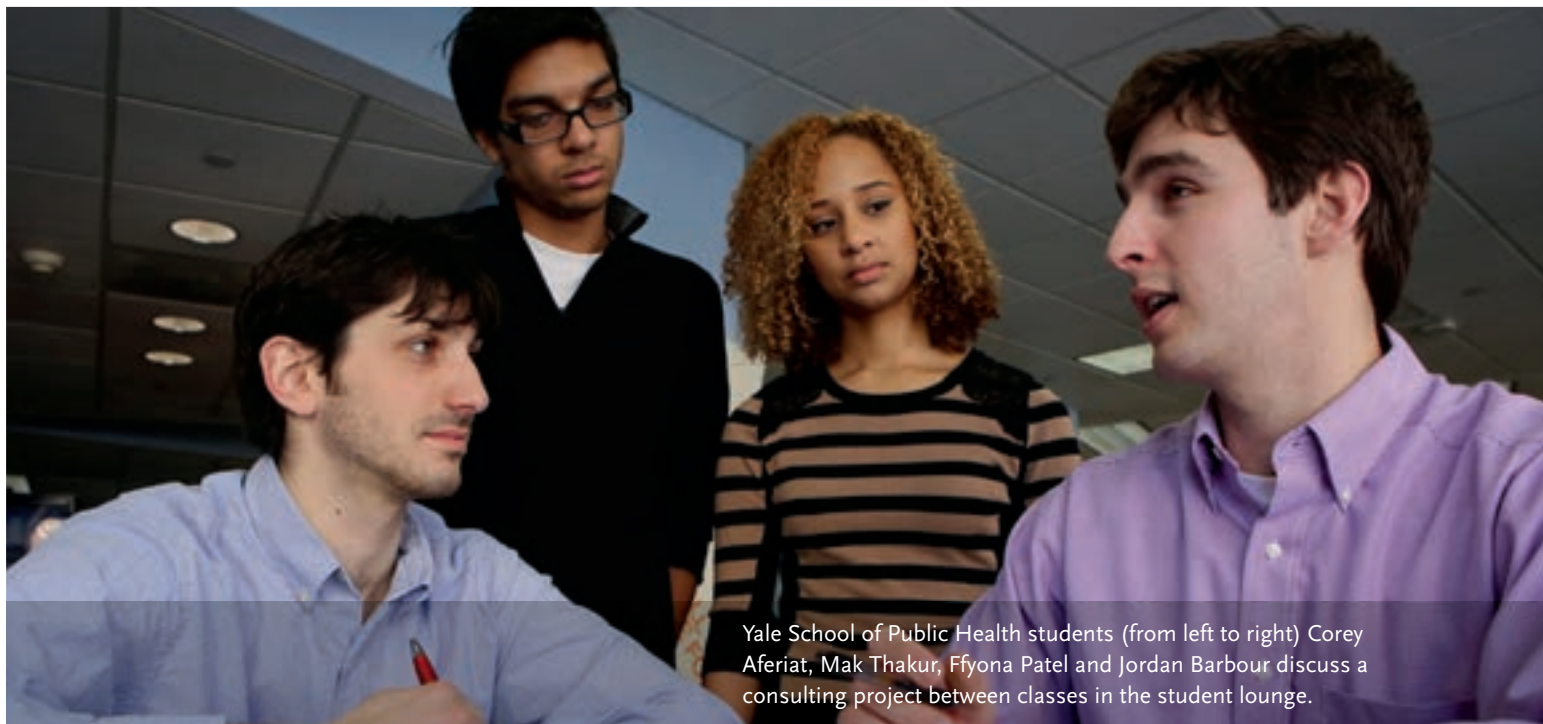
“All three of us had been moving between rooms filled with lawyers and policymakers, rooms filled with public health researchers and rooms filled with health service providers for quite a while,” Miller explained. “But we found that many of our colleagues at Yale had not – and the students were focused on acquiring the skills of their new disciplines. Yet we found an incredible interest among the students and among our colleagues, but in some cases they’re lacking the language of another discipline and are often unfamiliar with the tools.”

So the GHJP introduces them to both the tools and the language. Students chosen for its law clinic-style class (experiential learning) tackle a real-world health justice situation after exploring each other’s approaches – which, they soon learn, can be very different. “The public health students are all about getting information on [health] systems and populations. The law students are not sure exactly what to do with that information as a matter of legal salience,” Miller said, adding that the latter often think instead in terms of more individual redress, such as tort reform or criminal law.

Last year’s class examined four issues: accountability of the United Nations for the post-earthquake cholera epidemic in Haiti; intellectual property rights as barriers to access to medicines; ways for Congress to support interventions to end the massive suffering from obstetric fistulae (a serious childbirth injury) in sub-Saharan Africa; and

*Continued on page 76*

# Health consultants



Yale School of Public Health students (from left to right) Corey Aferiat, Mak Thakur, Ffiona Patel and Jordan Barbour discuss a consulting project between classes in the student lounge.



## A YSPH student group provides public health expertise to a wide range of clients in Connecticut and beyond.

By Denise Meyer

Though it is only a few years old, the Student Consulting Group (SCG) at the Yale School of Public Health has become a go-to resource for public health organizations seeking expert analysis in Connecticut and beyond.

In just three years, the pro bono group has completed a dozen projects, including a literature review for the legal counsel for the governor of Washington state and community needs assessments for hospitals and other nonprofits.

The 24-person group (representing nearly 10 percent of the M.P.H. student population) has become so popular that it now has an application process for membership. “The opportunity to work with a team of your peers really draws people,” says co-chair Corey Aferiat, a second-year M.P.H. student in Health Policy and Management. “Ninety-nine percent of job interviewers ask about team experience; for those of us who don’t have prior work experience, this is a good and relevant opportunity.”

Likewise, the group has established a reputation for quality among organizations such as Yale-New Haven Hospital, which has returned each year with new projects. As a result, the SCG is starting to be more selective in the work it accepts, ensuring that the students are not just volunteer labor for projects but that they are also involved in planning and analysis.

“I think it is safe to say that the students’ research helped bring then hearing challenges to the Affordable Care Act, including

“Most students don’t want to go into consulting,” explains co-chair Shefali Kumar, also a second-year student in Health Policy and Management, “but the skills you gain from this you can apply anywhere.”

“It’s a terrific student initiative, as it speaks to the entrepreneurial spirit among this generation of YSPH students,” says Shelley D. Geballe, J.D. ’76, M.P.H. ’95, the group’s faculty adviser and a lecturer in public health and law at Yale.

This year, students are developing a five-year strategic plan for the Waterbury, Conn., Department of Public Health and are designing and administering a survey for the New Haven-based nonprofit IRIS (Integrated Refugee and Immigrant Services) on immigrants’ experiences with enrollment in the health exchanges. The latter project involves collaboration with Access Health CT, which is administering the state’s exchanges and providing data analysis.

A sample of the projects that the SCG has worked on since 2010 follows:

### **HIV in later life**

Due to new infections among older people and the increasingly longer survival afforded by antiretroviral therapy, senior service agencies will increasingly have clients living with or at risk for HIV. In fact, 49 percent of the people living with HIV in Connecticut were over the age of 50 in 2010, as were 22 percent of the newly diagnosed cases.

Working with the nonprofit group AIDS Connecticut, a group of four students from the SCG assessed the organizational capacity of senior service organizations in Connecticut to meet the HIV-related needs of people over age 50.

The students found that most organizations did not screen for HIV; none had specific HIV programs for elders; and many did not consider it part of their mission. Further, awareness of HIV risk is limited in this generation.

“Working with the Student Consulting Group gave me technical and practical skills that were an important part of my M.P.H. experience,” says Margaret W. Lippitt, M.P.H. ’13. “I already had a little experience in this area, but working with a team of other students helped me to learn new techniques and ways of thinking about qualitative data. Even more importantly, I learned project management skills that definitely aren’t taught in classes.”

The project summary was shared with attendees at the AIDS Connecticut and State Department on Aging Summit in September. “The work that they’ve done is laying the groundwork for a larger conversation,” says Shawn Lang, director of public policy for AIDS Connecticut, whose goal is to raise awareness about this population in order to increase the capacity of senior service providers to address HIV in a sensitive, knowledgeable and competent manner.

The team for this project included Lippitt, Muslehat Hamadu, M.P.H. ’14, Hannah Mitchell, M.P.H. ’13; and Avantika Saraf, M.P.H. ’13. Associate Professor Becca Levy, Ph.D., director of the Social and Behavioral Sciences Division, served as faculty adviser.

### **Resources for the homeless**

When a homeless patient is hospitalized for pneumonia, treatment of the infection is not enough. The patient also needs access to food and housing.

While New Haven is rich with volunteer and nonprofit organizations, ensuring that people with the greatest needs are linked to these resources is often a challenge. The SCG set out to assess and compile information on existing community and social resources in order to create a strategic plan for developing a resource connection program for the New Haven community, similar to the Health Leads model.

In their discovery phase, the SCG learned that an undergraduate group was working on a parallel project. The two groups pooled their resources and developed plans for

an important public health perspective to the various courts  
the United States Supreme Court.” —Shelley Geballe

volunteer student case managers to work with patients to connect them with the services they need. That plan is now being piloted in a primary care diabetes clinic at Yale-New Haven Hospital.

Project members included Corey Aferiat, M.P.H. '14; Zerrin Cetin, M.P.H. '14; Neel Iyer, M.P.H. '13; Ffyona Patel, M.P.H. '14; and Yinka Taiwo-Peters, M.P.H. '14. Jeannette R. Ickovics, Ph.D., director of CARE: Community Alliance for Research and Engagement and professor in the Social and Behavioral Sciences Division, was the faculty adviser.

### Fruits and vegetables

Through Wholesome Wave's Fruit and Vegetable Prescription Program, vouchers are distributed by health care providers and redeemed at participating farmers' markets for fresh, locally grown fruits and vegetables.

The program is designed to provide assistance for children who are overweight or obese and at risk of developing type 2 diabetes and heart disease. It also provides direct economic benefits to small and midsize farmers and brings additional resources into the economies of underserved communities.

In 2012, the program found that 55 percent of participants reported an increase in their fruit and vegetable consumption and nearly 38 percent of participants from 12 sites reduced their body mass index.

The SCG researched policy initiatives, including the possible use of the Affordable Care Act and private insurers for ongoing streams of revenue that could help sustainably scale-up the program.

Team members on the project included Courtney Armstrong, M.P.H. '13; Janeen Drakes, M.P.H. '13; Shefali Kumar, M.P.H. '14; Kimberly Miller-Tolbert, M.P.H. '14; and Mary Traglia, M.P.H. '13. Mark J. Schlesinger, Ph.D., professor in the Department of Health Policy and Management, served as faculty adviser.

### Assisting Washington state's governor

The first project handled by the SCG, for then-Gov. Christine Gregoire of Washington state, was to research and review literature on the benefits of health insurance for children and the differences in health and economic outcomes for children with and without health insurance.

Because the governor's position differed from that of the state's attorney general, Gov. Gregoire believed that it was important that courts hearing challenges to the Affordable Care Act (ACA) understand her position — that the ACA's individual mandate was both necessary and constitutional. The attorneys representing the governor turned to the SCG to provide public health expertise on this point.

The review's key findings were incorporated in multiple amicus briefs filed on behalf of Gov. Gregoire, including in cases pending in the 4th Circuit Court of Appeals and the U.S. Supreme Court. Ultimately, of course, the U.S. Supreme Court upheld the individual mandate in the ACA, resolving a conflict on the point among the circuit courts.

“I think it is safe to say that the students' research helped bring an important public health perspective to the various courts then hearing challenges to the ACA, including the United States Supreme Court,” says Geballe.

The team included Jared Augenstein, M.P.H. '13; Emily Dally, M.P.H. '12; Christine Dang-Vu, M.P.H. '12; Nicholas DeVito, M.P.H. '12; and Stephanie Platis, M.P.H. '12. [YPH](#)

# JUSTICE FOR HAITI

A recent graduate plays a central role in preparing a report that found the United Nations culpable for a deadly, though inadvertent, cholera outbreak in a country still reeling from a natural disaster.

By Leonard Felson

As Rosalyn Chan prepared to graduate with an M.P.H. from the Yale School of Public Health last spring, she unexpectedly found herself in the spotlight over her work confirming links between a deadly cholera outbreak in Haiti and the United Nations' actions.

Haiti had not seen cholera, a deadly bacterial infection, in more than a century. A catastrophic earthquake hit the island on January 12, 2010, killing more than 200,000 and leaving another 1.5 million homeless, but no cholera cases were reported. Ten months later, however, the first cases surfaced near a U.N. peacekeepers' base established to provide earthquake relief. There, raw sewage had leaked through faulty pipes into a tributary of the Artibonite River, the longest river in the country and a major water source for Haitians. Stationed at the base, known as MINUSTAH, a French acronym for the United Nations' Haitian mission, were troops from Nepal, where a cholera outbreak had occurred just months before they left home. Unknowingly, they were carrying the disease and had infected the effluent.



A 58-page report, *Peacekeeping without Accountability: The United Nations' Responsibility for the Haitian Cholera Epidemic*, was prepared by Yale public health and law students.

Since then, the epidemic has killed more than 8,000 Haitians and sickened an estimated 600,000 more.

Those findings, which Chan, M.D., pieced together, constitute one of several major points in *Peacekeeping without Accountability*, a 58-page report published last August jointly by YSPH and the Yale Law School. Chan helped write the report, which immediately renewed media attention on the United Nations' legal and moral responsibilities and put Chan and her colleagues in the spotlight. The project was a joint effort of the law school's Transnational Development Clinic (TDC), where students work on litigation and nonlitigation projects focused on global poverty, and the Global Health Justice Partnership (GHJP; see full story on the GHJP beginning on page 47), hosted by the law school and YSPH. It tackles global health, human rights and social justice issues.

## A challenging assignment

Chan never imagined she would garner such attention. She had graduated from medical school in the Philippines in 2011 and decided that rather than begin her residency, she would get her M.P.H., specializing in global health. She also was interested in human rights, and working on the report, officially a practicum on global health and justice,

would provide her with important skills in the practical aspects of advocacy, she said.

Chan learned about the practicum after taking a class on sexuality and human rights taught by Alice M. Miller, J.D., co-director of the GHJP, adjunct associate professor at the law school and an assistant clinical professor at YSPH.

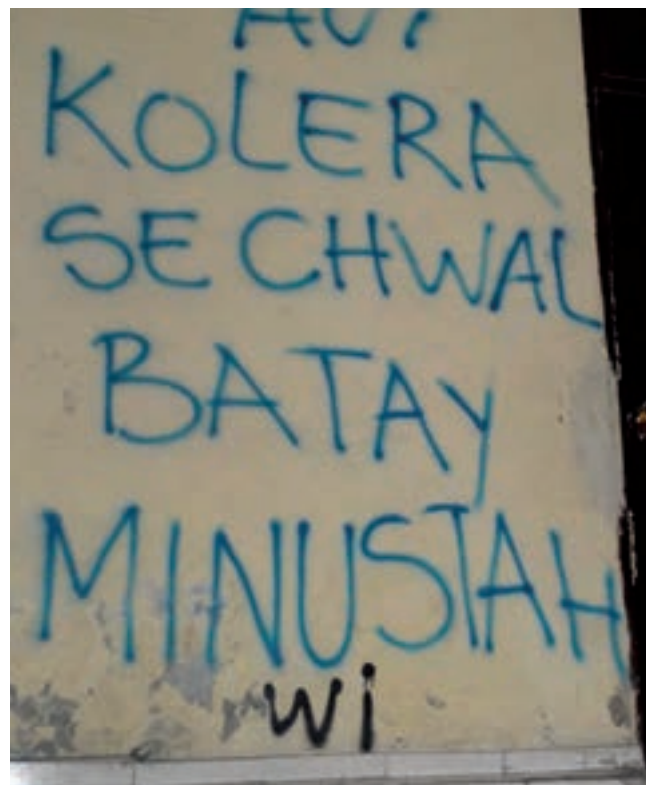
She began with a literature review, using search engines such as ScienceDirect, PubMed and Google Scholar, looking for “anything that was printed on cholera in Haiti,” she recalled. Several epidemiological studies had already been conducted, yet some had conflicting conclusions. “It was basic research, going to the library and going through search engines, finding what we could and talking to people and forwarding that information” to colleagues, she said. During her spring break last year, Chan and fellow students traveled to Haiti, meeting aid officials and lawyers working on a case

against the United Nations on behalf of victims. They visited the U.N. base and cholera victims. The disease, which causes severe diarrhea and can lead to dehydration and death, typically occurs in areas with poor sanitation.

Chan’s review also found that the spread of the disease correlated with the time it would take bacteria to travel along the Artibonite River, starting in Mirebalais, the town near the U.N. camp. She also discovered that the strain of bacteria was virtually identical to those found in Southeast Asia and similar to strains in Nepal.


The practicum’s roots began with Muneer I. Ahmad, clinical professor of law, who co-directed the project with Miller and runs the TDC. The Institute for Justice and Democracy in Haiti, a Boston-based nonprofit organization, had invited Ahmad and his clinic to work on the case against the United Nations. A year into the clinic’s work, Ahmad

A protester takes to the streets in the aftermath of a cholera epidemic in Haiti that killed more than 8,000 people and sickened many more.



“We made the key point that the United Nations has legal responsibility and a moral responsibility in Haiti.”

—Alice Miller



began thinking about what it would mean to explore broader avenues around U.N. accountability, including the health issues. Was there a way to explore what really happened, identifying with scientific certainty the outbreak's cause? If he could prove causality, what would that mean about accountability? That's when the GHJP and Chan got involved.

"Synthesizing the epidemiological information and considering legal causality questions were an important intervention," Miller said of the report's impact. "Our report cleared the brush," she said, referring to uncertainties journalists and others held about the United Nations' role. "We made the key point that the United Nations has legal responsibility and a moral responsibility in Haiti, and if they want to keep credibility around the world, and they want to not keep making these mistakes, they've got to come up with a system that can prevent them and or fix them quickly."

In addition to Chan, four law students worked on the report. Both Miller and Ahmad were among faculty supervising the project. One of Chan's colleagues from the law school, Celso Perez Carballo, who helped write other, more legal-oriented, chapters, said that working with a public health team helped.

"Oftentimes it was easy for us to make legal arguments in the abstract, not necessarily understanding the practical implications," Carballo said. But collaborating with public health experts, he and his law school colleagues got useful advice on issues such as the practicality of medical screening of troops or of setting up sanitation conditions in emergency situations. That advice helped him write sections that found that the U.N. mission had failed to follow protocols for water and sanitation. Although the United Nations established what it calls a Status of Forces Agreement, which includes protocols for compensation when damage is caused in a host country, it has never established those accountability mechanisms. Further, while the United Nations had protocols to ensure that troops were properly vaccinated, it lacked policies to protect host country residents from diseases that troops might carry.

## Media attention

By spring 2013, Chan and her colleagues began writing first drafts. Her public health training helped. One way, she said, was in understanding the language of water and sanitation protocols. Another was in seeing issues from a public health or global perspective. Chan focused on the chapters about epidemiology and humanitarian practices. Throughout the process, challenges surfaced. Among them, facts on the ground evolved, so recommendations evolved, said Miller. Scientific reports in respectable journals also stated the opposite of Chan's findings.

"We were law students and public health students trying to break down arguments released by eminent researchers," said Chan, who credits another faculty supervisor, Albert I. Ko, M.D., a professor and chair of the Department of Epidemiology of Microbial Diseases at YSPH, for help in strengthening the arguments she wrote.


A final draft was done in May, but work continued through June and July as drafts were shared with partners in Haiti and across the two disciplines. Group discussions about how to hone points and strengthen arguments were followed by more editing and revising. "It was quite the process," said Miller.

The report generated a huge media response after its publication, including op-ed pieces and editorials in *The Washington Post* and *The New York Times*, interviews on NPR and news reports on national television. The report and comments became part of the national conversation on Twitter and other social media outlets, and Chan joined colleagues in answering questions. Since then, Ahmad and others have made presentations to congressional panels, and a number of students at the TDC continue to work on the project. The United Nations also acknowledged receipt of the report, although they continue to deny responsibility for the outbreak.

Brian Concannon Jr., director of the Institute for Justice and Democracy in Haiti, said the Yale report showed that the case against the United Nations was "airtight" from a health and legal standpoint. "They got a lot of people to read things they weren't reading from other sources of information," he said.

Added Beatrice Lindstrom, a staff attorney at the institute representing cholera victims: "The report has completely changed the conversation about the U.N.'s responsibility for the cholera epidemic. It provides a level of clarity to the issue that didn't exist before."

Since graduation, Chan has been working as the access intern for Doctors Without Borders on a campaign for improved access to essential medicine. She also serves as a research and administrative intern for Basic Health International, a nonprofit group trying to eradicate cervical cancer in Latin America and the Caribbean. Chan plans to begin her delayed residency, specializing in obstetrics and gynecology, eventually focusing on advocacy and women's health issues.

"I developed an entirely new skill set because of GHJP, and this project allowed me to explore the world of advocacy and policy, with all its chaotic beauty, from the safety of Yale and under the guidance of extraordinary advisers," Chan said. "I came to Yale as a doctor interested in these topics and graduated as a doctor capable of confidently engaging in, and even changing, them." 

*Leonard Felson is a freelance writer in Connecticut.*





Survivors and relatives of victims of the cholera outbreak discuss their experiences with investigators.



# A health

**An alumna returns to her native country to address widespread childhood malnutrition, a job that takes her into the Himalayas.**

**By Cathy Shufro**

When Akriti Singh lived in New Haven, her height was unremarkable.

But in Kathmandu and the villages of Nepal, where she now does much of her work, she stands out. At 5 feet, 7 inches, she is far taller than most of the women and many of the men, although all are fellow Nepalis.

This difference in height reveals an important health problem: one of chronic malnutrition.

Four in 10 Nepali children under 5 years old have suffered long-term nutritional deficiencies that have left them moderately or severely stunted. Technically speaking, that means that they are at least two standard deviations shorter than global World Health Organization norms for children. Chronic undernutrition combined with frequent infections not only makes many Nepali children shorter than they would be if they were better nourished but also interferes with their brain development and increases their chances of suffering from a number of chronic diseases. Stunted

growth, meanwhile, also undermines efforts to reduce poverty in this Himalayan country of 28 million, something Singh, M.P.H. '10, is intent on helping to change.

“An undernourished child cannot do well in school, cannot earn as much as a well-nourished adult and is more likely to give birth to an undernourished child, thereby perpetuating the cycle of undernutrition and poverty,” says Singh. “It’s essential to act to resolve undernutrition – and chronic malnutrition in particular – because it is the root cause of everything, including poverty.”

## **A new approach**

This is Singh’s third year as the senior integrated nutrition coordinator for an ambitious \$46 million program funded by the United States Agency for International Development that will serve 25 of the country’s 75 districts. It’s called Suaahara, Nepali for “good nutrition.”

Suaahara has enlisted experts in nutrition, hygiene, sanitation, agriculture, education and community action to work together on improving the nutrition of mothers and children during the “golden thousand days” from conception to age 2. That period is crucial, because after age 2 the effects of chronic malnutrition are harder to reverse and may be irreversible.

# ier NEPAL

Efforts to improve nutrition are nothing new in Nepal: international organizations, including the United Nations, have been trying to make inroads for decades. But Suaahara is more comprehensive than past projects; it reflects current thinking that good nutrition depends on a lot more than making food available.

“Food can only take you so far,” says Singh. “It’s sanitation. It’s income. If a child is ill, can the family access health care? Does the health clinic have medicine they need? For the woman herself, what are her anemia status and other health indicators once she gets pregnant? Is she eating more, is she taking her iron tablets? Is she getting dewormed, is she going to her prenatal care visits? There’s also the social aspect. Does she still have to spend hours working, lifting heavy loads? And when she has her child, is she assisted by a skilled birth attendant?”

So Suaahara takes a “multisectoral” approach, trying simultaneously to change a lot of things that can interfere with a child’s nourishment. In some places the program provides stoves at a reduced cost to lessen indoor air pollution. In others, it helps communities build toilets.

Rural Nepalis generally eat two meals a day, and they tend to eat a narrow range of foods, mostly white rice with lentil gravy (known as *dal*), along with a small serving of vegetable curry. To make more variety possible, Suaahara is encouraging



*Inset:* Laxmi Pun holds her 15-month-old son, Gagan, in the mountain village of Ghorepani, Nepal, a day’s walk from the nearest road. Pun attended a Suaahara workshop for mothers where she learned about what to feed her toddler as he moves from breastfeeding to solid foods. “They taught us to feed the baby meat and fruit and peas and a kind of porridge with soybeans, wheat and millet,” says Pun. “They told us that even if you haven’t done any work, you still have to wash your hands before you cook for the baby.” She still breastfeeds Gagan, and she gives him the porridge, called *lito*, three or four times a day. She prefers home-ground *lito* because, she says, store-bought porridge is not fresh.

home gardens by handing out up to 11 kinds of vegetable seeds in communities where food insecurity is common. In some places Suaahara helps women start poultry flocks.

But improving nutrition goes far beyond diversifying the food that people grow or the animals they raise. For instance, Suaahara supports family planning because it can improve child health: a mother who has time to recover before conceiving again is more likely to be able to provide nutrients that the fetus needs. Sometimes women have no power to decide whether to use birth control, and so field workers for the project discuss power dynamics and issues of gender equality.

“Research shows that if you invest in women, things get better for everyone,” says Singh. “Women make wiser decisions.”

Culture can complicate what children eat: A married woman lives with her husband’s family, and as a daughter-in-law, she may have little authority over what she feeds her children. When health workers suggest changes in child feeding, for instance, Singh says, “Grandmothers will say, ‘That’s how I raised my child. Why should I change things for my grandchildren?’” So Suaahara organizes community interaction sessions not only for mothers but also for whole families. “The idea is to educate them and to encourage them to support mothers. This hadn’t been done before. We have had a lot of programs that focus only on mothers’ groups.”

Other cultural norms affect pregnant women: women in Nepal don’t necessarily get more to eat, and at mealtime, they usually eat last. “[Men are] the breadwinners, so you’re taking good care of them,” says Singh.

In other respects, there’s a lot that is new for this young, middle-class woman who grew up in urban Kathmandu. Until she studied public health, Singh didn’t think much about the poverty she noticed during visits to her father’s home village in the plains of the Terai. She now appreciates the good nutrition her mother provided for her and her sister when they were children. Because the family had no refrigerator, Singh’s mother would request that a local shop store meat for her daughters.

## Discovering public health

When Singh was an undergraduate at Mount Holyoke College in Massachusetts, she envisioned a career as a lab researcher. A summer lab job changed her mind. “I learned a lot, but I didn’t see myself being locked up in a laboratory for the rest of my life. I was trying to see what was out there that was science-related but having to do with people.” She discovered public health.

She was particularly inspired at YSPH by a course taught by Debbie L. Humphries, “Global Aspects of Food and Nutrition.” Furthermore, Humphries, M.P.H., Ph.D., a clinical instructor in the Department of Epidemiology of Microbial Diseases, served as adviser for Singh’s Downs Fellowship project in India, a field experience that served as the basis for her thesis. “[Dr. Humphries] has a passion for teaching and takes genuine interest in assisting students to understand and apply what they learn in her class,” she said.

Singh worked on an infant feeding assessment and had the advantage of knowing the dominant language, Hindi. “Almost everyone in Nepal speaks Hindi,” she says with a laugh, “because we watch so much Indian television and so many Indian movies.”

After graduation, Singh stayed at Yale for another year as program manager for the Global Health Concentration. “While it was a really good training experience, I realized I needed more field experience,” she says. “I had a theoretical understanding—I knew what to do—but I hadn’t really seen it being done in the field.”

She now spends a third of her time in the field. Travel is unpredictable in a country that comprises some of the world’s tallest mountains along the northern border with China; steep foothills; and broiling hot plains along its southern border with India. On one trip, Singh trekked to the foothills of the Annapurna mountain range. She and her team had to walk 10 hours each way. “The locals walk up and down hills like a piece of cake; I’m huffing and puffing, and my face is all red,” she recalls.

Suaahara has allowed Singh to discover her own country. Now she wishes she had paid more attention in fifth grade when she’d found learning the map of Nepal tedious. “It would have made my life so much easier!” she says.

So far, she’s visited 14 of the 25 project districts. The others are to follow. “The first thing people ask me at dinner parties is, ‘Where are you going next?’” YPH

*Cathy Shufro is a freelance writer in Connecticut. She traveled to Nepal last summer.*



*Opposite: Akriti Singh works in her native Nepal for an organization fighting childhood malnutrition.*

A woman with dark hair and glasses, wearing a purple patterned short-sleeved shirt, stands outdoors in a lush green garden. She is smiling slightly and looking towards the camera. The background is filled with various green plants and trees, with a wooden bench visible behind her. The overall scene is bright and natural.

“Research shows that if you invest in women, things get better for everyone.”

– Akriti Singh



## 1970s

**Sherry Elizabeth Marcy**, M.P.H. '74, and Nancy Jeanne Quay were married on March 15, 2013, in Rochester, N.Y. Sherry retired as an associate director in Pfizer's research and development branch, where she designed computer tools for scientists. The couple met in 1982, when Sherry moved from New York to Ann Arbor, Mich., for the Pfizer job.

**Dwight N. McNeill**, M.P.H. '73, Ph.D., had two books published last year, *A Framework for Applying Analytics in Healthcare* and *Analytics in Healthcare and the Life Sciences* (for which he was the editor). He is a visiting professor at Suffolk University, where he teaches population health and health policy and is a consultant on health analytics.

## 1980s



**Jeffrey Hughes**, M.P.H. '83, has been named the 2013 Healthcare Strategist of the Year by the New England Society for Healthcare

Strategy. Jeffrey is the vice president for strategic management at Wentworth-Douglass Health System in Dover, N.H.

## 2000s

**Garth Graham**, M.D. '01, M.P.H. '01, has been named president of the Aetna Foundation. A national expert on health disparities and health care quality, Garth served as deputy assistant secretary at the U.S. Department



of Health and Human Services during the administrations of Presidents George W. Bush and Barack Obama.

**Steven C. Moore**, M.P.H. '04, Ph.D. '07, has been named an Earl Stadtman Investigator by the National Institutes of Health Intramural Research Program. Steve will serve as a tenure-track investigator within the Nutritional Epidemiology Branch, where he will focus on the role of energy balance and obesity in cancer risk.



The National Council for Behavioral Health announced the promotion of **Mohini Venkatesh**, M.P.H. '07, to

vice president for practice improvement. During her six years with the National Council, Mohini has developed and led an array of improvement projects to help substance use and mental health organizations advance clinical and business operations.

## 2010s

**Justin Berk**, M.P.H. '11, received a Leadership Award from the American Medical Association Foundation. The award recognizes outstanding nonclinical leadership skills in advocacy, community service and education. Justin was also named the 2013

Student of the Year by the Texas Medical Association. Justin is currently an M.D./M.B.A. student at the Texas Tech University Health Sciences Center School of Medicine.

**Elizabeth Claydon**, M.P.H. '11, and Brian Merry, M.P.H. '10, were married on May 4, 2013, in an outdoor ceremony in Elizabeth's hometown in West Virginia. They met as students in the M.P.H. program at Yale. Elizabeth is currently a Ph.D. student at YSPH.



**Heather Fowler**, V.M.D., M.P.H. '11, was named one of 14 Vets to Watch in 2014 by *Veterinary Practice News*. Heather is currently in the

Ph.D. program in environmental and occupational hygiene at the University of Washington in Seattle, where she works with the Human-Animal Medicine Project. Her work focuses on occupational hazards present in veterinary medicine and the animal agriculture industry.



**Israel Labao**, M.P.H. '13, is president of the Interprofessional Community Clinic (ICC) of Rosalind Franklin University of

Medicine and Science. The ICC is a student-run clinic that provides accessible, quality health care for the underserved. The clinic is in its inaugural year in the North Chicago area, where it delivers a wide range of services,

including primary care, mental health, physical therapy, pharmacy, podiatry and health education. Israel is a medical student at the Rosalind Franklin University of Medicine and Science Chicago Medical School.



**Matthew Montgomery**, M.P.H. '10, and Cindy Urbazesh Dishmey were married on September 29 at the Water Works Restaurant and Lounge in Philadelphia. Harold is a chief resident in internal medicine at Aria Health in Philadelphia.

**Janky S. Patel**, M.P.H. '12, launched a Kickstarter campaign to fund publication of her children's book, *Curious Conditions: Dentist*, illustrated by Andrew Lopez. The story is about



a young boy embarking on his first dental visit. His anxiety and fear turn into curiosity during a tour of the dental office.

Janky's first published work, *Curious Conditions: Emergency Room*, won second place in the 2010 Bookemon Book of the Year contest.

**Rachel Estée Sam**, M.P.H. '10, and **William Josiah Rubenstein** were married last August. The couple had a traditional Khmer wedding celebration, followed the next day by a ceremony officiated by Rabbi Moshe Waldoks in Boston. That ceremony incorporated blessings in Hebrew, English, French and Cambodian. Rachel is a manager at Global Health Strategies, a public health consultancy in New York. She works primarily on polio eradication and HIV prevention.

**Will Sander**, D.V.M., M.P.H. '11, was awarded an AAAS Science & Technology Policy Fellowship. He is working in the Office of Water at the EPA, where he is analyzing data on various toxins and coordinating a new interagency task force on pharmaceuticals in the water.



**Laura Zatz**, M.P.H. '10, joined the Bipartisan Policy Center in October 2012, where she is a senior policy analyst for the Nutrition and Physical Activity Initiative. Previously, she worked at the Boston Consulting Group in New York City, where she focused on strategy and consumer insight in the health care and nonprofit sectors.



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## Alumni Day 2013

### A homecoming



### Alumni return to the School of Public Health, reconnect with colleagues

Alumni, young and old, returned in October to the place where their lives in public health began.

For the first time in 13 years, the annual Alumni Day was held at the School of Public Health's main building at 60 College Street, where most faculty offices, classrooms and research labs are located.

Dean Paul D. Cleary personally welcomed returning alumni to the school. The venue provided a chance to reconnect with the school and to witness some of the breakthrough public health science that is currently under way at Yale. Alumni were taken on guided tours of the tick lab, home to tens of thousands of infected and uninfected ticks in varying stages of development, and the tsetse fly lab, where researchers are seeking to reduce the threat posed by African sleeping sickness. Tsetse flies transmit the disease to humans.

"For most of our alumni their formative experiences

were in this building, so it is only fitting that they return here to celebrate the school and its achievements," said Martin Klein, associate dean for development and external affairs.

The morning was rounded out with faculty-led discussions on some of the study centers at YSPH and Yale – including the Global Health Initiative (Elizabeth H. Bradley), the Yale Institute for Biospheric Studies Program for Eco-Epidemiology (Durland Fish), and the Center for Interdisciplinary Research on AIDS (Elaine O'Keefe). There were also presentations on innovative public health research led by faculty members Michael B. Bracken, on using genetics to predict disease risk and personalize therapy; Trace Kershaw, who discussed using cell phones and social networks to promote better health; and Jody L. Sindelar, who explained how financial models can be used to modify unhealthy behaviors such as smoking.

A luncheon in the nearby Harkness Lounge was followed by an awards ceremony that honored three alumnae for their outstanding accomplishments:



• Katrina Clark, M.P.H. '71, was presented with the Distinguished Alumni Award for 40 years of work as the executive director of New Haven's Fair Haven Community Health Center. During her tenure, the center grew from a small clinic into a health care pillar that today serves some 15,000 patients each year. Clark retired last year.

• Kee Chan, Ph.D. '07, was presented with the Eric Mood New Professional Award. Chan, an assistant professor at Boston University, develops mathematical

models to determine optimal public health responses. Her research focuses on infectious diseases, newborn screening and genomics.

• Linda Schwartz, M.S.N. '84, Dr.Ph. '98, was inducted into the Alumni Public Service Honor Roll. Schwartz has worked in Connecticut, nationally and internationally to identify and advocate for the health care needs of veterans.

*Michael Greenwood*

*Opposite:* An alumni tour of the tick laboratory at the Yale School of Public Health includes a view of vials filled with live ticks.

*Below, Top Left:* Katrina Clark (third from right) receives a standing ovation as she accepts the Distinguished Alumni Award. Clark worked for 40 years as the executive director of New Haven's Fair Haven Community Health Center. The clinic today is an integral part of the city's health care system.

*Below, Top Right:* Alumni Day provides former classmates with plenty of time to reconnect and socialize.

*Below, Bottom:* Alumnus Robert Duncan talks with Hilary Rogers about her student research project.



“We believe that social entrepreneurship can be taught and that the best students are those with a passion for change, a willingness to encounter risk and a vision.”

—Martin Klein

### Innovative health

#### Improving public health through entrepreneurship.

A new academic program that encourages public health advances by harnessing the power of entrepreneurship is launching at the Yale School of Public Health.

InnovateHealth Yale (IHY) seeks to prepare students to solve some of the pressing health challenges of the 21st century through the creation of organizations, enterprises and improved products that measurably prevent disease and promote better global health. The School of Public Health will partner with other schools and organizations on campus to fully leverage all of Yale’s resources and expertise.

“We believe that social entrepreneurship can be taught and that the best students are those with a passion for change, a willingness to encounter risk and a vision,” said Martin Klein, M.P.H. ’86, Ph.D., the program’s director and associate dean for development and external affairs.

Beginning this spring, IHY will offer the Thorne Prize for Social Innovation in Health, awarding \$25,000 to the best student-led venture focused on social innovation in health. In January, IHY sponsored the Global Health Hackathon, a five-hour event that challenged dozens of students to find solutions to some of today’s most complex health problems.

In 2015, IHY will offer a course in health innovation, co-taught by the schools of public health and management and in partnership with the Mayo Clinic Center for Innovation.



Jordan Emont (2)

Martin Klein, director of InnovateHealth Yale and YSPH associate dean for development and external affairs, outlines a new academic program that encourages public health advances through entrepreneurship to dozens of Yale students during an informational session in November.

In addition, beginning with the 2013–2014 academic year, IHY will support summer internships in social enterprises and bring to campus successful social entrepreneurs in health.

Health innovation has a strong history at the School of Public Health; a number of faculty, alumni and students have created solutions to persistent health problems around the world. Some recent examples include the following:

- Louis Fazen, a doctoral candidate, is part of an international team of researchers that was awarded a \$250,000 grant from the Bill & Melinda Gates Foundation for a project that uses smartphones to reduce infant and maternal mortality in Kenya. The group trained community health extension workers in conducting surveys on a mobile phone and troubleshooting issues as they arise.

- YSPH Professor Susan T. Mayne, Ph.D., helped to develop a device that uses resonance Raman spectroscopy to measure nutritional biomarkers by simply, and painlessly, applying blue laser light to the palm of the hand. The device can be used to determine whether children, among others, have healthy diets.

- Alumna Ariane Kirtley, M.P.H. ’04, is the founder and director of the international nongovernmental organization Amman Imman: Water is Life. The organization builds clean and sustainable water sources; provides food security; and supports educational, environmental and health initiatives among some of the world’s most vulnerable populations. It is currently operating in the Azawak region of Niger, where up to 50 percent of children die before their fifth birthday.



Dean Paul D. Cleary said that such creative thinking is crucial to improving public health in the future.

“Many of the pressing public health challenges we face, both domestically and abroad, require collaboration among individuals from different disciplines and innovative problem solving,” Cleary said. “Training individuals to think about entrepreneurial approaches to health problems in an

interdisciplinary way will be key to addressing the most difficult health problems of our time and into the future.”

Yale College student Alyssa Moore said that the new program will foster collaboration among students while providing necessary support as they develop and implement ideas to improve health.

“Personally, I am excited to see issues in global entrepreneurship tackled,” said Moore, who is in the five-year joint B.A.-B.S./M.P.H. Program at Yale. “There are some great innovations emerging in the field of nutrition detection and hospital food service systems that I know can be kicked into high gear with some inspired student minds behind them!”

*Michael Greenwood*



Students from throughout Yale attended the Global Health Hackathon in January to tackle a range of complex health issues. In a matter of a few hours, students came up with potential solutions and pitched their ideas to a panel of judges. The event was sponsored by InnovateHealth Yale.

“My colleagues and I are ready to start a new era in our relationship.”

—Igor Gorlinsky



### Health partnership launched YSPH and a Russian university sign an agreement to formally work together on a variety of health challenges.

A long-standing partnership between the Yale School of Public Health and Saint Petersburg State University (SPSU) in Russia was solidified last October when leaders of the two institutions signed a memorandum of understanding to formally work together on an array of health-related projects.

YSPH Dean Paul D. Cleary and Igor A. Gorlinsky, vice rector of SPSU, signed the memorandum on October 11 during a ceremony at the School of Public Health.

“My colleagues and I are ready to start a new era in our relationship,” said Gorlinsky.

The two institutions have already worked jointly on a number of health issues of mutual concern, including HIV/AIDS, drug addiction, tuberculosis, hepatitis, sexually transmitted diseases and childhood sexual abuse, said YSPH Professor Robert Heimer, M.Sc. '80, Ph.D. '88, who has extensive research experience in Russia.

The School of Public Health today has numerous researchers who have worked throughout Russia and in St. Petersburg in particular. The relationship can be traced back to 1997, when then-Dean Michael H. Merson and a delegation of HIV researchers from Yale and the Center for AIDS Intervention Research in Milwaukee visited with Professor Gorlinsky, who was then dean of the biology faculty, along with faculty representatives from

psychology, sociology and medicine. This meeting led to an AIDS International Training and Research Program grant that has continued to provide Yale with opportunities to train young scientists in St. Petersburg with research skills needed for HIV/AIDS.

“This agreement celebrates 15 years of collaboration and creates a basis for ongoing interactions between our two long-established institutions. I anticipate that this will lead, eventually, to the establishment of interventions that can make headway against HIV and related health and social problems,” said Heimer.

Going forward, the two institutions hope to create a behavioral health research center in St. Petersburg that combines the pedagogical and scientific skills of faculty from Yale and SPSU.

Such a center would allow the resources of the two institutions to be better aligned, in responding not just to the HIV syndemic but also to other societal problems that joint research can study, with an eye to developing evidence-based solutions.

Cleary noted that the relationship between the two institutions has already been collaborative and productive, and that with the partnership it will become more so.

“I have incredible optimism about what the future holds for us,” he said.

*Michael Greenwood*



The Yale School of Public Health and Saint Petersburg State University in Russia sign a memorandum of understanding to work together on a variety of health-related projects. From left to right: Alla Shaboltas, dean of the Department of Psychology at Saint Petersburg State University; Paul Cleary, YSPH dean; Igor Gorlinsky, vice rector of Saint Petersburg State University; Robert Heimer, YSPH professor.



**A presidential visit.** Scores of Yale School of Public Health faculty, staff and students turned out in October to provide Yale's new President, Peter Salovey, and his wife, Marta E. Moret, with a warm welcome.

It was a homecoming of sorts for Moret, who earned her M.P.H. at the School of Public Health in 1984, and the culmination of a busy week for the couple, which included visits to 27 Yale departments.

Salovey invited everyone at the reception to attend upcoming festivities, including a campuswide open house, an inauguration ceremony and an ensuing block party on Hillhouse Avenue. Salovey likened the party to a "Connecticut street fair" complete with food, eclectic music and fun for all.

"Be a part of the celebration. Celebrate all that is Yale," he said.

Yale, he noted, is more than 312 years of history or 12 million books in its libraries. "It's not buildings with moats around them on the other side of campus, or buildings with very small windows on this side of campus (a reference to the School of Public Health's distinctive main building, the Laboratory of Epidemiology and Public Health)," he said to sustained laughter from the audience.

On a serious note, Salovey said that Yale is what it is because of the people in the audience that afternoon and thousands of others who work across the university who continue to make Yale great.

"We can make Yale anything we want it to be, anything we decide as a community," he said.

"Among the many treasures of this university – from the most ancient manuscripts to the most contemporary scientific discoveries – it is our students who are the greatest treasure of all. So today let me reaffirm that we are a research university that proudly and unapologetically focuses on our students. This is who we are and what we aspire to be."

– Peter Salovey, president of Yale University,  
from his Inaugural Address, October 13, 2013



**Commencement speaker.** Cecile Richards, president of the Planned Parenthood Federation of America and Planned Parenthood Action Fund, was the Yale School of Public Health's 2014 Commencement speaker. "[She is] a recognized leader and advocate for women's health and reproductive rights," said Dean Paul D. Cleary. Commencement was May 19 in Battell Chapel. Planned Parenthood has more than 750 affiliate health centers nationwide. It provides health care services to nearly 3 million patients and sex education to more than 1 million people. Its website receives 47 million visits a year from individuals seeking health care services and information.

“There are a lot of important, fascinating and difficult questions that need to be answered as the older population continues to grow.”

—Judith Kasper

## Speaking of health



Jeffrey Powell

### A “gorgeous” insect

*Aedes aegypti* mosquitoes are now found throughout the world, from sub-Saharan Africa to Saudi Arabia and, recently, even in California.

But it wasn't always that way.

Exactly how this species of mosquito, responsible for a range of diseases in humans, including yellow fever and dengue, achieved such an international range and by what route have been the subject of much research and conjecture.

Evolutionary biologist Jeffrey R. Powell, Ph.D., professor at YSPH and the Yale School of Forestry and Environmental Studies, outlined his research findings during a September seminar on the history of the species and how it ended up in Fresno, Calif.

Some 6,000 years ago the species was found only in sub-Saharan Africa, Powell said. It moved northward and then, with the discovery of the Americas and the beginning of the slave trade, the species established a presence in the New World. More recently, it appeared in Southeast Asia, on the Indian subcontinent.



Shelley Geballe

### The other Connecticut

YSPH lecturer Shelley D. Geballe familiarized incoming students as the new academic year started with some alarming trends in Connecticut, the state that will be their home for the next two years.

Despite its reputation for country clubs and venture capital, Connecticut is marked by sharp differences in income and educational achievement, both of which contribute to significant health disparities amongst the state's 3.6 million residents, Geballe, J.D. '76, M.P.H. '95, told a gathering in Winslow Auditorium last August.

These differences cut along racial and ethnic lines, and African-American and Hispanic residents, many of whom are concentrated in the state's cities (Hartford, Bridgeport and Yale's home of New Haven, among others), have health outcomes that are worse in almost every category than those of their peers: far higher rates of cancer, stroke, heart disease, diabetes, infant mortality, obesity, asthma and new cases of HIV/AIDS, she said.



Richard Stevens

### Origins of breast cancer

In the past 25 years, not much progress has been made in pinpointing the causes of breast cancer.

During a YSPH Department of Environmental Health Sciences seminar in September, Richard G. Stevens said that there is no “smoking gun” for the disease—like there is for lung cancer (smoking) or liver cancer (hepatitis)—and that scientists have failed to make a connection to other possible factors, such as the high-fat Western diet. So Stevens and his colleagues have turned to another factor that has changed as society has industrialized—exposure to electric lights and their effects on circadian rhythms.

Evidence is accumulating, he said, to support the epidemiological link of circadian disruption from nighttime light to breast cancer.

Stevens, Ph.D., is a professor in the Division of Epidemiology and Biostatistics at the UConn Health Center.



Judith Kasper

### Aging well

The National Health and Aging Trends Study is a landmark longitudinal study of disability and independence in Medicare beneficiaries 65 years and older.

The vision is to develop a new platform to guide efforts to reduce disability, maximize functioning and enhance quality of life for older Americans, explained Judith Kasper, Ph.D., professor of health policy and management at the Johns Hopkins Bloomberg School of Public Health, in a Dean's Lecture at YSPH in October.

Over 12,000 people are enrolled in the study, which requires an annual interview of nearly two hours to measure disability and its consequences for individuals, their families and society. There is also a 30-minute interview for caregivers. Data collection began in 2011.

The findings are linked to several government data sets, such as Medicare claims, the National Death Index and supply and quality measures of health facilities by geography.



Gary Ginsberg

### Toxicology wars

Working as a toxicologist in state government is not unlike being in a war.

Walking a fine line between activists and industry and also between the public and activists, the State of Connecticut Department of Public Health seeks to convert the best science into good public health policy. "If we are making everyone unhappy, we are doing our job," Gary Ginsberg, Ph.D., a lecturer in the Department of Environmental Health Sciences and toxicologist for the health department, joked during a seminar in October.

In partnership with other state agencies, as well as municipalities, hospitals, businesses, the public and the media, state toxicologists investigate all sorts of toxins, whether from waste sites, water sources, buildings, indoor environments, cleaning products, food or freshwater fish.

Ginsberg and his colleagues have published studies on pressure-treated lumber; bisphenol A in baby bottles and formula cans; and synthetic turf fields that have resulted in changes in both policy and the products on the national level.



Michael Chernew

### Modeling bid behavior

The Medicare Advantage program allows private companies to contract with Medicare to provide individuals with Medicare Part A and Part B benefits through many types of plans.

The bidding process used to make those contracts is based on a complex system of government-set cost benchmarks. Michael E. Chernew, Ph.D., the Leonard D. Schaeffer Professor of Health Care Policy at Harvard Medical School, presented a model for understanding bid behavior by insurance plans at a health seminar sponsored by the Yale Institution for Social and Policy Studies last fall.

Since implementation of bidding in 2006, Chernew has found that a \$1 increase in the benchmarks leads to about a 50-cent increase in bids.

"The basic premise that competition solves ills is not true," said Chernew, who attributes this to a number of factors that make the competition less than perfect, such as political manipulation of county-level cost benchmarks.



Ikenna Achiliu, M.P.H. student



Mayur Desai, YSPH associate professor

**Hirsute for health.** Yale School of Public Health students and at least one faculty member teamed up in the fall for the annual mustache challenge known as Movember. Since 2003, the Movember Foundation has encouraged men around the world to grow mustaches (mustache + November = Movember) to raise awareness about men's health, particularly prostate cancer. Raja Narayan, an Advanced Professional M.P.H. student, led the YSPH team of mustachioed men that included Mayur M. Desai, M.P.H. '94, Ph.D. '97, associate professor in the Department of Chronic Disease Epidemiology. The team has raised more than \$400 for the charity. In addition to Narayan and Desai, the YSPH team included Ikenna Achiliu, Jordan Barbour, Connor J. Bell, Joey Chan, Andrew Crouch (Yale College), Jordan Emont, Raul Hernandez-Ramirez, Bert Hootsmans, Forrest Jones, John-Paul Julien, Justin Mendoza, Jimmy Murphy, Harish Prabhala and Geoff Soybel.



Jimmy Murphy, M.P.H. student



Raja Narayan, M.P.H. student

Jordan Emont (8)





“We think that there is going to be tremendous demand for this innovative joint degree program.”

—Paul Cleary

### Accelerated M.B.A./M.P.H. program unveiled

Students interested in the connection between public health and business will have a new option soon, with an accelerated M.B.A./M.P.H. program in health care management slated to launch this summer.

The intensive program will fully immerse students in two world-class graduate programs, allowing them to complete their studies in just 22 months. The existing joint M.B.A./M.P.H. program takes 34 months, or three academic years, of study.



Howard Forman

The accelerated health care management program, the first of its kind in the United States, is tailored to a growing number of students who seek training in both disciplines but may not be able, or willing, to spend three years away from the field.

“We think that there is going to be tremendous demand for this innovative joint degree program,” said Paul D. Cleary, dean of the Yale School of Public Health. “There is an increasing

need for professionals who understand and can apply knowledge that the schools of management and public health provide.”

The program is the latest in a long history of collaboration between the two schools. Students will earn credits through a combination of required and elective courses offered at each school.

Key components of the accelerated program include core courses in management, core courses in public health, a two-week international experience organized through Yale, elective courses in each school and a summer internship in the health care industry.

Applicants must apply and be admitted to both schools in order to be eligible for the program. The first class will begin in July 2014 and will graduate in the spring of 2016.

The commitment to health care management at Yale has been very strong, said Professor Howard P. Forman, M.D., director of the Health Care Management Program at the School of Public Health. This new program is yet another example of meeting the needs of applicants and students.

“We expect an extraordinary cohort of applicants and look forward to providing them with the world-class education and network that are associated with Yale University,” Forman said.

*Michael Greenwood*



**375,000 pounds.** Yale School of Public Health Dean Paul Cleary (left) and Mark Russi, M.D., M.P.H. '93, professor of medicine and director of occupational health services at Yale-New Haven Hospital, discuss the Get Healthy CT Weight Loss Challenge with New Haven Mayor Toni Harp. They gathered in January at the Cornell Scott-Hill Health Center as part of a challenge to Elm City residents to collectively shed 375,000 pounds (the equivalent of about three pounds per person). Obesity (see article on page 33) remains a serious and widespread health problem in New Haven and contributes to a number of chronic diseases. The challenge brings together the resources of New Haven, Yale-New Haven Hospital, Get Healthy CT, the Cornell Scott-Hill Health Center and CARE: Community Alliance for Research and Engagement, a research center at the Yale School of Public Health.

### Easing Brazil's burden

Continued from page 21

health research sites in Brazil like the one in Salvador and there are plans to create four more, says Manoel Barral Neto, M.D., Ph.D., director of Fiocruz in Salvador.

The partnership between Yale, Fiocruz and the Brazilian government is key in addressing the growing health needs of the large, marginalized segment of the Brazilian population that resides in urban slums. On each of his visits to Pau da Lima, residents pull Ko aside and ask, "We know leptospirosis is important for our community, but what will you do about our dengue, high blood pressure and diabetes?" The long-standing goal of this research and training program in Salvador has been to provide Brazilians with the capacity to solve their own health problems. The program has developed high school programs and college work study programs to train community members who are equal partners in this process.

This summer, Yale President Peter Salovey is expected to travel to Brazil as Yale deepens its ties with the Latin American country. A growing number of Yale students are also doing community-based research in Pau da Lima and in other locations throughout Brazil.

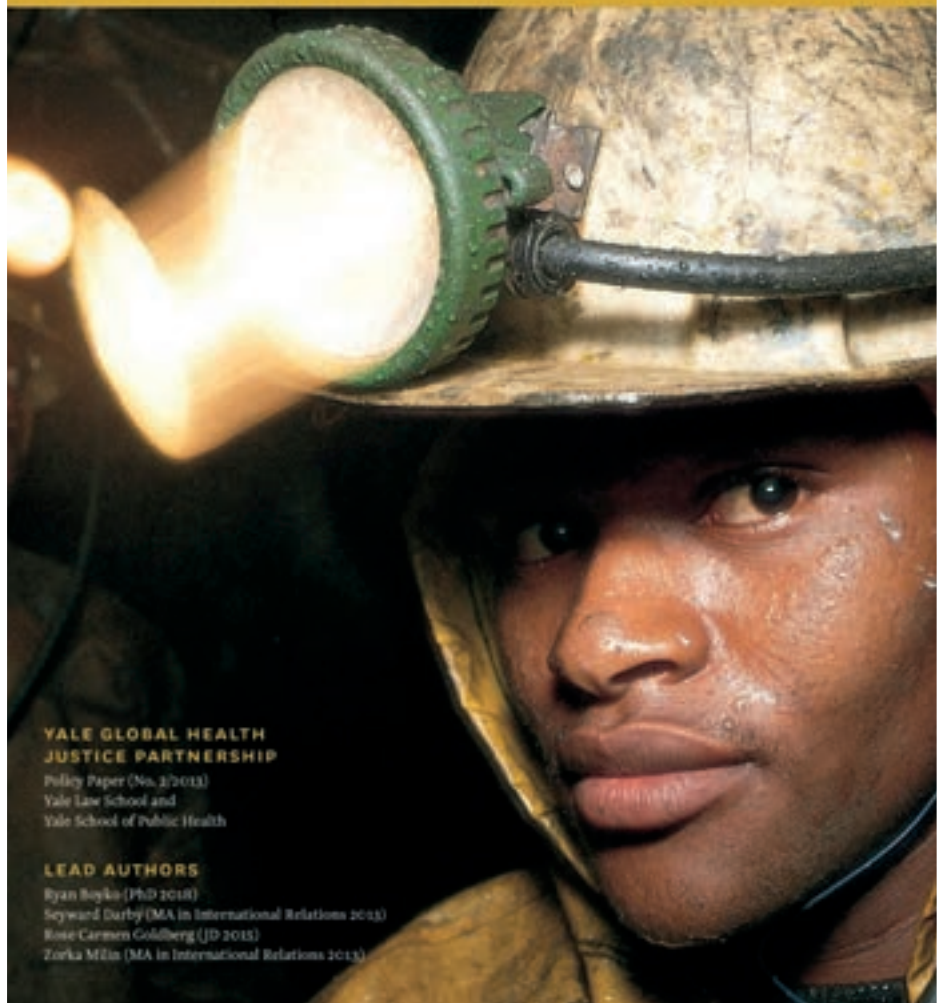
Meanwhile, the daily work continues in Pau da Lima to end the threat of leptospirosis.

This would be a small but important victory, Ko notes, in improving the quality of life for people who live in conditions that many would find unimaginable. [YPH](#)

**A voice for South Africa's miners.** A report released on January 13 by the Global Health Justice Partnership, a joint initiative of Yale Law School and Yale School of Public Health, explores solutions to the long-standing injustices faced by mine workers in South Africa. The 69-page report, *Fulfilling Broken Promises: Reforming the Century-Old Compensation System for Occupational Lung Disease in the South African Mining Sector*, analyzes the failures of the South African compensation system for mine workers with occupational lung disease. "South Africa's broken compensation system is harming the mine workers and families whom it is actually supposed to protect," said Ryan Boyko, a School of Public Health doctoral student and one of the report's lead authors.

## Fulfilling Broken Promises

REFORMING THE CENTURY-OLD COMPENSATION SYSTEM FOR  
OCCUPATIONAL LUNG DISEASE IN THE SOUTH AFRICAN MINING SECTOR





Evette Brown



Kimberly Hart



Jo-Ann Ndiaye

**Maintaining a healthy diet.** Three New Haven women, Kimberly Hart, Evette Brown and Jo-Ann Ndiaye, discuss the challenges of maintaining, and affording, a healthy diet in a series of film vignettes developed by the Yale School of Public Health in conjunction with CARE: Community Alliance for Research and Engagement. In a 2012 CARE survey of 1,298 adults in New Haven, four in 10 reported experiencing “food insecurity” – meaning that they or their family did not have enough food or money to buy food within the past 30 days. People who struggle to pay for groceries often cannot afford healthier foods, such as fresh produce. A poor diet is an important risk factor for disease, but diet can be changed. Through its SNAP outreach program, CARE seeks to better understand and address local food insecurity. “I can’t do anything hungry,” Hart said. “It all boils down to a good meal.”

## YSPH Notes

### **Progress continues.**

Construction on an 11-story building that will provide 40,000 square feet of new space for the Yale School of Public Health continued throughout the stormy and often frigid winter of 2013–2014. The building, seen here in March, is directly to the north of the Laboratory of Epidemiology and Public Health and is slated for completion in mid-2015.



September 2013



## Awards and Honors

**Serap Aksoy**, Ph.D., professor in the Department of Epidemiology of Microbial Diseases, has been elected a councilor of the American Society of Tropical Medicine and Hygiene.

**Paul D. Cleary**, Ph.D., the Anna M.R. Lauder Professor of Public Health, professor of sociology and dean of the Yale School of Public Health, has been named a fellow of the American Association for the Advancement of Science for “exceptional scholarly contributions through the use of sociological methods and perspectives to advance understanding of a wide range of health and health care issues.”

**Kate Falb**, Ph.D., a postdoctoral associate in the Department of Chronic Disease Epidemiology, won a Young Research Award from the Sexual Violence Research Initiative.

**Alison P. Galvani**, Ph.D., professor in the Department of Epidemiology of Microbial Diseases, and co-author Timothy C. Reluga, Ph.D., assistant professor of mathematics and biology at Pennsylvania State University, won the Fourteenth Bellman Prize for their paper, “A General Approach for Population Games with Application to Vaccination.” The prize is awarded every two years for the best mathematical biosciences paper.

**Judith Lichtman**, M.P.H. '88, Ph.D. '96, associate professor in the Department of Chronic Disease Epidemiology, is serving on a joint task force of the American College of Cardiology Foundation and the American Heart Association to develop clinical data standards. Both

organizations recognize the need for greater rigor of measurement through common language and terminology.

**Reuben Ng**, a doctoral candidate in the Department of Chronic Disease Epidemiology, won the American Psychological Association's Anne Anastasi General Psychology Graduate Student Research Award for his paper, “Is Longevity All in the Mind?: Psychosocial Promoters of Successful Aging.”



Heping Zhang

**Linda M. Niccolai**, M.Sc., Ph.D., associate professor in the Department of Epidemiology of Microbial Diseases, was nominated for the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry's Charles C. Shepard Science Award for her HPV-IMPACT paper, “Impact of Human Papillomavirus (HPV) Vaccination on HPV 16/18-Related Prevalence in Precancerous Cervical Lesions.”

**Rafael Pérez-Escamilla**, Ph.D., professor in the Department of Chronic Disease Epidemiology and director of both the Global Health Concentration

and the Office of Public Health Practice, has been appointed by the World Health Organization to serve on the steering committee of a special *Lancet* series, “Improving the Development of Young Children Through Integrated Interventions: A Vital Ingredient for Equity and Sustainable Development Post-2015.” The goal of this forthcoming series is to synthesize and integrate the science of early childhood development and the critical factors that influence life course health and productivity starting in early childhood.

The Reproductive Medicine Network awarded **Heping Zhang**, Ph.D., the Susan Dwight Bliss Professor of Public Health (Biostatistics) and professor in the Child Study Center and of statistics, with its Scientific Program Prize Paper at the American Society for Reproductive Medicine's annual meeting in Boston. The award recognizes his paper, “Effect of Letrozole Versus Clomiphene on Live Birth in Women With Anovulatory Infertility Due to Polycystic Ovary Syndrome (PCOS): A Randomized Double-Blind Multi-Center Trial.”

**Yang Zhou**, a doctoral candidate in the Department of Chronic Disease Epidemiology, won first prize in the abstract competition sponsored by the American Institute for Cancer Research for her paper, “BMI, Physical Activity and Mortality in Women Diagnosed With Ovarian Cancer: Results From the Women's Health Initiative.”



### Exploring New Haven's public health landscape.

Incoming School of Public Health students learned about the challenges and rewards of public health during a tour of three New Haven agencies that provide essential services to New Haven residents. Nearly 25 students took the tour in late August that included stops at the New Haven Health Department, Fair Haven Community Health Center and Liberty Community Services. At each destination, students met with lead administrators, learned about the agency's role and had the opportunity to ask questions about issues surrounding health and health care. The school's Office of Public Health Practice organized the first-time trip to immerse incoming students in public health practice and to generate student interest in local internships and practicum course projects.

### Health and justice

*Continued from page 48*

the plight of South African mine workers suffering from occupational lung disease. After interviewing stakeholders around the world, organizing expert roundtables and even visiting and interviewing key informants in Washington, D.C., Haiti and South Africa, the students wrote up their findings. These reports are more than merely academic: The GHJP's data-driven report holding the United Nations responsible for the Haitian cholera epidemic made international headlines (see full story beginning on page 52).

"The goal is that [students] are part of a long-term, real-world impact," Miller said. "We're putting health justice information and analysis out there to be used."

The GHJP is still a young program. But it hopes to expand by hiring full-time fellows and faculty and to extend its six-month clinic to a yearlong experience. It also plans to conduct original research fusing techniques from law, medicine, politics and public health. Once securely established at Yale, Friedland said, the GHJP may become a model for other institutions.

In addition, Gonsalves said, down the road, the GHJP would like to offer a formal qualification that would open more doors for students who earn it. Yet even without such a credential, the program has no trouble attracting applicants.

"There's a huge hunger at Yale for this work," Gonsalves said. "A lot of students see this as a mission – their future – not just a job when they get out of school." [YPH](#)

*Jenny Blair, M.D. '04, is a freelance writer and editor in Texas.*





A Yale School of Public Health student discusses nutrition and sanitation with children in El Salvador during a student-led trip.

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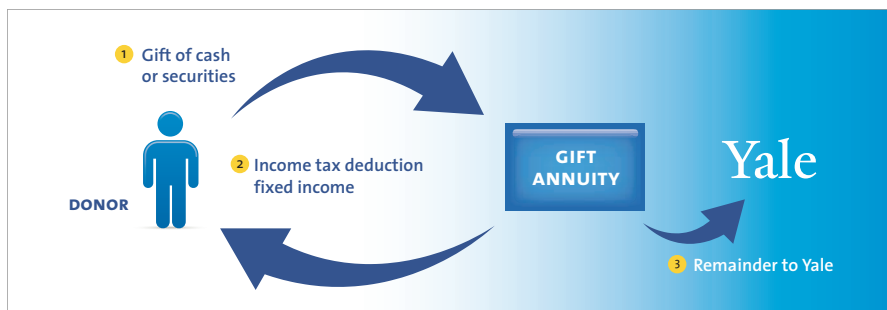
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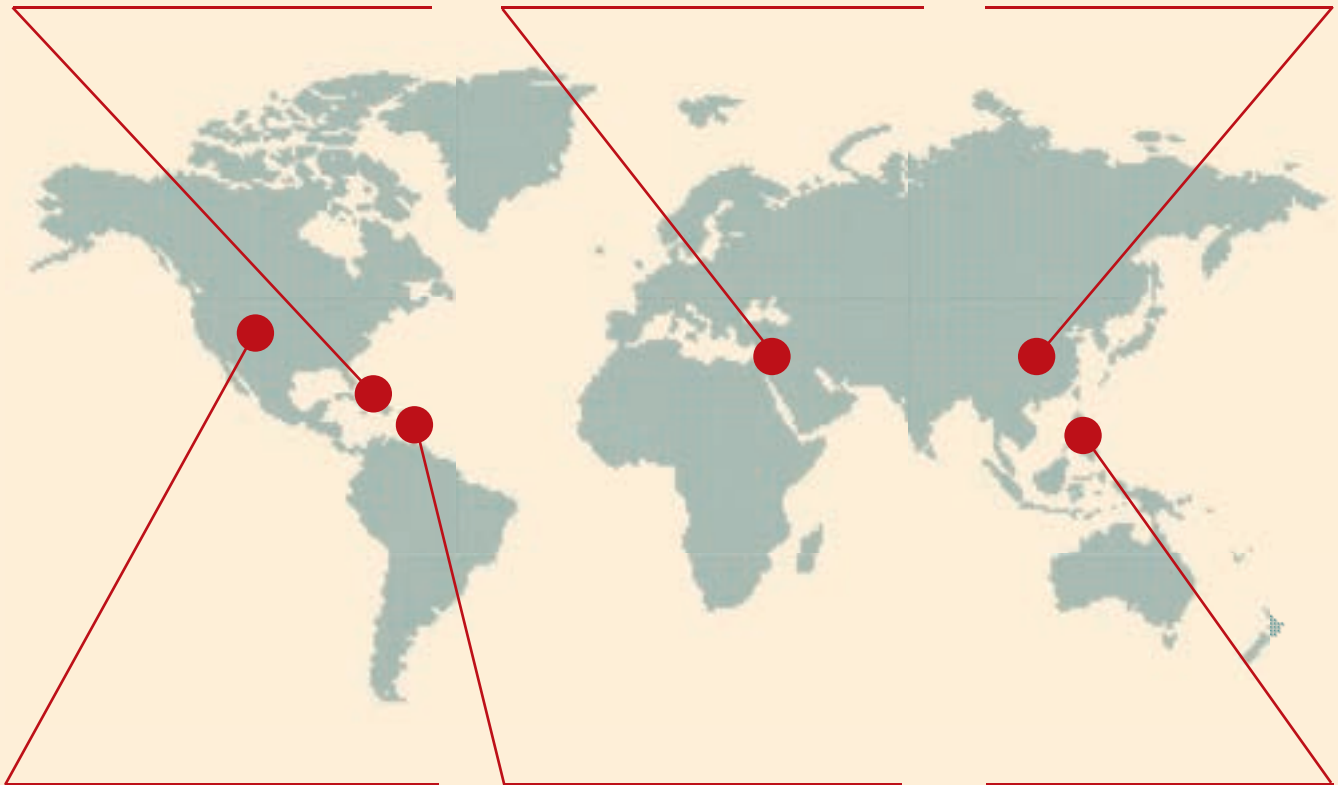


## YSPH around the world

**Haiti.** YSPH and other Yale students spend their spring break on the island to consult on projects for the Hôpital Albert Schweitzer.

**Syria/Lebanon.** A published research paper by faculty and an alumna documents the health-related problems of Syrian women who have fled the violence in their homeland.

**China.** The head of China's National Institute of Environmental Health Sciences visits YSPH in March to discuss ongoing training and research collaborations.



**United States.** YSPH research finds that expanding Medicaid eligibility does not negatively affect access to health care.

**Dominica.** A professor travels to this Caribbean island to help coordinate a response to the sudden outbreak of the mosquito-borne disease chikungunya.

**Philippines.** YSPH students help formulate a report used by governmental agencies responding to the destruction caused by Typhoon Haiyan.



## In Memoriam

**Kathleen Belanger**, Ph.D. '85, died on December 22 after a long illness. Spending almost her entire career at Yale, Kathy was a senior research scientist and deputy director at the Center for Perinatal, Pediatric and Environmental Epidemiology at the Yale School of Public Health. She received a bachelor's degree from the College of Notre Dame of Maryland, a master of science degree from the University of Bridgeport and a doctoral degree from Yale. Kathy was an internationally recognized perinatal epidemiologist. Her research involved developing research protocols and managing large teams of field staff and supervisors, data managers and biological specimen collectors. Her postdoctoral work on clinical trials allowed her to bring additional research skills to bear on clinical questions. Her more than 85 publications often led to insights that improved clinical care and public health. Kathy served as a scientific adviser to federal research agencies, a member of national research program committees, an invited speaker at international meetings and a reviewer for several journals. Kathy's last studies examined the crucial link between air pollution and effects on the developing fetus and in early childhood, influencing millions of pregnancies and children worldwide. She was active at both the Unitarian Society of New Haven and the Shoreline Unitarian Universalist Society.

**Stephen F. Davie**, M.P.H. '63, husband of the late Sue B. Davie, died on September 1 in Cincinnati. He was a devoted father, grandfather and brother.

**Richard Gerry Jr.**, M.P.H. '67, died at home on July 18 at the age of 73 after a short but courageous battle with a stage 4 glioblastoma. He moved to Charleston, S.C., in 1970, where he worked as a health planner for United Way. He then became a licensed insurance agent and started Planning Consultants Inc., specializing in retirement and estate planning. He earned the Chartered Life Underwriter and Certified Senior Advisor designations. Richard was a member of Grace Episcopal Church in Charleston and the James Island Yacht Club. He enjoyed traveling, fishing and sailing EC12 radio-controlled boats at a competitive level.

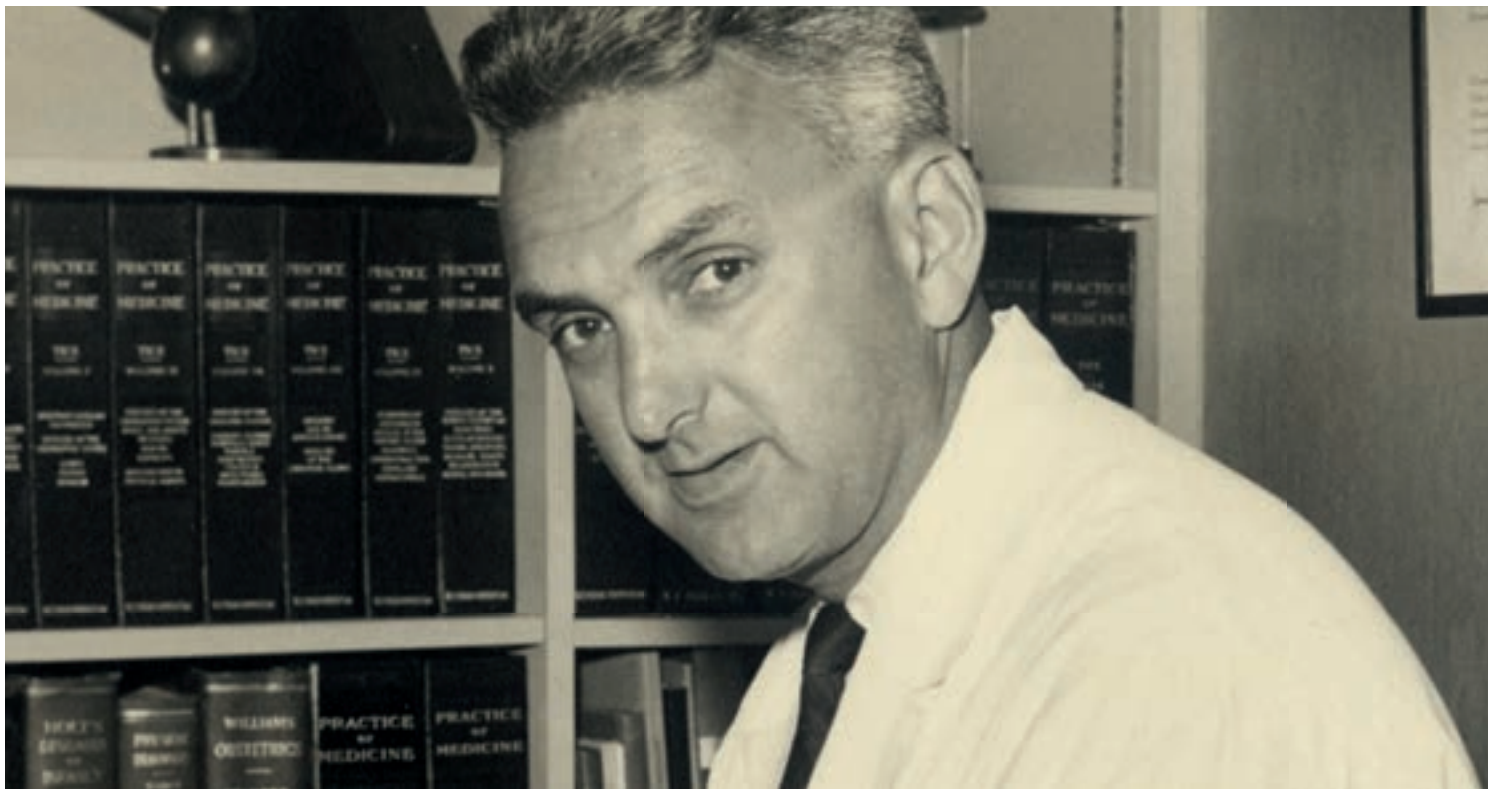
**Patricia "Pat" W. Gillespie**, M.P.H. '75, died on May 23, 2013, at the age of 84. She worked as a physical therapist in Boston before moving to the University of Connecticut in Storrs, where she worked as a professor of allied health. After retiring, she was an active member of the Unitarian Universalist Church of Jacksonville, Fla., and volunteered as a docent at the Cummer Museum of Art and Gardens and also at Community Hospice with her companion Holly, a therapy dog. Pat was predeceased by her husband, Allan, in October 1997.

**Alfred R. Harrington**, M.D. '86, M.P.H. '86, died of natural causes on July 28 during a visit to New York City. He founded Harrington and Associates, which conducted over 20 short- and long-term projects in the health industry that addressed core issues affecting the health of communities. Alfred also delivered

over 40 presentations and reports that expanded the knowledge base of individuals and communities, and he served as a clinical instructor at Creighton University and the University of Nebraska Medical Center and as a medical director at Charles Drew Health Center.

**Mary I. (Kinnerney) Spiker**, M.P.H. '58, died on June 15 at the age of 87. After earning her degree at Yale, Mary worked for the Public Health Department in Maine for two years and was employed at TB & Health Associates in Rochester, N.Y., for 11 years. She was a member of St. Joseph the Worker Roman Catholic Church in Orefield, Pa., and a former volunteer coordinator of the RCIA program.

Send obituary notices to  
[ysph.alumni@yale.edu](mailto:ysph.alumni@yale.edu)



## Activist, scientist, Renaissance man

Edwin Richard “Dick” Weinerman first engaged in social issues as a student, and his service in the U.S. Army Medical Corps and Farm Security Administration further shaped a lifetime passion for social activism. Throughout his career he addressed inequalities in access to health care and the financing and quality of health care.

At the University of California, Berkeley, Weinerman, M.D., M.P.H., worked on a series of health records and household surveys that paved the way for the National Health Survey. His contributions to “The Quality of Medical Care in a National Health Program” predicted issues with quality and economics in the health insurance model based on fee-for-service solo practice and hospital stays. His concern grew into an interest in how other countries organized their health services.

Weinerman left Berkeley in the early 1950s after refusing to sign a McCarthy-era “loyalty” oath. It was not until 1962 that he returned to academia, when Yale-New Haven Hospital recruited him to be the director of clinics and emergency services. He also taught in and headed the section of Medical Care and Hospital Administration at YSPH.

At Yale, Weinerman reformed ambulatory services at the hospital and was instrumental in the opening of the Family Health Care Unit and community programs while continuing his research. He was active with the Committee for National Health Insurance in designing a national health insurance program.

As a follow-up to his 1969 book, *Social Medicine in Eastern Europe*, Weinerman and his wife, Shirley, were traveling to Tel Aviv as part of a study of the health systems in Israel, Japan and New Zealand when, tragically, terrorists bombed the airplane on which they were flying, in February of 1970.

*Denise Meyer*



## A Weinerman fellow, Sandy Hook mom pursues social justice

The E. Richard and Shirley Basch Weinerman Memorial Fund sponsors internships for students with a commitment to social issues and the delivery of health services. Last summer, 13 fellows were supported—both domestically and internationally, and in both research and practice. Amy Davis is one of those fellows.

After practicing business law for many years and spending a few years out of the workforce to raise her young children, Amy returned to school to pursue a career in social justice and global health. Her vision gained focus during a Dean's Lecture by Peter Donnelly, M.D., professor of public health medicine at the University of St. Andrews in Scotland, in the fall of 2012 about the epidemiology of violence and an urban gang intervention in Scotland.

Then, in the middle of an epidemiology review session, Amy's phone buzzed with calls and texts. It was December 14, 2012. Her son was a student at the Sandy Hook Elementary School in Newtown, Conn., and the school was in lockdown. While her son was not harmed that day, Amy describes the experience as "traumatic" for her family. Nevertheless, it helped crystallize her vision: she wanted to work on issues surrounding violence and policy. Here, Amy speaks about Sandy Hook at the American Public Health Association conference in November. With her is Douglas Fuchs, chief of the Redding Police Department, who was in charge of the evacuation of Sandy Hook Elementary School.

Amy interned at the University of St. Andrews, Scotland, and worked with Donnelly and others to assess the feasibility of employing the Bell Bajao (Ring the Bell) domestic violence intervention in Scotland. Bell Bajao, developed in India, seeks to bring men and boys into a dialogue that changes social norms around violence against women. Moving forward, Amy hopes to work on maternal and child health and on violence reduction through research and advocacy.

*D.M.*

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