Gambling with public health
Why gun control is a loaded issue
Searching for the cause of a mysterious epidemic
Bringing surgery into the global health agenda
ON THE COVER: A slot machine illustration symbolizes the health questions surrounding legal gambling, which is the subject of this issue’s feature story.
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Colleagues,

Welcome to our fall issue of 2x2.

In this issue, we take an epidemiologic perspective on issues that are often viewed through an individual lens, including gun violence, gambling addiction, the use of surgery in global health, and brain disorders. We also profile a legendary alumnus, Dr. Sten Vermund, a new training program that marries the methods of epidemiology to the practice of HIV implementation science, and an interesting and instructive story about a mysterious disease that afflicted the southern United States in the early 1920s and 1930s.

We are continuing to expand our list of contributing writers and look forward to engaging more of you in the translation of epidemiology over the coming academic year.

Warm regards,

Sandro
Stressed men more likely to have fertility problems

Comprehensive study of stress finds association with sperm quality

S
tress is associated with a greater likelihood of fertility problems for men, according to a study published in the journal Fertility and Sterility by epidemiologists at Columbia’s Mailman School of Public Health.

“Men who feel stressed are more likely to have lower concentrations of sperm in their ejaculate, and the sperm they have are more likely to be misshapen or have impaired motility,” says senior author Dr. Pam Factor-Litvak, associate professor of epidemiology. “These deficits could be associated with fertility problems.” Epidemiology PhD graduate Dr. Teresa Janevic was a lead author on the study, and epidemiology doctoral candidate Ms. Linda Kahn was a co-author.

Although the study is not the first to look at the link between stress and fertility, the research group says this one uses the most comprehensive measure of stress to date.

The researchers looked at 193 healthy men age 38-49 enrolled in the Kaiser Foundation Health Plan in Oakland, California. To measure “subjective stress,” the men were asked to rate how often they perceived events at work and in the rest of their life as stressful. To measure “objective stress,” they filled out a survey answering whether they had experienced various stressful events over the past year, such as a divorce or death in the family.

Samples of the participants’ semen were analyzed to measure concentration of sperm, sperm movement or motility, and defects in the size and shape of the sperm—or sperm morphology.

The researchers adjusted for potential confounding factors, including income, education level, and race.

Men who experienced subjective and objective life stress were significantly more likely to have worse sperm quality. However, there was not an association between work stress and semen quality. Dr. Factor-Litvak hypothesizes that men may be adept at blocking out work stress. Her team suggests using other measures in future studies to measure work stress, such as “effort-reward imbalance,” long work hours, or “organizational injustice.” Additionally, unemployed men had lower sperm quality than employed men.

While past research has drawn associations between stress and sperm, the Columbia group noted that those studies did not measure stress as comprehensively. One used only subjective measures of stress, another asked just one question about stress, and a third used a survey that was not designed specifically to measure perceived stress.

The mechanism for how stress could influence sperm quality is not clear. One possibility is through a neuroendocrine process that would impair creation of sperm. In one such process hypothesized by the researchers, stress would cause increased production of steroid hormones called glucocorticoids which would lead to decreased excretion of testosterone from cells that produce sperm, known as Leydig cells, as well as to the production of fewer of these cells.

A further possibility is that stress affects a reproductive hormone known as the follicle-stimulating hormone, or FSH, but researchers found no associations between stress measures and either FSH or total testosterone.

“Although this area of research needs further development, it suggests the importance of stress across the life course and intergenerational stress to male reproductive health,” say the authors.

Problems faced by National Guard soldiers upon coming home to the U.S., such as unemployment, financial and legal problems, and divorce, better predict whether they develop an alcohol use disorder than the traumatic experiences of combat, according to a new study published in the American Journal of Preventive Medicine. The study was authored by Drs. Magdalena Cerdá, assistant professor of epidemiology; Dr. Karestan Koenen, professor of epidemiology; Dr. Sandro Galea, Gelman Professor and chair of the department of epidemiology; Dr. Catherine Richards, associate research scientist in epidemiology; and predoctoral candidate in epidemiology Mr. Greg Cohen; all at Columbia’s Mailman School of Public Health, along with faculty at Case Western Reserve University, the University of Michigan, and the University of Toledo.

Alcohol problems are of particular concern among reservists. Fourteen percent abuse or are dependent on alcohol, compared to about 7 percent of the general American population, according to a 2012 survey from the Substance Abuse and Mental Health Service Administration. Alcohol abuse happens when alcohol interferes with one’s life, such as responsibilities at home, work or school, and when people place themselves in dangerous situations or have social or legal problems due to their drinking. The more severe form, alcoholism, also includes physical dependency.

The investigators conducted phone surveys of 1,095 members of the Ohio National Guard who served in the Wars in Iraq and Afghanistan from June 2008 through February 2009. The reservists answered questions about whether they had experienced any traumatic events while deployed, such as receiving incoming fire, seeing the bodies of severely wounded enemy soldiers, or being sexually harassed. They also answered questions about whether they had experienced various stressors after coming home. This included, in addition to job, financial, and relationship problems, mental illness, family problems, or difficulties accessing adequate healthcare.

Nearly 60 percent of soldiers experienced combat-related traumatic events, 36 percent experienced stressors as civilians, and 17 percent reported sexual harassment during their most recent deployment. Experiencing at least one civilian stressor along with sexual harassment was associated with higher odds of newly developing an alcohol use disorder. Combat and post-combat stressors were only marginally associated.

The study spotlights the significant challenges of transitioning back into civilian life for reservists. “Exposure to the traumatic event itself has an important effect on mental health in the short-term, but what defines long-term mental health problems is having to deal with a lot of daily life difficulties that arise in the aftermath—when soldiers come home,” says Dr. Cerdá.

Additionally, members of the National Guard do not have the same access to services as regular military personnel when they return home. “Guardsmen who return home need help finding jobs, rebuilding their marriages and families, and reintegrating into their communities. Too many of our warriors fall through the cracks in our system when they return home,” says Dr. Koenen.

Those who had significant exposure to the events of September 11, 2001, reported highly elevated levels of binge drinking five and six years after the attacks, according to a new study by researchers at Columbia University’s Department of Epidemiology at the Mailman School of Public Health, Columbia’s Department of Psychiatry, and the New York City Department of Health and Mental Hygiene. Among the authors are Dr. Deborah Hasin, professor of epidemiology in psychiatry, Dr. Steven Stellman, professor of clinical epidemiology and research director for the New York City Department of Health’s World Trade Center Health Registry, and Dr. Katherine Keyes, assistant professor of epidemiology. The study adds to previous research that has found a relationship between binge drinking and exposure to large-scale disasters.

“Our findings are relevant for long-term post-9/11 monitoring and treatment under existing federally funded healthcare services for survivors and responders, and more broadly for psychological and alcohol screening and counseling following a disaster,” says Dr. Stellman.

The researchers looked at the drinking habits of 41,284 individuals from the registry who were at or near the World Trade Center during and after the terrorist attacks on September 11. This included workers and volunteers involved in rescue, recovery, and cleanup efforts and people who lived, worked, or happened to be near the site.

To determine how exposed an individual was to the attack, the researchers measured the number of attack-related events that a person experienced, such as being in one of the towers when the planes hit, being exposed to the intense dust cloud that formed after the attacks, or sustaining an injury. The research team defined binge drinking as consuming five or more alcoholic drinks on five or more occasions in the last 30 days. Nearly 14 percent of those who had “very high” exposure to 9/11 reported binge drinking, as did nearly 10 percent of those with “high” exposure. Of people who had “medium” exposure, 7.5 percent reported binge drinking, while 4.4 percent of those with “low” exposure did.

The study also looked at the relationship between frequent binge drinking and post-traumatic stress disorder, or PTSD, after the attacks. Rates of binge drinking were significantly elevated in people with PTSD, at 14.8 percent, over people without PTSD, at 6.3 percent. The researchers excluded all people who had been medically diagnosed with PTSD before the attacks.

Past research has found an elevated use of alcohol among populations exposed to the Oklahoma City bombing and Hurricane Katrina. “Many studies have shown a relationship between adult trauma and drinking outcomes, but the present study contributes important new information by showing that the relationship between a major trauma and drinking persists over many years,” says Dr. Hasin.

Dr. Stellman adds that the 9/11 registry “has a program of actively referring enrollees to healthcare services that could serve as a model for future disasters.”


the2x2project.org
2x2.ph/binge-drinking-911
Most people know that avoiding smoking and engaging in physical activity are beneficial to health, but the benefits are not necessarily easy to quantify. A new study provides estimates for how many years of life are lost to smoking, physical inactivity, and obesity. The number is anywhere from two to 14 years. Dr. Luisa N. Borrell, an adjunct faculty member in the Department of Epidemiology at Columbia’s Mailman School of Public Health and a professor in the Department of Health Sciences at Lehman College’s School of Health Sciences, Health Services and Nursing, authored the study, which was published in the Annals of Epidemiology.

Dr. Borrell analyzed data from the federal government’s National Health and Nutrition Examination Survey, which collects health measures from a representative sample of Americans. Participants answer questions about their smoking habits and physical activity levels and have their weight and height measured.

Twenty-nine percent of adults in the study group report currently smoking, 25.7 percent report being former smokers—defined as having smoked at least 100 cigarettes in their lives, and 45 percent do not smoke. Thirty-nine percent report being “physically inactive”—which means engaging in zero to one form of exercise or sports per week, 30.1 percent are “infrequently inactive”—which means they engage in between one to five activities, and 30.9 percent are “active”—engaging in five or more physical activities per week.

The study looked at whether people fit into multiple categories, such as those who are current smokers, physically inactive, and obese—2.7 percent of the study group. Current smokers who are physically inactive and overweight represented 3.5 percent of the people surveyed, and current smokers of normal weight who engage in no physical activity made up 5.9 percent. Those who report never smoking, regular physical activity, and normal weight made up 7.6 percent of the group.

For years of life lost, the worst off, as might be expected, were those who currently smoke, are physically inactive, and are obese. They died on average 14.2 years earlier from all causes of death than those who never smoked, are physically active, and are normal weight. Current smokers of normal weight who aren’t physically active lost nearly 10 years. The study also isolated cardiovascular disease as a cause of death, which strongly correlated with smoking, physical inactivity, and obesity.

The results bolster a 2009 study that suggested that the obesity epidemic could erase gains in years of lifetime, which came from the decline in the prevalence of smoking over the last 40 years. “The joint effects of smoking, physical inactivity, and overweight or obesity on advancing all-cause and cardiovascular disease-specific deaths among U.S. adults could have serious public health implications,” says Dr. Borrell.

“While a lot of attention has been paid to the effects of smoking over the years and of obesity recently, physical inactivity should not be neglected,” she adds. “Programs should be developed to prevent and monitor these health risk factors, especially in the adolescents and young adults, as singly or together they are associated with most chronic diseases in the U.S. population.”

This dot graph shows the average number of years death is advanced due to the joint effects of smoking, physical inactivity, and obesity. Along the y-axis is the rate advancement period, or the average number of years death is advanced, ranging from 0 to 18 years. Along the x-axis are categories that represent the different joint effects of smoking, physical inactivity and obesity. Those who currently smoke, are physically inactive, and are obese die on average 14.2 years earlier from all causes of death than those who never smoked, are physically active, and are normal weight. Current smokers of normal weight who are not physically die almost 10 years earlier.


Originally published on the GRAPH website, at cugraph.org
A federal program that put money toward making it safer for children to walk or bike to school saved money and lives in New York City, according to a study from the Columbia Mailman School of Public Health’s Dr. Charles DiMaggio, associate professor of epidemiology; Dr. Guohua Li, Finster Professor of Anesthesiology and Epidemiology; and Dr. Peter Muennig, associate professor of health policy and management, who was lead author.

Between 2005 and 2012, the Safe Routes to School Program gave $1.1 billion for states to make roadway modifications around schools. New York City transportation officials used the funds to narrow intersections by building out sidewalks, set off dedicated bike lanes, install speed bumps, and program lights so pedestrians have more time to cross the streets. These improvements led to $230 million in cost savings as a result of a decline in pedestrian injuries and deaths and less money going into busing students. The authors did not include other sources of savings, such as reductions in pollution, traffic congestion, and obesity rates, because they are difficult to quantify. The programs also saved an estimated 2,055 quality-adjusted years of life.

The study is particularly rigorous because the investigators had data on census tracts before, during, and after the modifications were made, which are usually not available.

The success of Safe Routes suggests that interventions such as urban reengineering, which aim to protect the public from harm by creating a safer environment, can be more effective than education campaigns that rely on individuals to protect themselves. “Public health practitioners have moved beyond initiatives that require actions on the part of the public, such as health education campaigns, and onto innovative approaches to public health,” say the investigators.

The federal Safe Routes program lost dedicated funding in 2012 and now falls under a larger umbrella of “Transportation Alternatives” that states can choose to fund. “That’s one reason why we think evaluation of safety programs, particularly in terms of cost effectiveness, is so important,” says Dr. DiMaggio. He and his team are hoping to run the same kind of analysis on some of the city’s Vision Zero efforts, and this fall the Mailman School of Public Health plans to hold a research summit on that program.


NYC pedestrian safety program saves $230 million

Study bolsters case for urban reengineering

related media coverage

HealthCanal.com

bit.ly/1kCX33I
Teen sleeplessness piles on risk for obesity

TIM PAUL

Teenagers who don’t get enough sleep may wake up to worse consequences than nodding off during chemistry class. According to new research, risk of being obese by age 21 was 20 percent higher among 16-year-olds who got less than six hours of sleep a night, compared with their peers who slumbered more than eight hours. (The Centers for Disease Control and Prevention recommends nine to ten hours of sleep for teenagers.)

Dr. Shakira Suglia, assistant professor of epidemiology at the Mailman School of Public Health at Columbia University, former MPH in epidemiology student Ms. Seema Kara, and colleagues at the University of North Carolina Gillings School of Public Health are the first to examine the effect of sleeplessness on obesity in teenagers over time, providing the strongest evidence yet that lack of sleep raises risk for an elevated BMI.

Read more about the study http://epi.is/teens-sleep-obese


America’s troubled mental health system

STEPHANIE BERGER

Mental healthcare reform is much needed in our country, and providing better care is one of our greatest challenges, according to Dr. Lloyd Sederer, adjunct professor of epidemiology at the Mailman School, in a paper published in JAMA. Those who suffer from acute mental illness discontinue treatment or never seek services mostly because of the stigma of mental illness or due to bad experiences in the past, according to Dr. Seder and colleagues. In his approach to improve the mental health system he outlines three important questions that need addressing: What is affordable mental health care? How should progress be assessed? What are the essential next steps?

“Providing safe and humane mental health care is a responsibility of our communities and neighborhoods and not for our jails or shelters,” writes Dr. Sederer, who is also medical director of the New York State Office of Mental Health. “In fact, federal and state governments should make it a priority to move patients from the criminal justice system to the treatment system.”

Read more about the study http://epi.is/1qd9a98


Link between inflammation in mother and schizophrenia in offspring

STEPHANIE BERGER

Maternal inflammation as indicated by the presence in maternal blood of early gestational C-reactive protein—an established inflammatory biomarker—appears to be associated with greater risk for schizophrenia in offspring, according to researchers.

“This is the first time that this association has been demonstrated, indicating that an infection or increased inflammation during pregnancy could increase the risk of schizophrenia in the offspring,” said Dr. Alan Brown, professor of epidemiology and psychiatry and senior author. “To the extent that the increased inflammation is due to infection, this work may suggest that approaches aimed at preventing infection may have the potential to reduce risk of schizophrenia.”

Read more about the study http://epi.is/1qd9a98

Gambling with America’s health?

The public health costs of legal gambling

BY ELAINE MEYER

the2x2project.org
2x2.ph/gambling-public-health
First exposed to slot machines at a trade show in Las Vegas in 2007, Stevens became a regular slot player at the Mountaineer Casino, Racetrack, & Resort, about 30 minutes away in Chester, West Virginia. By 2010, he had embezzled $7 million from his employer to gamble, and when they found out, he lost his job. Stevens continued to gamble secretly for the next 10 months, going to Mountaineer nearly every day, drawing money from his family’s savings, his 401(k), and his children’s college fund.

On August 13, 2012, that money ran out. In a suicide note to his wife, he wrote: “I know you don’t believe it, but I love you so much. I have hurt you so much. Our family only has a chance if I’m not around to bring us down any further.” That evening, Stevens asked his 13-year-old daughter to bring him his hunting bag from the attic. He drove to a local park he had helped develop and called 9-1-1. When the sheriffs arrived, he shot himself.

“If it can happen to a guy as smart as he was, then it can happen to anybody,” said Indianapolis attorney Terry Noffsinger in a talk last November at Harvard Law School. Noffsinger, with other attorneys, is representing Stevens’ widow Stacy in a lawsuit filed last month against Mountaineer Casino, its parent company MTR Gaming Group, and slot machine maker International Game Technology, alleging they are liable for her husband’s suicide. The suit accuses both the casino and the slot designer of using predatory and deceptive tactics to profit from people with gambling problems, like Scott Stevens.

“Mountaineer Casino knew, or should have known, that the condition of disordered gambling, especially slot machine addiction, is associated with severe adverse health and other consequences for individuals and their families. Not only are gambling addicts like Scott Stevens liable to literally gamble away everything they own and end up in crippling debt, but also to become suicidal at far higher rates than the general population and even the population of persons addicted to substances such as illegal drugs and alcohol,” the suit states.

Although the suit’s success is not assured—the few other cases in this area have not succeeded—it is part of a growing movement of activists, academics, lawyers,
“This is one of the biggest public health issues in America today that no one has been paying attention to.”

and former gambling addicts who are trying to spotlight the health, economic, and social costs of legal gambling. This group believes the gambling industry preys upon vulnerable people, including low-income individuals, youth, and problem gamblers and that gambling availability is linked to larger societal problems like crime and economic inequality.

For its part, the gambling industry points to a record of funding research into gambling addiction and efforts to educate the public about problem gambling. They maintain that they offer a fun activity that most people can do without serious consequences.

The opening of new gambling venues shows no signs of slowing down, despite the planned closing of four casinos in Atlantic City and financial problems for casinos in other states. Last fall, New Yorkers approved the building of up to seven casinos. Many other states are in various stages of building casinos. Some in the gambling industry are trying to legalize online gambling, which is currently allowed in only three states, Nevada, New Jersey, and Delaware.

A debate over the social and health costs of legal gambling has largely been sidelined even as availability has expanded dramatically in the last 25 years. This is not because of a lack of merit, say experts and activists, but because of the political power of the gambling industry. They allege that the industry has employed tactics in the same spirit as those of tobacco companies, which for many years misled consumers about the addictive properties of cigarettes and advertised to young people and other vulnerable consumers.

According to Les Bernal, the national director of Stop Predatory Gambling, a Washington DC-based nonprofit, “This is one of the biggest public health issues in America today that no one has been paying attention to.”

A few experts predict that as stories of gambling addiction become more common, suits like that of Stacy Stevens will increase and could even succeed, as tobacco lawsuits did. “Ultimately gambling will be linked to the increase in social costs, gambling will be linked to the problems it creates, just like smoking was ultimately linked to cancer,” says Dr. Earl Grinols, a professor of economics at Baylor University. “It can take a while.”

Addictive properties

In the world of gambling, the most addictive property is electronic video gambling machines, often slots, which bring in 70 to 85 percent of the revenue for casinos. In seven states, electronic video terminals are even available in other venues, like restaurants and bars. The machines do not typically have warning labels or cut offs for heavy users. Casinos aggressively market to frequent patrons, giving them complimentary flights, hotels, and other perks. Meanwhile, the success of state voluntary exclusion programs where problem gamblers sign up to ban themselves from casinos is unclear.

Today’s slots are not the old lever-operated “one-armed bandits” but video game-like terminals that keep users playing by deliberate design, according to Dr. Natasha Dow Schüll, an associate professor in the program of science, technology, and society at the Massachusetts Institute of Technology and the author of Addiction by Design: Machine Gambling in Las Vegas. “The particular addictiveness of modern slots has to do with the solitary, continuous, rapid wagering they enable. It is possible to complete a game every three to four seconds, with no delay between one game and the next. Some machine gamblers become so caught up in the rhythm of play that it dampens their awareness of space, time and monetary value,” writes Dr. Schüll in a New York Times commentary.

“A lot of people think it’s a tax on the stupid,” recovering gambling addict Kitty Martz told the Oregonian. “Really, we’re behaving exactly the way the machines want us to.”

The idea that gambling lends itself to addiction like drugs or alcohol has taken some time to be acknowledged. Until the 2013 publication of the fifth edition of the Diagnostic Statistics Manual, or DSM-5, problem gambling was classified as an “impulse control disorder” in the same category as pyromania and kleptomania, even though most clinicians who treated problem gamblers recognized it as an addiction, says Dr. Silvia Martins, an associate professor of epidemiology at the Columbia University Mailman School of Public Health.

These gamblers exhibit many of the
same problems as other addicts. “Everything you see with substance abuse you can make an analogy to gambling problems,” Dr. Martins says, citing family strife, financial hardship, and struggles with depression or anxiety.

“Give your dreams a chance”

To gamble legally 40 years ago, one had to travel to Nevada, go to a racetrack, or live in one of the handful of states that offered lotteries. In most towns, the closest one came to a betting game was playing charitable Bingo at church. Video slot machines had not yet come to market.

For most Americans today, a casino is just a car ride away. There are about 1,400 of them in 39 states, and 43 states sponsor lotteries with games that are recognizable even to non-gamblers, like Mega Millions, Powerball, Pick 10, and instant scratch off tickets. In advertising to citizens, states use slogans like, “Hey you never know,” “Give your dreams a chance,” and “Believe in something bigger.” Hawaii and Utah are the only states that offer no forms of legal gambling.

Casinos represent a substantial part of the nation’s economy and enjoy support from members of both political parties. In 2012, the industry took in $37 billion in gross revenue, employed 332,075 people, paid $13 billion in wages, and contributed $8.6 billion in taxes, according to the American Gaming Association. Many casinos are not just places to play blackjack and slots but to eat or take in live music and comedy acts.

In this environment, gambling addiction is often considered a small cost, one brought upon by the individual unwise gambler. “They think that it’s an easy painless way to raise revenue but they don’t see the other side of it,” says Arnie Wexler. Wexler quit gambling over 45 years ago after a nearly three-decade addiction and has since served as executive director of New Jersey’s Council on Compulsive Gambling. He also runs counseling services for compulsive gamblers with his wife, Sheila.

According to a conservative interpretation of the available research by the National Center for Problem Gambling, 1.1 percent or 3.4 million Americans have a pathological gambling disorder and 2 percent or 6.2 million engage in problem gambling, a less severe form of gambling addiction. (The term problem gambling is often used to refer to both problem and pathological gambling). Internationally, prevalence is as low as .5 percent of the population in Denmark and the Netherlands and as high as 7.6 percent in Hong Kong, according to a 2012 review for the province of Ontario. Though problem gamblers are a minority of visitors to casinos, their spending accounts for anywhere from 35 to 50 percent of the revenues, according to several studies summed up in a paper by the Institute for American Values.

Betting on science

Neuroscientists have found commonalities between the brains of gambling and drug addicted people, like increased impulsivity and lower levels of activity in a region of the brain’s reward system, which leads people to seek bigger and potentially dangerous thrills. But it is not clear from this research when or how someone becomes addicted to gambling.

Compared to other nations, there has been relatively little epidemiologic research on rates of problem gambling in the U.S. The existing studies find that problem gambling increases with proximity to casinos. The federal government’s 1999 National Gambling Impact Study found that areas within 50 miles of a casino had twice as high a rate of problem gambling as those within 250 miles. The presence of a casino within 10 miles of a survey respondent’s home was positively related to problem or pathological gambling, according to a 2004 study by the University of Buffalo’s Research Institute on Addictions published in the Journal of Gambling Studies.

“Basically what we’ve learned is that as with many other kinds of environmental exposures, there typically is an increase in the prevalence rate of problem gambling in the wake of major introductions of new forms of gambling, whether it’s lotteries back in the 1980s and 1990s or casinos in the 1990s and 2000s,” says Dr. Rachel Volberg, a research associate professor of epidemiology at University of Massachusetts at Amherst and a researcher for the Massachusetts Gaming Commission. Dr. Volberg has found that rates of problem gambling began increasing during the most rapid expansion of gambling opportunities in North America and in Australia.

Yet she says problem gambling rates seem to level off after awhile. A study by the Research Institute on Addictions that has not been published yet found that rates of problem gambling did not continue to rise between 2010-2012 despite greater opportunity to gamble. Principal investigator Dr. John Welte, senior research scientist in psychology at the University of Buffalo, says it is not clear why, but he says it could be a result of the economic crisis.

The National Center for Responsible Gambling, or NCRG, is the charitable arm of the gambling industry’s trade association, called the American Gaming Association. NCRG cites a few studies that it says show problem gambling has not risen since the 1970s. After a casino moves in, problem gambling may become more widespread initially, but after a while, people “adapt”—they become more aware of the risks, seek treatment, or simply lose interest, says Christine Reilly, the senior research director of NCRG. This is called an “adaptation effect.”

But prevalence studies do not tell the full story, says Dr. Stephen Q. Shafer, the chairman of the Coalition Against Gambling in New York. “One of the fallacies is that, let’s say you assume that your prevalence statistics are absolutely correct and you show that the prevalence of pathological gambling has not risen. It was, say, five years ago 1.1 percent. Last year it was 1.2 percent. What that forgets is that the prevalence is a pool out of which people move and into which people come, and looking at prevalence compared to time one and time two, you have to account for the people who have recovered, died, moved away.” For instance, a prevalence study conducted in 2008 would have counted Scott Stevens, but one in 2013 would not have.

For this reason, there need to be studies that use more rigorous epidemiologic methods, says Dr. Shafer, who is also a retired professor of medicine and epidemiology at Columbia’s College of Physicians & Surgeons and the Mailman School. He has pushed to get New York State to commission such a study, but the state’s health
Individual disease or public health problem?

Funding for gambling addiction research in the U.S. is about one-twentieth of funding in Australia and Canada, where gambling availability has also risen significantly in the past several decades, according to Dr. Volberg. Within the National Institutes of Health, there is an institute for research on alcohol disorders and an institute for research on drug addiction, but no institute for general addiction. Investigators who study problem gambling typically have to propose to look at it in conjunction with drug or alcohol use in order to win grants.

The NCRG is the only private funder of gambling addiction research in the country. According to Reilly, they fund research by top scientists at universities like Caltech, Duke, and Stanford, which are published in peer-reviewed journals. “We are funding some of the best people in the country, people who will lead us and force the issue at a national level,” says Reilly.

The majority of the NCRG’s funding goes to research based on a “disease model”—which investigates what goes on in the brains of individuals addicted to gambling—rather than the public health model, which looks at how availability affects population rates of problem gambling and potential social costs.

Both the disease model and the public health model “have points of truth, and they’re not mutually exclusive,” says Dr. Welte. But he adds, “If I were the gambling industry, I would want to fund people who had the disease point-of-view...because [they are] putting the source of problem gambling between the ears of the gambler.”

According to Reilly, the disease model is more practical because it can lead to treatments and that it is less prone to the

“They think that it’s an easy painless way to raise revenue but they don’t see the other side of it.”
Funding for gambling addiction research in the U.S. is about one-twentieth of funding in Australia and Canada.

Flaws of survey research. “To me it seems kind of silly to spend time and money on an issue that is extremely difficult to research, because you can’t count on people’s memory,” she says.

But it is not in the gambling industry’s interest to have good research conducted on the social and economic costs of casinos and other forms of gambling, says Dr. Grinols. He points out that the federal government’s 1999 National Gambling Impact Study Commission recommended a moratorium on further gambling expansion until more research could be done on the economic and social costs and benefits. “No research of the type and focus hoped for by the Commission has been forthcoming since. That’s because the gambling industry has done what it could to question these studies and has not itself funded such studies,” says Dr. Grinols. “The whole conclusion of the Commission has been ignored and in fact thwarted by the failure of money to be available for good research.” Dr. John Warren Kindt, a business administration professor at University of Illinois whose research looks at the social and economic costs of gambling, calls what NCRG funds “pabulum research designed not to hurt the gambling industry and to misdirect the debate.” In response to such criticisms, Reilly is adamant that the NCRG has a totally independent review board, which she says mimics the structure of the National Institute of Health and does not interfere in the work of its researchers.

As for self-reporting, there are ways to validate responses. Dr. Robert Williams, a professor of addiction counseling at the University of Lethbridge in Alberta Canada, has compared what respondents report they spend on gambling to actual gambling revenue. He says the more reliable studies are those in which the total of the revenue reported by participants is closer to the total revenue made by the gaming industry. Dr. Williams points out that self-reporting may also underrepresent problem gamblers, who would be more likely to have their phone disconnected.

Growing the economy or exacerbating inequality?

Gambling availability has other public health ramifications beyond addiction. It may exacerbate economic inequality, which has a strong relationship to health. It levies regressive taxes which take a larger share of income from lower than from upper income Americans. If taxes on gambling revenues substitute tax increases on income—which are progressive—the tax structure in a state becomes even more regressive. And those who spend money on certain forms of gambling are more likely to be low income.
There is “a strong positive relationship” between state lottery sales and the poverty rates, according to a 2007 study in the American Journal of Economics and Sociology by economists at Cornell University that looked at data over 10 years. The most typical lottery player is a black, male, high school dropout making less than $10,000 a year, according to a 1999 report to the National Gambling Impact Study commission. Problem gambling is significantly worse in economically disadvantaged areas according to two studies from 2013, one by Dr. Welte and his colleagues and another by Dr. Martins and her colleagues. And the presence of a casino is associated with rises in bankruptcy filings, according to a 2005 study from Creighton University.

While casinos may bring new jobs when they open, most are low-paying service work. The national median wage in the gambling industry is $10.76 per hour. While better than some service jobs, it is less than the $16.87 hourly median wage for all industries, according to 2013 data from the Bureau of Labor Statistics.

And rather than boosting a local economy, casinos often draw business away from other food and entertainment venues. Many casinos are losing patrons to newer competition in neighboring states, straining state budgets and threatening local economies.

When casinos lose money or fail, the repercussions are significant. Delaware is spending hundreds of millions to keep struggling casinos afloat. In Atlantic City, several casinos plan to close by the end of the month, including the Revel, a two-year-old, $2.4 billion casino, entertainment, and conference center that was supposed to buoy the city’s flagging economy. The closures leave thousands of jobless people in a city that already has one of the highest unemployment rates in the country at over 15 percent as of April 2014, a violent crime rate six times the rest of New Jersey, and 29 percent of its population in poverty—a 7 percent increase since 1974, two years before New Jersey voters legalized gambling.

Although these statistics do not prove that the city’s gambling economy caused its problems, they do call into question claims by politicians and developers that casinos are an engine for economic growth. Nevertheless, some New Jersey politicians and business leaders are now talking about opening a new casino—or four—at the Meadowland Sport Complex in Bergen County, New Jersey.

Tribal lands that have casinos have seen improvement in jobs and county-level mortality rates, according to a 2002 study from the National Bureau of Economic Research. Yet these communities still see more bankruptcy, violent crime, and auto thefts and larceny after a casino opens.

Legal gambling is also linked to social problems like rises in crime and risky behavior in youth. Counties where casinos have opened have seen rises in the number of rapes, robberies, aggravated assaults, burglaries, larcenies, and auto thefts, compared with counties without casinos, according to a study by economists Dr. Grinols and Dr. David B. Mustard, which looked at county FBI data from 1977 to 1996.

Because children are now growing up in an environment where gambling is so widely advertised and available, they could be especially vulnerable. Youth are at greater risk for problem gambling than adults, according to a 2007 study from
Two percent or about 750,000 teens ages 14 to 21 described gambling with three or more negative consequences in a national survey by Dr. Welte and colleagues in 2008. Another 11 percent gambled twice or more per week, which is considered frequent. Teen boys who gamble are more likely to become fathers before age 20, especially those who problem gamble, according to a study by Dr. Martins. African-American teens who are problem gamblers are more likely to have sex and get arrested at a younger age than those who don’t gamble. Teens who had depressive symptoms early in adolescence are more likely to have gambling problems later in adolescence, according to another Martins study from 2011.

A “pervasive gambling culture”

Former U.S. Representative Robert Steele has observed the casino economy at work in southeastern Connecticut, the district he represented from 1970-75, which in the early nineties became home to both Foxwoods and Mohegan Sun Casinos. “They became almost instant successes and the two biggest casinos in the world,” says Steele, who has written a novel, The Curse, which is inspired by the story of the two casinos and the tribes behind them. With Atlantic City as their only competition in the Northeast United States, Foxwoods and Mohegan Sun drew about 60 percent of their customers from out of state and created 20,000 jobs.

But soon came problems no one seems to have anticipated. Drunk driving arrests in nearby Norwich more than doubled, and annual calls to the local police department went up fourfold, according to Steele. There was a sharp spike in the number of people who sought treatment for gambling addiction. The rate of embezzlement increased 400 percent, according to a report from the state. Steele’s own tax collector went to prison in 2001 for embezzling money from the town to gamble.

Much of the promised employment was in low-paying service jobs, sometimes part-time and often filled by non-English speaking workers who came from outside the area. This influx put pressure on local housing and social services. The local school system gained 400 children who collectively spoke 31 different primary languages, requiring them to create an “English for speakers of other languages” program. Teachers observed value changes in their students, says Steele. “[They] say, ‘we try to teach the kids the way to succeed in life is through hard work. Then the casino culture comes in and says, ‘you hit it big, you hit the lottery. You hit the payoff.’”

Today, revenue from Connecticut’s casinos is down 35 percent since its high point of 2007. Ultimately, says Steele, who used to have a property abutting Foxwoods, the casinos created a “pervasive gambling culture.” He adds: “the people in southeastern Connecticut were in no way ready for the casinos.”

Citizen action

In Massachusetts, citizens are campaigning to repeal a deal that allows for MGM Resorts International to build an $800 million casino in the economically depressed town of Springfield. “We see this as very much a perpetuation of income inequality, and the implications that income inequality has on public health—that people stay in poverty basically, stay undercompensated. It’s the transfer of wealth from people who don’t have money to people who have abundant resources,” says Steven Abdow, a senior staff member of the Episcopal Diocese of Western Massachusetts. “This would be intentionally bring[ing] in a product that destroys lives.”

Abdow is working on a campaign to oppose the building of an $800 million casino by MGM Resorts International. Once viewed as a way to revive the city’s dwindled fortunes, the casino’s fate is now in jeopardy. In June, a judge ruled in favor of ballot measure that would allow the citizens of Massachusetts to repeal a 2011 law that authorized casinos in the state.

Tyre, New York, is a town of less than 1,000 people 270 miles northwest of New York City. The town’s website boasts of a community that “strives to maintain its rural flavor,” welcoming visitors to stop by and visit the Montezuma National Wildlife Refuge and the Erie Canal. Last December, residents learned that a Rochester-based real estate company called Wilmorite was bidding to open the Lago Resort and

“We see this as very much a perpetuation of income inequality, and the implications that income inequality has on public health.”
Casino on agricultural land, across from an Amish farm.

“I grew up my whole life in this area. A casino certainly is not what you anticipate showing up on your doorstep,” says Jim Dawley, a resident whose property borders the proposed spot.

Dawley and his wife, who own and run a small manufacturing company, and two friends formed an organization called Casino Free Tyre to oppose Wilmorite’s plans. “When everybody knows everybody, a good portion of the people you know are going to be affected—even if not directly—through broken homes, bankruptcy, the whole gamut,” says Dawley.

Over 200 residents have signed a petition against the casino, but members of the town board are supportive of Wilmorite, which is promising multi-million dollar revenues. The Dawleys are not letting up, even though they are new to activism. “This is so far outside of my normal realm, it’s unbelievable. I have a little manufacturing business out in the woods. I’ve been involved in our church and things like that but as far as any political-rooted opposition, this is our first time.”

**Following in the footsteps of tobacco?**

In the court case over the Massachusetts casino deal, an organization called the Public Health Advocacy Institute filed a friend-of-the-court brief that made a public health argument against the gambling industry. “Legalized casino gambling causes devastating effects on the public’s health, including not only the gambler but also their families, neighbors, communities and others with whom they interact,” the brief says. Electronic gambling machines “are designed to addict their customers in a way that is similar to how the tobacco industry formulates its cigarettes to be addictive by manipulating their nicotine levels and other ingredients.”

“Mirroring the tobacco industry’s strategy of creating scientific doubt where none truly exists, the casino industry has co-opted and corrupted scholarship on the effects of gambling through the use of front groups that funnel money to beholden scientists who are able to sanitize its origin,” the brief continues.

“The commercialization of a dangerous product that threatens both individual and public health has been called an ‘industrial epidemic,’” the brief continues, citing a 2007 paper published in the journal *Addiction* by Drs. René I. Jahiel and Thomas F. Babor. This is an epidemic “driven at least in part by corporations and their allies who promote a product that is also a disease agent.”

The brief argues that the citizens of Massachusetts have an interest in regulating gambling the way they have regulated cigarettes.

Given the power of the gambling
industry and the dependence of states on gambling revenues, winning legal damages and regulating availability may presently seem like a pipe dream in the U.S. However, other countries employ harm reduction strategies in casinos to intervene on potential problem gambling, according to a 2011 report from the Cleveland Plain Dealer. In Holland, computers identify anyone who visits a casino more than 15 times a month as having a gambling problem. In the United Kingdom, casinos have to display the odds of winning on slot machines. And in Australia, there are limits on playing speeds and betting amounts.

The underlying principle behind this is articulated by Dr. Williams: “If provincial governments are going to make gambling available to their citizens, then concerted efforts are needed to prevent problem gambling, to effectively treat gambling addiction, and to minimize the amount of gambling revenue that comes from problem gamblers.”

**Little help available**

People with gambling problems tend to elicit little sympathy. They are seen typically as exercising bad judgment when it is known that the “house always wins.” They have often hurt people they are closest to, both financially and emotionally.

Former gambling addicts readily admit to their flaws. But, like most people, they typically started gambling because it was available, entertaining, and provided a potential if unlikely monetary reward.

Catherine Townsend-Lyon began playing video lottery terminals at delis and restaurants near her home in Grant Pass, Oregon, sometime after they were introduced in the 1990s. She became “hooked” to a game called Flush Fever and soon began playing before and after work and during her lunch hour. She lied to her husband about her whereabouts and started secretly gambling their mortgage payments. She stole from the collection company she worked for and sometimes wore bladder control underwear so she wouldn’t have to get up to use the restroom while playing. When she lost money, she played to win it back, and when she won, she played to win more. In an extreme moment, she skipped the funeral of a close friend to drive 40 miles to an Indian casino so she could win enough
money to prevent her home from being foreclosed. Instead, she lost everything. She drove home in tears and slit her wrists. “It’s like a battle you have with yourself with the triggers and the urges and the obsessiveness. You don’t even have to be in action or sitting behind a machine because you’re constantly thinking about: When am I going to gamble? When am I going to win or lose? It just compounds. It’s exhausting. It’s never-ending,” says Townsend-Lyon, who, after seeking treatment several times, has managed to stay away from gambling for the last seven and-a-half years.

Townsend-Lyon says she turned to gambling at a difficult time in her life. With her husband frequently traveling for work, she found herself bored and looking for a way to fill the time. She had undiagnosed bipolar II disorder and had been sexually abused when she was younger but had not been raised to know to seek therapy. “I was a drug person or an alcoholic or anything like that, although I did drink more when I gambled. And because I was gambling, that was my coping skill. That’s what I was using to escape it, those feelings. I couldn’t stuff them away anymore. I would just use gambling to escape, not feel, zone out, you know what I mean?” she says.

She published a book last year about her former life, called Addicted to Dimes (Confessions of a Liar and a Cheat). What troubles her is how easy it is for people in her position to gamble. She didn’t have to fly to Nevada or even drive to a casino in state. The video poker and slot machines she played, which are sponsored by the Oregon State Lottery, are allowed at bars, restaurants, and delis.

“[I]f these machines weren’t in the bars and delis, then I would not be gambling. It’s that simple for me,” says a 33-year-old man quoted in a recent series on the state lottery by the Oregonian. He estimates he has lost $15,000 over 12 years from gambling. “That may sound like an excuse, but ‘out of sight is out of mind.’”

For people who are trying to recover from gambling addiction, it can be difficult to find help. Calls per month to the National Problem Gambling hotline are over two-and-a-half times what they were 14 years ago, from 9,642 in 2000 to 24,475 in 2013, according to Keith Whyte,
I can say without a doubt, gambling has ruined my life.

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As with any kind of addiction, there is no pill for treating problem gambling. Medication and therapy may be used with varying success to treat a related psychiatric illness like depression or bipolar disorder. Moreover, a small number of problem gamblers seek treatment.

For these reasons, a public health approach, which would favor limiting the "exposure" of gambling to prevent addiction from occurring in the first place, is compelling. It is the same as the argument to tighten access to prescription opioids in order to prevent people from becoming hooked.

A disease of society?

At a Gamblers' Anonymous meeting in New York in August, about 65 people, mostly men, are celebrating one member's five-year anniversary of abstaining from gambling. He gets to choose the topic for the night, and he picks "starting over." Other members stand up to say that adhering to the Gamblers' Anonymous program has fundamentally changed them. They have gone from being selfish and unable to make mature decisions to being better spouses, parents, friends, and members of society. They talk about small triumphs, their families, jobs, illnss, and making amends with the people they hurt and stole from during their addiction.

"I think it was known to pretty much everyone in this room that I was an asshole. And I think I have become a decent member of society," says a man in his early 30s who has been abstinent for 10 years. Another man echoes this sentiment. "I was anything but a good citizen," he says. He has been abstinent for over 22 years, but like many others in this room, attends meetings on the Gamblers Anonymous principle that former addicts are always in recovery. "It's not just starting over; we still have to own our past. We have to settle up with people as best we can." When his mom passed away, he says he was grateful that he could access his emotions—not something he could have done in his gambling days.

"I can say without a doubt, gambling has ruined my life," says another member. He has gone to Gamblers' Anonymous for eight years but has had relapses, and it has been 201 days since he last bet. "Abstinence is for real this time."

Compulsive gambling is often viewed as an addiction to money, but Gamblers' Anonymous believes it is an emotional rather than financial disease. The addicted person "wants to escape into the dream world of gambling" and "finds he or she is emotionally comfortable only when 'in action.'" But it doesn't end up being much comfort, say formerly addicted gamblers who speak of how lonely their life was then.

Dr. Bruce K. Alexander, a psychologist and professor emeritus at Simon Fraser University in British Columbia, believes the loneliness experienced by those with gambling and other addictions has a strong social dimension. In his book, The Globalization of Addiction: A Study of the Poverty of the Spirit, he says: "A free-market society is magnificently productive, but it subjects people to irresistible pressures towards individualism and competition, tearing rich and poor alike from the close social and spiritual ties that normally constitute human life. People adapt to their dislocation by finding the best substitutes for a sustaining social and spiritual life that they can, and addiction serves this function all too well," he says.

Bernal of Stop Predatory Gambling believes that our nation's dependence on gambling reveals a deeper civic problem. "What we incentivize as a government shapes the national character," he says. "We look at the greatest generation: we were encouraged Americans to save. Today, half..."
of Americans don’t own any assets.”

Terry Noffsinger, the lawyer for Stacy Stevens, admits that it has not been easy to make the legal public health case against gambling. Neither of the two cases he has represented has won in court, and one even provoked the Seventh Circuit Court of Appeals to threaten to sanction him for filing a frivolous claim. But he says the tide is turning. He has a conference call with a group of lawyers across the country about once a month to discuss the issue. Last November a group of Harvard Law students published a white paper making the case for legal action “to protect problem gamblers from the predatory behavior of casinos, including legislative reforms, tort litigation, regulations, and public policies.”

A couple of well-known trial attorneys have joined him on the Stevens suit, including Sharon Eubanks, who was lead counsel on the U.S. case that ended in a judgment in 2006 that the nation’s big tobacco companies fraudulently covered up the health risks of smoking and marketed to children. The Stevens case also makes product liability claims that the slot machines from which casinos draw so much revenue are intentionally designed, manufactured, and distributed to hurt people. Such claims have never been tried before.

“This is a blockbuster case. There are other cases that are starting to come out of the woodwork. The courts are ready to look more favorably upon addicted gamblers,” says Dr. Kindt of University of Illinois. Dr. Kindt published several academic articles in the early 2000s outlining the legal justification for mega-lawsuits against the gambling industry, similar to those which states, individuals, and classes of people filed against Big Tobacco.

In his Harvard talk, Noffsinger said he has had 100 or more people call him for help, many suicidal, nearly all of whom he has had to decline to represent. One of the calls came several years ago from a Boeing employee in Seattle who begged him for legal assistance. She had lost all of her money gambling, sold all of her furniture, and was ready to end it all. When Noffsinger told her he couldn’t represent her, she said she had nothing left to live for. Alarmd, he referred her to a lawyer friend in Seattle who found her counseling. About a year ago, she called Noffsinger and thanked him for saving her life.

“Somebody needs to do something…it may not be me.” Noffsinger told the Harvard students. “It’s going to be an uphill battle, but at the top there’s going to be a great big flag to wave.”
Fully loaded

BY KATHLEEN BACHYNSKI, PHD CANDIDATE

the2x2project.org
2x2.ph/gun-violence-public-health

The politics of framing gun violence as a public health issue
It took only 11 minutes to transform a quiet elementary school into the scene of one of the deadliest school shootings in U.S. history. On December 14, 2012, Adam Lanza entered Sandy Hook Elementary with a Bushmaster Model XM15-E2S semiautomatic rifle. He used the weapon to murder twenty school children and six adults. One state trooper warned the medical personnel who arrived at the school to formally declare the victims dead: “This will be the worst day of your life.”

The Sandy Hook shootings prompted an outpouring of national grief and outrage. Yet sadly, this tragedy—while especially shocking and visible—only represents the tip of the iceberg when it comes to deaths from gun violence. Every day in the U.S., friends and family must make funeral preparations for an average of 86 people who were intentionally or unintentionally killed with a firearm.

If measles or mumps killed 31,672 people a year, we would undoubtedly consider the situation to be a public health emergency. And indeed, gun violence shares many characteristics with other widespread safety threats that have been framed as public health issues.

In a Q-and-A published in a 2008 book, The Contested Boundaries of American Public Health, epidemiologist Dr. Mark Rosenberg recalls early efforts to frame gun violence as a public health issue in the 1980s. Finding that the burden of deaths from guns was similar to those of cars, he realized that gun violence was an area where public health could “make a big contribution and save lives by applying the same kind of science that had been applied to road traffic crashes.”

Indeed, like motor vehicle deaths, gun fatalities result from a consumer product that is integral to many Americans’ lives. And both cars and guns can be made safer with technology and engineering—air bags in cars and loading indicators for guns.

But efforts to frame gun violence as a public health challenge have met with considerable resistance, most notably from gun lobby groups, such as the National Rifle Association.

Lobbying powerfully against a public health perspective

The NRA is a powerful force in American political life that attracts many supporters, not only with its ideological positions, but with its message of self-empowerment. And the organization has long and vociferously opposed the framing of gun violence as a public health issue, portraying research on the subject as biased and misguided. For instance, the NRA’s chief lobbyist, Chris Cox, told the New York Times that the U.S. Centers for Disease Control and Prevention had a “lukewarm” approach to gun violence research.

Read more from the 2x2 project’s Gun Week series

- Guns and public health in the crosshairs
  2x2.ph/gunweek
- Mental health is the wrong target for preventing gun violence
  2x2.ph/guns-mental-health
- PopAds: Advocacy groups pack heat with ads
  2x2.ph/gun-ads
- Racial recoil
  2x2.ph/race-guns
- Gun violence in Chicago is indicative of a national public health crisis
  2x2.ph/Chicago-guns
Control and Prevention was guilty of publishing “political opinion masquerading as medical science.”

The NRA has worked to translate their objections into policies that circumscribe public health research on the effects of gun violence. In the mid-1990s, after a failed campaign to eliminate the CDC’s National Center for Injury Prevention, gun lobbyists helped persuade Congress to include language in its budget stating that “none of the funds made available for injury prevention and control at the Centers for Disease Control and Prevention may be used to advocate or promote gun control.”

Despite this limitation, the agency has since developed other mechanisms to study causes of violent deaths, notably the National Violence Reporting System. But to this day, the CDC’s funding level for research explicitly devoted to gun violence prevention remains at zero dollars. Due to fears of getting attacked by the NRA, many foundations have avoided funding such research, according to Dr. David Hemenway, director of the Harvard Injury Control Research Center and a professor of health policy at the Harvard School of Public Health. “It’s one of the reasons that there’s been relatively little gun research compared to other research in public health,” Dr. Hemenway says.

More recently, the NRA succeeded in adding a provision into the Affordable Care Act to limit doctors’ ability to gather data about their patients’ gun use. The Washington Post dubbed this provision “a largely overlooked but significant challenge to a movement in American medicine to treat firearms as a matter of public health.”

Then, in 2011, Florida Governor Rick Scott signed into law a “docs vs glocks” bill, which banned physicians from asking their patients about gun ownership. In 2012, a federal judge permanently blocked this NRA-backed law because it violated the First Amendment rights of doctors. Nonetheless, such laws and provisions indicate the extent to which policymakers have attempted to limit medical and public health conversations and research on gun safety.

Shifting a heated debate

Despite this already remarkable influence in setting and limiting the terms of public health research, this year the NRA has wielded its power in an extraordinary new way by obstructing President Obama’s nomination of Dr. Vivek Murthy as U.S. Surgeon General. The organization opposed Dr. Murthy’s characterization of gun control as a health issue and his support of regulatory measures, such as mandatory safety training for gun owners.

But by blocking Dr. Murthy’s...
Years of potential life lost due to firearm-related homicide and suicide by race

This bar chart shows the potential years of life lost by race and sex from firearm-related homicide and suicide. Along the Y-axis is years of potential life lost per 100,000 people. The y-axis ranges from 0 to 1,400 for men and ranges from 0 to 140 for women. Non-Hispanic blacks lose more years of life every year from guns in the hands of others while non-Hispanic whites lose more years of life from guns in their own hands. This is true for men and women.


Originally published on the GRAPH website, at cugraph.org
nomination, the NRA prompted prominent medical and public health voices to take a stand. In a remarkable op-ed, the *New England Journal of Medicine* stated that “the NRA is taking its single-issue political blackmail to a new level.” And in April 2014, Michael Bloomberg took a bold step into the ongoing debate, announcing that he would donate $50 million of his own money to counter the NRA.

The New York Times described how Bloomberg intends to restructure current gun control advocacy efforts to more effectively counter the NRA. Part of the idea is to combine forces and model advocacy efforts on the success of other safety-related groups, notably Mothers Against Drunk Driving. The resulting new group, Everytown For Gun Safety, has already produced an ad that directly challenges claims made by the NRA.

Whether these new strategies and influx of money can effectively promote a public health perspective on gun violence and safety interventions remains an open question with high stakes. In fact, even after the Sandy Hook shootings of 2012, many states have been loosening their gun restrictions. Georgia, one of the most prominent and recent examples of this trend, recently passed into law a bill that allows licensed gun owners to carry their weapons in schools, churches, bars, and airports. The public is often unaware of the extent to which gun owners may legally carry and display their weapons in public spaces across the country.

**American values and valuing American public health**

What policy changes do gun safety advocates seek? A recent Massachusetts report identified 44 strategies to reduce gun violence that all committee members, including public health professionals and gun owners, endorsed. Of the range of possible strategies to reduce gun violence, strengthening the existing background check system has the most public support.

In fact, although the NRA as an organization does not support universal background checks, a 2013 poll found support among 74 percent of NRA members.

This approach is also supported by public health research. As reported by Nora Caplan-Bricker in *The New Republic*, a 2014 study found that the murder rate in Missouri jumped 16 percent after the repeal of a state law that required anyone purchasing a handgun to obtain a background check permit.

Safe storage practices and more safely designed guns would also likely make an impact on reducing the number of unintentional gun deaths among young children. As Dr. Hemenway told WBUR’s All Things Considered, “We have childproof aspirin bottles; we should have childproof guns.”

Yet entrepreneurs seeking to market and sell “smart guns,” or weapons which can only be fired by authorized users, have encountered harassment and outrage from gun enthusiasts. This month, a Maryland gun dealer who had intended to sell the nation’s first smart gun backed down after enduring protests and death threats. And fewer than 20 states have enacted laws to hold adults criminally liable if they fail to safely store their guns, putting children at risk.

Former U.S. Surgeon General Dr. Julius Richmond and medical economist Dr. Rashi Fein have proposed three essential factors involved in addressing a societal problem: scientific data, a social strategy guiding the pursuit of public health goals, and political will. Public health researchers have sought to collect data on the effects of gun violence despite the obstacles, and gun safety advocates are currently seeking new strategies.

But ultimately, it seems that whether gun violence can be framed as a public health problem will come down to political will.

**Update:** On July 25, 2014, two judges on the 11th U.S. Circuit Court of Appeals overturned the previous ruling on Florida’s “doc vs. glocks” bill. The court has upheld the law prohibiting doctors from asking patients about guns as constitutional. Consequently, as Slate writer Mark Joseph Stern comments: “For asking a patient a question that could save his child’s life, a doctor in Florida could lose her medical license or be fined $10,000.”
Searching for the cause of a mysterious epidemic a century ago

A lesson from history shows how epidemiology can get it right—or wrong

BY STEVE MOONEY, PHD CANDIDATE
JUSTIN KNOX, PHD CANDIDATE
ALFREDO MORABIA, PHD
n the period from 1906 to 1940, a disease once seen only in Europe reached epidemic proportions in the American South, resulting in over 3 million cases of infection and 100,000 deaths. This disease was pellagra, an ailment marked initially by dry, scaly skin sores on the neck, arms, and legs, and by diarrhea. It could sometimes progress to dementia and even death. Pellagra struck hardest among the very poor, blacks, and women.

At the time of this epidemic, the disease’s cause was unknown. Some health authorities suspected an as-yet unidentified bacterium or virus that thrived in the squalid living conditions of the poor, whereas others believed it was caused by the monotonous and corn-heavy diet.

In 1912, two northern industrialists-turned-philanthropists concerned with public health funded a large-scale pellagra investigation named the Thompson-McFadden Commission—a Gates Foundation of the progressive era, albeit smaller and focused on one issue). The Thompson-McFadden Commission explored both the dietary and infectious hypotheses among six relatively isolated towns in South Carolina where many pellagra cases were reported and the sole employer was a cotton mill. To investigate diet, the commission asked all residents, both with and without diagnosed pellagra, what they usually ate. To investigate infection, they classified every house according to its distance to a previously confirmed pellagra case and compared incidence rates between those close to prior cases and those farther away.

From the survey results, the Commission dismissed the dietary hypothesis, finding that most food types, including meat, eggs, and corn, had no association with pellagra—choosing to ignore pellagra cases who claimed to drink milk frequently. They noted that unlike beriberi, a known dietary disease, pellagra was almost never found among nursing infants. In contrast, the zone analysis yielded a striking clustering of pellagra cases in all six villages. Furthermore, villages with modern sewers had less pellagra than villages that relied on outhouses. Backed by this evidence, the Thompson-McFadden Commission concluded that the disease was caused by an infectious agent rather than diet, although they were unable to identify a bacterium or virus.

The epidemic proceeded unabated, driving Congress to appropriate funding for another major investigation. Dr. Joseph Goldberger, an officer of the U.S. Public Health Service, was appointed to lead the investigation and immediately noticed several details from previous studies that conflicted with the Thompson-McFadden Commission’s conclusions that pellagra was infectious. For one, outbreaks never affected the staff of institutions that
housed infected patients. Most outbreaks occurred in the late spring, before summer crops had been harvested. Pellagra cases occurred among individuals with a calorically adequate—albeit monotonous—diet, similar to beriberi and scurvy, another disease caused by nutritional deficiency. Additionally, while pellagra was associated with poverty, it rarely affected poor farmers with cattle.

Dr. Goldberger conducted several small-scale investigations in institutions such as orphanages and asylums, where diet could be tightly controlled. While the results of these investigations supported the dietary hypothesis, they were dismissed by critics as applying only in highly selected populations. Undaunted, Dr. Goldberger decided to follow-up on the Thompson-McFadden Commission’s study by undertaking another study in an overlapping set of cotton-mill villages. However, Dr. Goldberger’s study featured two notable differences.

First, to increase accuracy in measuring villagers’ diets, Dr. Goldberger relied not only on survey results of villagers but also on sales records from the company stores that were the predominant sources of food in cotton-mill villages. Second, Dr. Goldberger also selected a more geographically diverse set of cotton-mill villages than the Thompson-McFadden Commission had, allowing him to assess a broader range of dietary and sanitary environments.

In his study, Dr. Goldberger found an overall association between poor diet and pellagra, but was unable to identify a single food or food category that was present in all non-pellagrous households and missing in all pellagrous households. Furthermore, because poverty was the reason villagers had a poor diet and lived in squalid conditions where infectious agents could proliferate, it was still difficult to affirm the dietary hypotheses conclusively.

To disentangle the effects of poverty and poor diet, Dr. Goldberger decided to integrate assessment of both household and village influences on diet in an early form of multi-level epidemiologic analysis. Goldberger compared the food environment of a village with high incidence of pellagra, Inman Mills, to one with only a single case, Newry. Inman Mills had a company store with little fresh food and almost no nearby farms, whereas Newry had a well-stocked store and a wealth of nearby farmers selling food in town. Household-level purchase records confirmed far more fresh meat and milk in Newry diets, even among the poorest residents.

From these findings, Dr. Goldberger wove a narrative highlighting the role of diet in explaining pellagra variation through multiple levels of analysis, making an analogy to beriberi. Women and children had pellagra at higher rates because of a dinner table hierarchy that privileged men. Men also could supplement their diet while working outside the home. Pellagra was more common among the poor because income determined both ability to purchase high-quality food and portion sizes of those foods. One’s village also determined access to food. Furthermore,
changes in the southern economy, which included a transition from primarily growing food that was sold in local markets to growing cotton, had led to large-scale dietary changes privileging corn and hog products over more varied meats and garden vegetables.

Although the cotton mill village study fully convinced Dr. Goldberger that pellagra was a disease caused by dietary deficiencies, political obstacles remained. Dr. Goldberger turned his attentions to finding an agent that could prevent pellagra, eventually, discovering brewer’s yeast, which was cheap and readily available. The discovery helped prevent pellagra in lower Mississippi after a 1927 flood, but Dr. Goldberger died in 1929 at age 54 of kidney cancer before he could figure out why brewer’s yeast prevented pellagra.

That did not occur until nearly 20 years after the cotton mill village studies and eight years after the death of Dr. Goldberger, when Drs. Conrad Elvehjem and Carl J. Koehn identified a deficiency of nicotinic acid—later renamed niacin or vitamin B3—as the cause of pellagra. The mill villages, with their lack of access to nutritious food, were like early examples of food deserts. Niacin supplementation of flour became widespread in the early 1940s, and pellagra was fully eradicated by 1945.

Why did the Thompson-McFadden Commission, a well-funded, well-intentioned, and professionally run study, fail where Dr. Goldberger succeeded?

For one, the Thompson-McFadden Commission’s survey of diets was not as accurate or comprehensive as Dr. Goldberger’s, which supplemented the survey with company store records. Second, Dr. Goldberger’s decision to compare both households and villages allowed him to make contrasts the Commission could not. Finally, the Thompson-McFadden Commission selectively ignored inconvenient facts, such as the evidence that milk was associated with pellagra, and that the apparent clustering of cases in households and in the poorest parts of the villages did not prove their hypothesis.

In an era in which epidemiology is being challenged to renew its focus on public health and is besieged with potential keys to insight from genomics, proteomics, metabolomics, and microbiomics, it is important to remember that the thorough data collection and development of rigorous study designs, which Dr. Goldberger used nearly 100 years ago, are still the fundamental building blocks of our science.

This article was based on a paper published by the authors.

Bring surgery into the global health agenda

Dearth of surgical services available in many parts of the world

BY AMBEREEN SLEEMI, MS ’15
In Mendefera, Eritrea, I am part of a small team of visiting surgeons who work with and train local surgeons to care for women with severe maternal birth trauma. This trauma is almost always the result of lack of access to emergency obstetric care, primarily a cesarean delivery. The women we care for, like Elsa, who labored at home for two to three days before her family could bring her to the hospital, are mostly poor.

In most cases, the baby dies, but the agonies of childbirth in a resource-deprived setting do not end there. Prolonged labor, usually treated by a cesarean delivery, causes severe damage to the vaginal birth canal, resulting in damaged tissue that sloughs off, leaving holes between the bladder and vagina, and sometimes, between the rectum and vagina.

After her ordeal, Elsa sustained nerve damage. She constantly leaked urine, and was plagued by a sense of shame and embarrassment. Our team operated successfully, and Elsa recovered fully, returning home to her family with a restored sense of confidence.

Surgical procedures that we often take for granted in wealthy countries are key to preventing or repairing damages that in low and middle-income countries would be both devastating and permanently life altering. Despite their profound implications, access to surgeries like the one our team performed on Elsa remains effectively absent from the global public health agenda.

**The neglected stepchild of global public health**

In 2008, Dr. Paul Farmer and Dr. Jim Kim wrote a definitive article on the role of surgery as the “neglected stepchild of global public health.” Drs. Farmer and Kim emphasize that an alarming lack of physicians in low-resource areas is eclipsed by the lack of surgeons, who remain concentrated in large urban centers, resulting in many days of travel for the rural poor.

On the international global health agenda sit many diseases and conditions that are treatable by surgical procedures, namely maternal hemorrhage, obstructed labor, motor-vehicle accidents, blindness, and traumatic farm accidents.

Over 250,000 women die annually in childbirth. Life-threatening maternal conditions relieved by surgery include cesarean delivery to treat obstructed labor, potentially saving the lives of both mother and child, and hysterectomy, or removal of the uterus, which can arrest severe maternal hemorrhage and prevent a mother’s death.

If a mother survives obstructed labor and/or hemorrhage, the lasting sequelae are vast—weakness, severe anemia, infertility, and neurologic trauma resulting in chronic pain or difficulty walking, resulting in a condition called “footdrop.” These conditions can hinder both a family’s nuclear and economic development. Other complications such as chronic urinary or fecal incontinence are conditions that potentially can be treated by surgical interventions, and can literally give a woman her life back.

Among the very poor in low-income countries, motor vehicle and farm accidents, blindness caused by cataracts or glaucoma, and peritonitis are conditions surgically treatable. Surgical conditions account for up
A patient undergoes obstetric fistula repair at Haiti’s National hospital.

To 15 percent of total disability adjusted life years (DALYs) lost globally. Pediatric conditions that can be treated with evidence-based procedures that are safe and effective, such as congenital cleft-lip and palate, cardiac disease due to infection or birth defects, and clubfoot, are left to develop into tremendous burdens on the individuals, the families and the communities that care for those affected. The loss of productivity of our world’s bottom billion is of paramount consideration.

The great divide

In addition to the dearth of surgical services available, another axis of inequality exists. Most surgical services are found in urban environments and reserved for those who can pay for them. In Haiti, for example, an early study showed that the rate of cesarean deliveries in rural areas was almost non-existent, but among the wealthy, the rates rivaled those of the U.S. At this time, the maternal mortality rate was 1,400 per 100,000 live births. It was not until 2007 that the Haitian central district health commissioner announced that all emergency obstetric services would be free of charge. There still remain staggering numbers of people without access to treatment for trauma services, emergency abdominal conditions such as ruptured appendices, intestinal obstruction and other potential fatal conditions.

There is no global funder or organization that focuses on the inequity of surgical care. No major donors have proclaimed a willingness to acknowledge surgery as a global health crisis. Surgery is not included in any of the United Nations’ 2015 Millennium Development Goals, but seems key to achieving three, four, and five: promoting gender equality, reducing child mortality and improving maternal health, as noted previously.

Injuries and insults

Some experts contend that much of this neglect is due to common misconceptions about surgical interventions. Many think surgical care can only address a small portion of the global disease burden. Still, surgery is often the only means to address injury, which according to the World Health Organization’s 2002 Injury Chart Book, kills more than 5 million people worldwide annually.
There is no global funder or organization that focuses on the inequity of surgical care. No major donors have proclaimed a willingness to acknowledge surgery as global health crisis.

Many victims are the primary household earners and almost 50 percent of the injuries occur in 15-44 year olds, which is the most economically productive portion of the population. Similarly, a significant proportion of congenital anomalies and obstetric conditions, which together are responsible for over 600,000 deaths annually worldwide, can be treated surgically and avert many thousands of deaths from these conditions.

Cost effectiveness
Another misconception is that surgical care is cost-prohibitive to implement widely. Surgery is seen as a highly technical discipline that requires an abundance of specialized equipment. While that may be true in some cases, surgery can also be cost-effective when compared to some common non-surgical public-health interventions. For example, the cost for emergency obstetric care in Bangladesh is approximately 11 dollars per disability-adjusted year averted and over 32 dollars per disability-adjusted year averted in Sierra Leone. These figures are comparable to common public health interventions like vitamin A distribution, which is 9 dollars per disability-adjusted year averted, and measles immunization, which is 30 dollars per disability-adjusted year averted.

Dr. Adam Kushner, co-founder of Surgeons Overseas, recently stressed that there needs to be a surgical component to the health system. “We’re not talking about going in and doing a single operation, but setting up surgical care for the entire population and that requires the appropriate personnel, infrastructure, equipment, supplies and training,” Dr. Kushner says.

Sustainability
Finally, in the context of low-resource settings, global surgery usually takes the form of short-term surgical mission trips, contributing to a kind of patchwork aid, which is the object of criticism. The role that these trips play is one that may be beneficial but cannot substitute for a nation’s ability to invest in the long-term development of a medical infrastructure that sustains surgical capacity. Such health infrastructure must not only provide care for the entire population, including the most marginalized and vulnerable, but also commit to staff development and training of its future healthcare workforce with medical and nursing schools and post-graduate training. Drs. Farmer and Kim encourage us to not abandon the short-term surgical trips, but to do them better, by integrating them into broader public health efforts.

Uniting and paying it forward
The role of surgery needs to be recognized as integral to the broader goal of global public health initiatives to build a sustainable health care delivery system that improves health and supports its ability to meet population demands. A recent survey evaluated the basic infrastructure of hospitals and health centers in five countries in sub-Saharan Africa and the ability to provide the most basic emergency and surgical care. None of the over 2,000 surveyed hospital or health facilities met the minimum requirements of infrastructure that the WHO has deemed essential for the provision for emergency and surgical care, from electricity and infection control to quality assurance and supervision of providers. The authors urge donors and organizations to recognize the need for investment in strengthening infrastructure, much like efforts to stem HIV. In this way, the global community pays it forward, and in the end, as with HIV, cost effectiveness will be achieved.

While surgery may be thought of as the ultimate individual intervention, it is indeed a public health issue. As Dr. Ray Price, of the University of Utah, a practicing surgeon in the U.S. and in low-middle income countries states, “We need to put the surgical language in an understandable language of our public health colleagues.” And as Drs. Farmer and Kim note, the global health need can be met with a collaborative approach to “build a coherent movement that comes to include surgery.”

Isn’t it time we all sat at the table together, even if it hurts just a bit? Lives like those of Elsa depend on it.
‘A hopelessly prevention-oriented guy’

Alumnus Sten Vermund honored for global health work

BY ELAINE MEYER

As a pediatrician-in-training in 1970s New York City, Sten Vermund, MPhil ’87, PhD ’90, became interested in a career in public health after observing that many of the medical conditions he saw in patients were preventable.

Forty years later, Dr. Vermund is a leading figure in HIV and cancer prevention for women and children. As director of Vanderbilt University’s Institute of Global Health and in prior roles, he has worked nationally and abroad to build a health-care infrastructure based upon his early ideals of prevention.

“I am a hopelessly prevention-oriented guy,” he says. “I’m so inspired when we can avoid illness altogether.”

Dr. Vermund is this year’s winner of the Mailman School of Public Health’s Allan Rosenfield Alumni Award. The award is given in honor of the late Dr. Allan Rosenfield, who served as dean of the school from 1986 to 2008, to recognize the achievements and leadership of outstanding alumni in the field of public health.

“[Dr. Vermund’s] work has played a vital role in steadily improving programs to prevent mother-to-infant transmission of HIV in diverse venues,” the Mailman School said in a statement announcing the award.
In addition to being a major figure in global health and HIV/AIDS research, Dr. Vermund counts as his former students the current head of the U.S. Centers for Disease Control and Prevention and prior Rosenfield awardee Dr. Thomas Frieden; MacArthur Fellow Dr. Wafaa El-Sadr who is also director of the global health center ICAP and University Professor of medicine and epidemiology at Columbia’s Mailman School of Public Health; and the renowned HIV researcher, Dr. Salim Abdool-Karim, director of the Centre for the AIDS Programme of Research in South Africa and professor of epidemiology at the Mailman School, also a prior Rosenfield awardee.

Raised in Madison, Wisconsin, to parents who emigrated from Norway, Dr. Vermund became interested in global health while he was an undergraduate at Stanford University. His professors included renowned anthropologist Dr. Jane Goodall and biologist Dr. Colin Pittendrigh. During college, he read and became inspired by Dr. Albert Schweitzer’s autobiographical trilogy about going to Gabon, one of the poorest countries in the world, and U.S. Navy physician Dr. Tom Dooley’s autobiographical story about going to Laos after his Southeast Asian military service to build a primary care system.

After graduating, Dr. Vermund moved across the country to New York City to attend medical school at the Albert Einstein College of Medicine in the Bronx. It was there that he met his wife, Dr. Pilar Vargas, a child psychiatrist, when they were paired in histology lab—an “alphabetical romance,” he jokes.

While he did his internship and residency in pediatrics at what was then the Babies Hospital of Columbia-Presbyterian Medical Center (now the New York-Presbyterian/Morgan Stanley Children’s Hospital), he decided that he did not want to take a traditional career path: “I felt the impact of my workday might be greater if I were focused on global health issues and health disparity issues in my own backyard. I’m a big fan of pediatricians-in-practice, but it wasn’t my calling.”

During his residency and internship, he became aware of the importance of geography and environment on health. He saw Dominican-origin patients who came to him with parasites and other health conditions not commonly seen in a U.S. practice, and he benefited from the mentorship of Drs. Michael Katz, Dickson Despommiers, and Philip D’Alesandro in the tropical medicine group of the Mailman School of Public Health.

“He was a wonderful person to have on the staff. Everybody liked him. He was very effective, and he was wonderfully naïve—meaning that he was open to all new ideas before he formed his own judgment. It was a beautiful example of maturity,” says Dr. Katz, then chairman of the department of pediatrics at Columbia and director of the residency program and currently senior advisor of transdisciplinary research at the March of Dimes Foundation.

At the end of his residency, Dr. Vermund and his wife moved to England where he earned a master’s degree in community health in developing countries at the London School of Hygiene & Tropical Medicine.

After a stint as a visiting researcher at the CDC’s labs in San Juan studying schistosomiasis, a parasitic worm, with Dr. Ernesto Ruiz-Tiben, Dr. Vermund returned to do his PhD at Columbia, persuaded by Dr. Zena Stein, a mentor and professor in the department of epidemiology at Mailman. The PhD was a part of a clinical epidemiology fellowship supported by the new Mellon Foundation Program of Epidemiology in medicine and pediatrics, directed by Drs. Mervyn Susser and Nigel Paneth, with fellow co-trainee Dr. Al Neugut, a professor of epidemiology and medicine at Mailman and New York Presbyterian Hospital.

Dr. Dickson Despommier, an expert on parasites and vertical farming, remembers Dr. Vermund as being “brilliant” and having a “photographic memory.” “He was able to integrate and synthesize hypotheses from disparate knowledge sources, stuff that would never occur to everyone else,” adds Dr. Despommier, a professor of public health in environmental sciences at Mailman. “If every student was like Sten, my job would have been discontinued.”

Like many of his colleagues in New York City in the 1980s, Dr. Vermund’s career was rocked by the emergence of AIDS, which had hit epidemic levels in several sub-populations. In his practice, he saw sick children who did not respond to medicine he gave them. There were limited therapeutic options for AIDS, and he regularly saw patients die. This inspired his interest in prevention of mother-to-child-transmission of HIV. “I got a sense that it was a very historic moment and that because I had trained in infectious disease epidemiology, I could make a difference,” he says.
In 1988, the National Institutes of Health offered Dr. Vermund a job that would take epidemiologic approaches and apply them to HIV interventions. The next six years were a time of significant advances in the understanding of the virus, including the importance of regulating the "viral load" of HIV, the behaviors that put people at risk of contracting it, and various prevention strategies involving combination drug therapies.

In 1994, Dr. Vermund accepted a position at University of Alabama-Birmingham as head of geographic medicine in the School of Medicine and as chair of the department of epidemiology at the School of Public Health. "I thought it would be interesting to work in the Deep South where the public health challenges were immense," he says.

During his time there, he began focusing on how to get proper medical care for people in low-income settings. "You get a bigger bang for your buck when you’re working with people who are disadvantaged. There’s just more benefits to accrue in those populations whose life expectancies aren’t as high—where we worry about disproportionately high infant mortality, child mortality, maternal mortality",

Dr. Vermund has also set his sights closer to home, beginning a program in rural Alabama, Mississippi, and Louisiana to help people in low-income settings better access health care. He calls this "global health at home, applying the same principles of global health but in our own backyard."

Dr. Vermund discovered that the health needs of the South are often overlooked when one of his papers was rejected by the American Journal of Public Health. According to the journal, the paper was "only of regional interest." "For the AJPH in the 1990s not to review a paper—one of the only papers—about health access in the rural south, just showed how marginalized the south was in terms of people’s consciousness," he says.

For the last nine years, Dr. Vermund has directed Vanderbilt University’s Institute for Global Health, which partners with Meharry Medical College, a historically black college that is a legacy of the region's formerly segregated hospital system. The center manages development programs in resource-limited areas around the globe. In addition to treatment and prevention programs for HIV, the Institute for Global Health focuses on building and strengthening healthcare systems, improving agricultural investment and water sanitation, and educating medical practitioners and researchers.

Dr. Vermund was principal investigator of the HIV Prevention Trials Network (HPTN), when the group made the breakthrough finding in 2011 that early initiation of HIV treatment using combination antiretroviral drugs reduces the risk by 96 percent of an infected person passing the virus to an uninfected person.

"He is a passionate advocate for advancing the field of HIV prevention and public health in general," says Dr. El-Sadr, the current co-principal investigator of the HPTN.

Dr. Vermund is honored to receive the Allan Rosenfield Alumni Award, especially because the former dean of the Mailman School was his mentor and a very good friend: “He and I shared a passion for health disparities work and international work so it’s a very personal award for me. We miss him tremendously. He had indefatigable energy. He inspired me and a whole generation of people in public health.”
Bridging the ‘know-do gap’

New global HIV Implementation Science Training program begins this fall

This fall marks the launch of a new training program in the department of epidemiology that will immerse scholars in HIV implementation science, a growing field that focuses on how to best translate research findings into effective healthcare policy and practice.

The Global HIV Implementation Science Research Training Fellowship will have spots for three predoctoral and two postdoctoral trainees. The first-of-its-kind program is funded by the National Institute of Health’s National Institute of Allergy and Infectious Diseases and is run by faculty in ICAP and Epidemiology. The program incorporates implementation science, which draws on research findings and evidence-based interventions to improve the quality and effectiveness of how health care is delivered. It combines a broad range of disciplines, including epidemiology, biostatistics, health economics, decision science, and sociology.

Implementation science offers a unique opportunity for universities, according to a perspective piece that was published in the New England Journal of Medicine in March by Dr. Wafaa El-Sadr, university professor of medicine and epidemiology at the Mailman School of Public Health and director of ICAP, Dr. Jessica Justman, associate professor of medicine and epidemiology at Columbia and senior technical director of ICAP, and Ms. Neena M. Philip, a program coordinator at ICAP. “Academic institutions have an opportunity to embrace societal challenges more fully by placing value not only on discovering the ‘what’ but also on elucidating the ‘how’ and bringing to action discoveries with broad benefits,” they say.

Cancer researchers have drawn on the principles of implementation science for a while, but it is relatively new to scientists in the field of HIV/AIDS, who in earlier years were focused on finding treatments and means of preventing the deadly virus. While there is still no AIDS vaccine, scientists have developed antiretroviral treatments that keep the disease from worsening and reduce the risk of transmitting the virus. However, because resource-limited areas have been some of the hardest hit by HIV/AIDS, one of the greatest challenges has been getting this treatment to those who are infected. Challenges include getting people tested for HIV, linking those who test positive to care, and ensuring that people who are infected are regularly taking antiretroviral medicines.

“We know what needs to be done, but it’s how to deliver the services and thinking at the provider, patient, and programmatic level. It’s about, how do you take scientific findings and bring them to a programmatic setting?” says Dr. Andrea Howard, associate professor of epidemiology at Columbia University Medical Center and clinical and training unit director of ICAP, who is the principal investigator and director of the training program. This is often described as the “know-do gap,” she says.

Each trainee in the program will be placed in the field with a faculty mentor. Possible projects include several sponsored by ICAP: a trial in Swaziland looking at a strategy for preventing transmission of HIV from mothers to children, a study of combination care for patients who are infected with both tuberculosis and HIV in Lesotho, and an evaluation in Harlem of the use of pre-exposure prophylaxis or PreP to prevent HIV from spreading between black men who have sex with men.
Trainees will also meet in a weekly faculty-fellow seminar, a popular feature of several other Epidemiology training programs, work on manuscript and grant preparation, and get instruction on how to conduct responsible research. Predoctoral fellows will complete coursework in epidemiology, and postdoctoral fellows will take select courses based on their individual training needs.

In addition to ICAP and Epidemiology, faculty will come from the departments of Sociomedical Sciences, Health Policy and Management, and Population and Family Health; the College of Physicians and Surgeons; the Psychiatric Institute; and the School of Social Work. “It really builds upon the medical center’s experience and expertise in this area,” says Dr. Howard. “We’ve assembled a large number of research mentors who are known not only for their excellent science but also for their track record as excellent mentors.”

“We’re really thrilled to implement this program. We’re very excited,” she adds. “I think there’s a rich training environment here at Mailman, with a wide range of opportunities for field placements both here in the U.S. as well as abroad.”
In the public health arena, mental health has struggled to gain attention. But participants at a daylong Columbia University symposium were hopeful that with a recent focus on subjects such as gun violence and post-traumatic stress disorder in veterans of the Middle East wars, this could change.

The Columbia University Epidemiology Scientific Symposium (CUESS) series brings the best minds in epidemiology and other disciplines together for a full day of discussions on the most pressing health questions of our time.

The Columbia University Epidemiology Scientific Symposium (CUESS) on “Preventing brain disorders: Improving global mental health” took place on May 2. Jointly organized by the Department of Epidemiology, the Peter C. Alderman Foundation, and Columbia’s Global Mental Health Program (GMHP), the event brought together national and international researchers, policymakers, nonprofit workers, and others to discuss how socioeconomics, violence, and war can influence mental health in high and low-income countries alike and how understanding the causes of psychiatric and other brain disorders can lead to prevention.

Today, almost half of the world’s population lives in countries with only one psychologist for every 200,000 people. Many are low-income countries dealing with other heavy disease burdens and a shortage of healthcare personnel. In the U.S., while causes of death such as stroke, AIDS, heart disease, leukemia, and homicide have declined since 1965, the suicide rate has remained unchanged for two decades, at 38,000 lives per year. Research is increasingly pointing to links between mental and physical health. For instance, the Global Burden of Disease Study by the Institute of Health Metrics and Evaluation recently found that depressive disorders are the second leading cause of years lost to physical disabilities and the leading contributor to disability adjusted life years.

At the center of the CUESS discussion was the World Health Organization’s Comprehensive Mental Health Action Plan for 2013-2020—the first of its kind—which is focused on expanding and improving mental health care around the world. The WHO Action Plan has two target goals for 2020. The first is for 80 percent of countries to have at least two mental health promotion and protection programs running, one targeted to vulnerable groups and one universal. The second is to reduce the suicide rate in countries by 10 percent. “The burden of mental disorders cannot be reduced without effective prevention,” said Dr. Shekhar Saxena, director of the department of mental health and substance abuse at WHO in opening remarks.

In order to achieve global mental health aims, prevention should be discussed in the same conversation as treatment, said Dr. Kathleen Pike, executive director of Columbia University’s Global Mental Health Program and a clinical professor of psychology in the psychiatry and epidemiology departments. She pointed out that in some cases, treatment of mental health disorders can serve as prevention. For example, treating a mother’s depression with medication and therapy reduces depression in her children, according to research.

Early childhood and adolescence is the ideal time for prevention, according to Dr. Pamela Collins, director of the office for research on disparities and global mental health at the National Institute of Mental Health, because mental disorders typically occur between age ten and early adulthood, often in conjunction with early adversities. As people grow older, the “return on investment” decreases, she added.

Areas of global conflict and violence, such as those in African and the Middle
East, contribute to a high burden of child-
hood adversities. Traumatic experiences in
war are clearly associated with psycholog-
ical disorders, said Dr. Muthoni Mathai, a
psychiatrist and senior lecturer at the Uni-
versity of Nairobi.

“Trauma is toxic,” said Dr. Adam
Karpati, former executive deputy com-
missioner for mental hygiene at the New
York City Department of Health and Mental
Hygiene, comparing violence to risky envi-
ronmental exposures that we should seek
to mitigate. For example, after New York
City strengthened its gun control laws,
suicide rates plummeted to 6.2 per 100,000
compared to the national average of 12.4
suicides per 100,000, he noted. (Dr. Karpat-
ii is currently senior vice president for public
health impact at the North America section
of the International Union Against Tubercu-
osis and Lung Disease).

Changing social norms around activities
that are linked with mental health disorders
should also be taken into account, ac-
cording to Dr. Katherine Keyes, assistant
professor of epidemiology at Columbia
University’s Mailman School of Public
Health. For instance, attitudes around
binge drinking among teenagers have
relaxed at the same time that rates of binge
drinking has increased, according to data
from the 30-plus year national Monitoring
the Future survey.

Additionally, many of the interventions
that wealthy countries use face challenges
in post-conflict and low-resource settings,
said Dr. James Okello, a psychiatrist and
researcher at the Centre for Children in Vul-
nerable Situations.

For instance, after Sierra Leone’s civil
war, there was only one hospital that pro-
vided psychiatric services for a population
of 6 million, said Dr. Adeyinka M. Akinsu-
lure-Smith, assistant professor of women’s
studies at City College of New York. To
help the children of Sierra Leone deal with
the fallout from their war experiences, Dr.
Akinsulure-Smith worked on a program
that created an environment based around
traditional concepts of healing, communica-
ting, and celebrating progress.

Participants spoke of the need for more
research on the prevalence and impact
of mental health disorders in
society, especially in middle
and low-income countries, in
order to understand how wide-
spread mental health problems
are. Coordination of clinicians,
researchers, and programs
internationally is required to
strengthen surveillance and
share successful methods,
said Dr. Pike. She spoke about
WHO’s Global Clinical Practice
Network which is made up of
10,039 committed clinicians
who provide data to inform the
International Classification of
Diseases 11th Revision (ICD-11).

On the ground, things can be difficult,
however. In South Africa, 5 percent or
less of the health budget is allocated for
mental health, according to Dr. Solomon
Rataemane, head of the department of
psychiatry at the University of Limpopo.
Because public ignorance about mental
health is pervasive, Dr. Rataemane said
most mental health professionals are stig-
matted and difficult to retain.

On the other hand, the U.S. spends a lot
of money on brain disorder research. But, it
goes primarily to biomedical studies, said
Dr. Robert Kaplan, who at the time of the
symposium served as director of the office
of behavioral and social sciences research
at the National Institutes of Health. “Most
of my colleagues believe it’s not only the
best way, but the only way,” he said. Yet
this approach is limited in its capacity to
address the complex causes that lead to
mental disorders and may not even be
working well, according to Dr. Kaplan, who
is now serving as the chief science officer
for the Agency for Healthcare Research and
Quality. “We need to redistribute some of
the money we are spending on medical
care and to public health services.”

Dr. Gerald Oppenheimer, professor
of sociomedical sciences at Columbia
University and a public health historian,
offered the mental health professionals in
the audience an example of the successful
public health campaign to reduce heart
disease, which had the “evangelical” and
“zealot-like” commitment of members of
medical and public health advocates who
drew attention to it in the mid twentieth
century.

In California, the state’s 2004 Mental
Health Services Act, which put $9 million
from new taxes toward prevention and
early intervention in mental health disor-
ders, has shown early success, according
to Dr. Wayne Clarke, the behavioral health
director for Monterey County. The initiative
focused on lowering suicides, reducing
stigma, and improving student mental
health. Nearly 40,000 students participated
in initiative activities, and many more were
reached through a social media campaign
called “suicide is preventable.” Early
results indicate that participants are now
more likely to recognize warning signs and
properly intervene when mental distress or
suicidal tendencies are displayed.

Dr. Sandro Galea, chair of the depart-
ment of epidemiology and Gelman
Professor of epidemiology, acknowledged
challenges of the new global mental health
agenda yet pointed to the auditorium full
of motivated, highly influential symposium
attendees as an example of the growing
recognition of global mental health.

“What struck me was that we had a
synthesis of public health perspectives that
are essential if we are to affect change in
mental health. The challenge to all of us as
a community is to capitalize on this con-
versation to bring to fruition the innovative
ideas that we heard, such that not only is
mental health a topic of conversation, but
that it yields results,” he said.
Understanding the worst Ebola outbreak in history

Over the summer, the Ebola outbreak in West Africa became the largest and most devastating in the virus’s 40-year history. Unlike past outbreaks that have not spread past rural parts of Africa, this one reached urban areas where “there isn’t enough manpower to track all these cases and make certain we educate people,” says Dr. Ian Lipkin, John Snow Professor of Epidemiology and director of the Center for Infection and Immunity at Columbia’s Mailman School of Public Health.

While the governments of Sierra Leone, Liberia, Guinea, and Nigeria have struggled to contain Ebola, there is little chance it will spread in the U.S., despite the infection of two American aid workers who were brought back to Atlanta for treatment: “It doesn’t spread easily. Casual contact isn’t enough to spread it. And it doesn’t really spread through the respiratory route,” says Dr. Stephen Morse, professor of epidemiology at Columbia. “If a hospital that has a patient uses rigorous infection control procedures there is no danger of spread to others.”

Read more of Dr. Lipkin who wrote an op-ed for the Wall Street Journal ➤ bit.ly/1zuysBN and has been quoted in National Geographic ➤ bit.ly/TolTuw8, Newsweek ➤ bit.ly/1p61rFQ, and appeared on CNN ➤ cnn.it/1qY97l and Bloomberg. ➤ bloom.bg/1mJXmYe

Read more of Dr. Morse, who was a guest on WNYC’s The Brian Lehrer Show ➤ bit.ly/1pahuB and was quoted on ABC ➤ abcn.ws/VOzCuF, the Wall Street Journal ➤ on.wsj.com/1I9R5v, and participated in an Ask Me Anything on Reddit. ➤ bit.ly/1mJXF5n
Robin Williams’ death spotlights suicide and mental health

The coverage of actor Robin Williams’ death raised concerns that suicide rates would spike afterward. “Suicide contagion is real, which is why I’m concerned about it,” said Dr. Madelyn Gould, professor of epidemiology in psychiatry at Columbia University, to the New York Times. Dr. Gould has found that media coverage that emphasizes the method of suicide and other details is linked to more suicides. Fortunately, for those who call suicide hotlines the risk goes down significantly, according to another study by Dr. Gould. Read more in the New York Times › nyti.ms/1BWuHsR and Al Jazeera › alj.am/1t7q1xF

For Vietnam veterans, little improvement in PTSD over time

A new study finds that most veterans who had persistent post-traumatic stress disorder a decade or more after serving in Vietnam have shown little improvement since then. “This is a tremendously important effort, tracking the course of war-related trauma from young adulthood past middle age — we have nothing else like this,” said Dr. Bruce Dohrenwend, professor of epidemiology and professor of psychiatry at the College of Physicians and Surgeons at Columbia. Read more in the New York Times. › nyti.ms/1txDkpL

Small DNA modification may affect body’s response to stress

A modification of a gene that is known for its involvement in depression and PTSD may lead to exaggerated responses to stress, according to a study in the journal Nature Neuroscience by Dr. Karestan Koenen, professor of epidemiology, and Dr. Sandro Galea, Gelman Professor of Epidemiology and chair of the Department of Epidemiology, both at Columbia’s Mailman School, with scientists at Duke University. Read more in Medical Express. › bit.ly/1vgodDf

Too soon to know if e-cigarettes help

E-cigarettes exist in an “evidence-free zone,” according to Dr. Stephen Leeder, adjunct professor of epidemiology at Columbia and professor of public health and community medicine at the University of Sidney School of Public Health. It is too soon to know if they help people quit smoking. Read more on ABC. › ab.co/1pzxzqC

Antibiotic residues found in chickens in India

A new study found antibiotic residue in nearly half of chicken samples tested across the Delhi National Capital Region in India. “Repeated and prolonged exposure to antibiotics lead, by natural selection, to the emergence of resistant strains of bacteria,” said Dr. Neil Schluger a professor of medicine, epidemiology, and environmental health sciences and chief of the pulmonary, allergy, and critical care medical division at Columbia University. Read more in the Business Standard. › bit.ly/YVTjTn
Weight may not be an issue for efficacy of morning-after pills

European regulators have said data from a study finding the morning after pill is less effective for heavier people is not substantial enough. Says Dr. Carolyn Westhoff, professor of epidemiology, population and family health, and gynecology at New York Presbyterian Hospital and at Columbia University: “People in the field have been scratching their heads since [the 2011 study] was published, saying ‘what sorts of studies could we do to get more data to help us understand this better?’ To my knowledge, nobody has done those additional studies.” Read more in Time. › tl.me/1vgow0R

Tropical infections diagnosed in 3 Long Island patients

Dr. Jennifer Calder, adjunct assistant professor of epidemiology at Columbia’s Mailman School and associate professor of public health practice at New York Medical College, discussed how to detect mosquito-born illnesses like West Nile, the Chikungunya Virus and Dengue Fever after three people in Long Island were diagnosed with these debilitating diseases. Watch more on NBC New York. › bit.ly/1tNui6m

LGB people who sought help from religious/spiritual advisor had elevated risk of suicide attempt

For lesbian, gay, or bisexual individuals, seeking counseling from a religious or spiritual advisor was associated with greater chance of a suicide attempt than seeking mental health treatment or no help at all, according to a study by Dr. Sharon Schwartz, professor of epidemiology at Columbia, and a colleague. Read more in Edge Boston. › bit.ly/1rvGwDT

Renowned AIDS researcher shot down in Malaysian Airlines flight

“His loss is more than just a summary of his efforts and his papers. He was not shy about speaking truth to power,” says Dr. Scott Hammer, professor of public health at Columbia’s Mailman School and Harold C. Neu Professor of Infectious Diseases at New York Presbyterian Hospital of Epidemiology, about Dr. Joep Lange, a renowned HIV/AIDS researcher who was one among dozens of people traveling to the International AIDS Conference in Melbourne, Australia, on board the Malaysia Air flight shot down over Ukraine in July. “He spoke softly and carried a lot of moral heft.” Read more in the LA Times. › lat.ms/1l9Tl3T

Dr. Lange “was not only a scientist dealing with the specificities of the virus itself but also thinking about the global health equity challenges that the virus faced,” said Dr. Abdul El-Sayed, assistant professor of epidemiology at Columbia’s Mailman School.
Retire the “retirement community”

“We need to invest in an America where older adults are healthy and remain among us, living out important roles and responsibilities that leave a lasting legacy,” says Dean Linda Fried in an article about rethinking retirement. Read more in the Wall Street Journal. › on.wsj.com/1p61QrN

ADHD drugs misused by college students

A new survey documents notable use by college students of drugs meant to treat attention deficit hyperactivity disorder. Despite the belief that they enhance academic performance—which is up for debate—these drugs “are not something you want to mess with without a physician’s oversight,” says Dr. Katherine Keyes, assistant professor of epidemiology at Columbia’s Mailman School. Read more in the Detroit Free Press. › on.freep.com/1sATyel

2 drugs could offer hope for people with fatal lung disease

Randomized clinical trials have found that two drugs appear to slow the advance of idiopathic pulmonary fibrosis. One of the drugs, Pirfenidone “very clearly slowed down progression of the disease as measured by lung function, and seems to have an effect on mortality as well,” said Dr. David Lederer, associate professor of epidemiology and medicine in pediatrics at Columbia’s College of Physicians and Surgeons.

Read more in the Philadelphia Inquirer. › bit.ly/1oxRAur

Unexpected death of loved one could trigger psychiatric disorders

The unexpected loss of a loved one can trigger a range of psychiatric disorders, including mania, in patients with no history of mental illness, according to a study by several faculty members in the department. “Our findings should alert clinicians to the possible onset of mania after an unexpected death in otherwise healthy individuals,” say Drs. Katherine Keyes, Sandro Galea, Karestan Koenen, and their co-authors in the study. Read more on Medwire News. › bit.ly/1nTcf06
We remember Mervyn Susser, MB, BCH, Sergievsky Professor of Epidemiology Emeritus, who passed away on August 14, 2014, at the age of 92.

Dr. Susser was a pioneer of epidemiology in the twentieth century and chair of the department of epidemiology for 12 years. His emphasis on the relationship between society and disease is fundamental to the discipline as it is practiced today. Dr. Susser drew attention to the interrelationships between health, disease, and social injustice. His influence extends to the foundations of life course epidemiology, genetic epidemiology, epidemiology of neurodevelopmental disorders, global health (later including HIV/AIDS), and other areas.

Read more about Dr. Susser
- Department of Epidemiology website
  epi.is/remembering-mervyn-susser
- New York Times obituary
  nyti.ms/1C6ruqL
- 2x2 article from 2011
  epi.is/susser
- Interview in the journal Epidemiology from 2003
  bit.ly/1paLoGP

Mervyn Susser with wife and partner Zena Stein.


Hogerzil SJ, van Hummelt AM, Rosendal FR, Susser E, Hoek HW. Direct comparison of first contact versus longitudinal register-based case finding in the same population: early evidence that the incidence of schizophrenia may be three times higher than conventionally reported. Psychiatr Med. 2014 Jul 9. [Epub ahead of print].


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