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When rights go wrong and other dispatches from the edge.
WELCOME TO SPH THIS YEAR, our annual review of the work we have been doing at the School of Public Health. We lead this issue with a stark image of an AR-15 rifle, reflecting a topic that has been very much on our minds as a school throughout 2016. This was a year when we again expected to see more than 30,000 people die from gun violence and more than 70,000 injured. It was also a year when we witnessed the largest gun massacre ever in the US in the Orlando shooting, in which 49 people were killed. It was also a year when our faculty published more and more about the issue (see story on page 4), and when we as a school launched the “Enough” campaign and brought together public health leaders from around the US to discuss what the role of public health is in addressing this epidemic. And finally, this was a year where a federal election reshaped the landscape about the possibility, or lack thereof, for us to start tackling the epidemic at the national level.

The gun violence epidemic was but one of the issues that our faculty grappled with this year. They also published leading work on the global HIV epidemic, the opioid crisis in this country, the growing burden of caregiving with an aging population, obesity, and health across the lifecourse. We feature some of these papers in SPH This Year but leave out a large body of work; we honor that work through listing all peer-reviewed publications, more than 1,000 of them, at the end of this publication. All this work is testament to the extraordinary scholarship being produced by our faculty, scholarship that advances the edges of our understanding while staying grounded in the challenges that occupy a real-world public health.

While we feature our scholarship centrally in SPH This Year, I want to note our extraordinary work both in education and in practice throughout the year. This fall we launched both our new MPH, an interdisciplinary training for the next generation of public health practitioners that will set the stage for public health education for the coming decades, and our Activist Lab (see page 34), our effort to be engaged in the real-world challenges that our communities face daily. We shall feature both our educational and practice programs in next year’s SPH This Year as these programs come to their full fruition.

And finally, even as our work continued apace, with new research, educational initiatives, and practice engagements, we also had opportunity to celebrate, as we marked our 40th anniversary this year. We feature our anniversary events on page 22 and thank all of you who joined us during these celebrations.

As I finish my second year at the School, I am today even more excited about our potential than I was when I was starting in this position. I am deeply excited about what we are going to be doing together in 2017 and look forward to summarizing it for you all a year from now.

Warm regards,

Sandro Galea, MD, DrPH
Dean, Robert A. Knox Professor
Twitter: @sandrogalea
HELPING WITH ANOTHER’S HEALTH TAKES A TOLL ON YOUR OWN.
Determining the effects of stress on caregiver health.

NEW CHAIRS BRING PASSION TO THE TABLE.
SPH names two department chairs in 2016.

HERE’S TO YOUR HEALTH? NOT SO FAST.
A closer look at drinking and mortality rates.

THE REAL SKINNY ON OBESITY AND DEATH RATES.
Factoring in weight change over the course of a lifetime.

THE CAPE CRUSADER.
Ann Aschengrau’s 25-year study of toxins in Cape Cod water.

GUN VIOLENCE: A PREVENTABLE EPIDEMIC.
Three SPH studies focus on guns in America.

WHAT A LONG, STRANGE TRIP IT’S BECOMING.
The changing approach to substance use problems.

CELEBRATING OUR 40TH ANNIVERSARY
SPH BY THE NUMBERS
FACULTY PUBLICATIONS

HATE SPEAKS IN A LOUD, RAPID-FIRE VOICE.
The Orlando shooting, and how guns enable hate.
TODAY, THIS MANY AMERICANS WILL DIE FROM GUNSHOT WOUNDS.

Source: Centers for Disease Control and Prevention. 92.15 deaths per day based on 33,636 for the year 2013.
Two studies led by Professor of Community Health Sciences Michael Siegel found links between firearm ownership rates and gun-related deaths.

The first, published in the journal Violence and Gender, found that women in states with higher rates of gun ownership are at greater risk of being killed by people they know than those in states where a smaller percentage of people own guns. According to the study—co-authored by Associate Professor of Community Health Sciences Emily Rothman—ownership rates alone explained 40 percent of the variation in women’s homicide victimization rates, compared to only 1.5 percent of the variation in men’s victimization rates.

The study found that for every 10 percentage point increase in state-level gun ownership, the female gun-related homicide rate increased by 10.2 percent.

According to Siegel, the study found no support for the premise that greater availability of guns protects women from homicide. Instead, he said, greater availability “does appear to increase the risk for firearm homicides committed by non-strangers.”

In the second study, published in the American Journal of Public Health, Siegel and Rothman found that states with higher estimated levels of gun ownership had higher incidents of gun-related suicides, with firearm ownership alone explaining 71 percent of the variation in state-level gun suicide rates for males and 49 percent for females.

“Our study adds to the consistent finding that among both males and females, increased prevalence of firearms is clearly associated with an increase in the firearm-specific suicide rate,” Siegel said. “The magnitude of this relationship is substantial and warrants attention from policy makers.”

In another study published in The Lancet, Dean Sandro Galea and colleagues analyzed the impact of gun-control laws in the US and found that just 9 of 25 state laws were effective in reducing firearm deaths. Their findings suggested that three laws implemented in some states could reduce gun deaths: requiring firearm identification through ballistic imprinting or microstamping, requiring ammunition background checks, and requiring universal background checks for all gun purchases.

“Very few of the existing state-specific firearms laws are associated with reduced mortality, and this evidence underscores the importance of focusing on relevant and effective firearm legislation,” said Galea, the study’s senior author. Lead author Bindu Kalesan, director of the Evans Center for Translational Epidemiology and Comparative Effectiveness Research at the School of Medicine, said the study was the first to assess a broad array of gun laws together with other relevant state-level data.

“The findings suggest the importance of focusing on relevant and effective gun legislation,” she said.
Repeated Hits in Football Take Cumulative Toll

The more hits that former high school and college football players took, the higher their likelihood of experiencing problems such as depression, apathy, or memory loss years later, a new study by SPH and School of Medicine researchers says. The study, published in the Journal of Neurotrauma, reports the most rigorous evidence to date that former players’ overall exposure to contact could predict their likelihood of experiencing neurological problems. The findings are not conclusive, the authors wrote, as such mental problems can stem from a variety of factors.

The paper represents researchers’ first attempt to precisely calculate cumulative lifetime exposure to contact in living players. Previous estimates had relied in part on former players’ memories of concussions, or on number of years played. The new paper uses more objective measures, including data from helmet accelerometer studies.

The researchers estimated exposure to contact in 93 former players ages 24 to 82. The estimate was based on the number of seasons played, the position, and the average number of hits expected for that position at each level of play, beginning in youth leagues. A hit was defined as an impact causing 10 times gravitational acceleration, including blows not directly to the head.

The study found that the greater the number of hits in a player’s career, the higher the likelihood of problems later in life. The cumulative number of hits also was a better predictor of later-life impairments than other measures, such as a player’s concussion total.

“I think of the study as just the beginning of trying to characterize exposure in a more precise way,” co-author Michael McClean, SPH associate professor of environmental health and associate dean for research and faculty advancement, told the New York Times.

The study found that the greater the number of hits in a player’s career, the higher the likelihood of problems later in life.
CHILDREN in sub-Saharan Africa who are infected with HIV, orphaned, or otherwise affected by the virus, need “broad, society-wide interventions,” including economic and social supports, according to a team of global health researchers from SPH.

In an article in the journal Pediatric Clinics of North America, Malcolm Bryant, clinical associate professor of global health, and Jennifer Beard, assistant professor of global health, say that while international investments have been successful in helping to prevent mother-to-child transmission of HIV and ensuring medical care for infected children, the social, emotional, and developmental health of children orphaned or otherwise affected by HIV remain more difficult to target.

In addition, they say, given that 47 percent of all Africans live on less than $1.25 a day, strategies directed at HIV must address the underlying challenges faced by all children living in extreme poverty.

“The differential vulnerability between children affected by HIV and those who are not is largely determined by global donor assistance,” the report says. Children infected with HIV represent “a tiny minority of those orphaned or made vulnerable by HIV. These children are...often pushed into extreme poverty by the presence of HIV in the household.”

Beard and Bryant note that care and support programs for children affected by HIV are funded almost entirely by international donors—with the President’s Emergency Plan for AIDS Relief (PEPFAR) a strong leader—and that while some donor-funded programs have had documented success, those projects are temporary and vulnerable to changes in donor priorities.

In order to maintain the positive outcomes yielded by donor support, they emphasize that “the global community must continue to place high priority on mitigating the impacts of HIV on children for many years to come.”

CHILDREN INFECTED WITH HIV REPRESENT “A TINY MINORITY OF THOSE ORPHANED OR MADE VULNERABLE BY HIV. THESE CHILDREN ARE...OFTEN PUSHED INTO EXTREME POVERTY BY THE PRESENCE OF HIV IN THE HOUSEHOLD.”
The paper, published in the *Journal of Studies on Alcohol and Drugs*, reanalyzed data from 87 long-term studies on alcohol use and mortality that included nearly 4 million people and documented causes for 367,103 deaths. At first glance, the studies showed that low-volume drinkers—those who had up to two drinks a day—had lower mortality risks than those who abstained from alcohol. But once the authors adjusted for errors such as how “abstainers” are defined, they found that the protective effect of light drinking disappeared.

“Our study suggests that a skeptical position is warranted in relation to the evidence that low-volume consumption is associated with net health benefits,” concluded the study team, which includes Timothy Naimi, associate professor of community health sciences and of medicine at the School of Medicine.

The study also found that before removing errors in how abstainers were defined, it was “occasional drinkers” who consumed less than one drink per week who live the longest. The international team of authors argued that such a tiny consumption level was unlikely to provide any physiological benefits, and so occasional drinkers may be the best group against which to compare other drinkers.

WILL THAT GLASS OF WINE WITH DINNER help you to live longer? Not likely, according to a new study co-authored by an SPH researcher.

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This new paper builds on the work of a landmark 2006 study, co-authored by lead author Tim Stockwell of the Centre for Addictions Research of BC at the University of Victoria, that first highlighted how the majority of published studies on alcohol and mortality make the mistake of comparing moderate drinkers to those who currently abstain. Such “current” abstainers include many people whose poor health has led them to cut down or completely abstain. They make the health and life expectancy of moderate drinkers look good by comparison.

Only 13 of the 87 studies avoided biasing the abstainer comparison group—and these did not show significant health benefits. The updated study reinforces the 2006 findings and could have major implications for crafting alcohol policies and giving advice about low-risk drinking, the authors said.

They suggest that new, improved methods are required to make unbiased estimates of alcohol’s health impacts and that, to date, research has tended to overestimate possible health benefits while underestimating health risks. This means that while international health authorities do recognize alcohol as a leading cause of preventable death, illness, and injury, the extent of its effects is underestimated, the study says.

**PREVIOUS STUDIES TOUTING BENEFITS OF MODERATE DRINKING SUFFER FROM FAULTY ASSIGNMENT OF COMPARISON GROUPS.**

**HERE’S TO YOUR HEALTH? NOT SO FAST.**
The US SUPREME COURT’S DECISION in Whole Woman’s Health v. Hellerstedt finally took women and their reproductive health seriously. After decades of simply accepting legislative claims that laws restricting abortion services were intended to protect women, the court took off the blinders and faced reality. The decision is a major step forward in protecting women’s reproductive rights. Instead of just accepting a state’s assertion that a law was designed to protect women’s health, the court demanded evidence that a health problem existed. Second, where the law negatively affects the constitutional right to abortion, the state must provide evidence that the burdens on women’s access to abortion are outweighed by the health benefits. The court found no safety problem to be solved and a wide negative effect on access.

This was the first major abortion case heard by a Supreme Court with three women justices: Ginsburg, Sotomayor, and Kagan. They made a difference. Whatever their personal views on abortion, the female justices had to know what reproductive healthcare is like for women. They could not be fooled. This demonstrates the importance of having justices who understand what life is like for people who are actually affected by the laws the court considers.

This case is a victory for reproductive rights and will drastically limit the enforceability of most TRAP (Targeted Regulation of Abortion Providers) laws. But it will not, of course, quell the political controversy over abortion. Laws like those in Texas will likely be successfully challenged—at least in the absence of medical evidence that they actually protect women’s health without significantly reducing access to care—but new anti-abortion actions are likely. Given this very strong opinion, however, they are much less likely to survive court challenge.

What’s Next? As the Texas lawsuit continues and state legislatures considering new restrictive abortion laws are blocked in court, the next challenge to the reproductive rights movement is to identify what they called “two almost distinct bodies of scholarship” with little collaboration or overlap. This case is a victory for reproductive rights and will drastically limit the enforceability of most TRAP laws. But it will not, of course, quell the political controversy over abortion. Laws like those in Texas will likely be successfully challenged—at least in the absence of medical evidence that they actually protect women’s health without significantly reducing access to care—but new anti-abortion actions are likely. Given this very strong opinion, however, they are much less likely to survive court challenge.

Science on Salt Is Polarized

AN ANALYSIS of scientific reports and comments on the health effects of a salty diet reveals a sharp divide between those who support the hypothesis that population-wide reduction of salt intake is associated with better health and those who do not. In all, 54 percent of reports reviewed were supportive of the hypothesis, while 33 percent were not. The other 13 percent were inconclusive.

In an article in the International Journal of Epidemiology, a research team that includes Dean Sandro Galea systematically reviewed 269 academic reports published between 1979 and 2014, including primary studies, meta-analyses, clinical guidelines, consensus statements, comments, letters, and narrative reviews. Each was classified according to whether it supported or refuted the link between reduced sodium intake and lower rates of heart disease, stroke, and death.

More than half of the reports were published since 2011—suggesting an increasing level of interest in the question, even if there was no emerging consensus. A citation review found that papers on either side of the hypothesis were more likely to cite reports that drew a similar conclusion than those that drew a different one. A small number of influential papers that presented strong evidence for or against dominated the literature, leading researchers to identify what they called “two almost distinct bodies of scholarship” with little collaboration or overlap.

“We pay quite a bit of attention to financial bias in our work,” says Galea. “We seldom pay attention, however, to how long-held beliefs bias the questions we ask and the results we publish, even as new data become available.”

—SANDRO GALEA, DEAN, ROBERT A. KNOX PROFESSOR
WHAT A LONG, STRANGE TRIP IT’S BECOMING.

WHAT A LONG, STRANGE TRIP IT’S BECOMING.

THE NUMBERS ARE STARK: Nearly 5 percent of total years of life lost globally are attributed to alcohol and illicit drug use. It is estimated that there are 185 million people who use illicit drugs globally, and opioid use disorder is the principal contributor to the burden of illicit drug use disorder worldwide.

Dean’s note

As substance use persists, the emphasis transitions from law enforcement to public health.

Mario Tama/Getty Images
Globally, drug overdose is also on the rise, particularly in rural areas and especially from prescription opioids. From 1999 to 2008, hospitalization rates for overdoses in the US increased by 55 percent, costing about $737 million in 2008, a figure that is undoubtedly dwarfed today. In fact, drug-related deaths have exceeded motor vehicle deaths in this country for nearly a decade.

As the availability of prescription opioids has increased across the US, illicit drug use has gone down in many areas. However, one unexpected consequence of this shift is that many individuals who would not be likely to use heroin otherwise are introduced to opioids through prescription opioids, and then later turn to heroin as their tolerance for the substance increases or they no longer have access to the medication. One result of this shift is that heroin use is actually starting to increase again, especially among affluent people living in the suburbs, a very different group from those generalized as having heroin addictions in decades past. Stricter policing practices can themselves contribute to increased drug-related deaths, principally as people who use drugs move underground and witnesses to overdoses are reluctant to call for help.

Perhaps optimistically, the growing burden of drug-related overdose has made it abundantly clear that drug-related overdose is no longer simply labeled a law enforcement or public safety issue, but a public health issue. One major aspect of public health relevance is that overdose is usually preventable, and individuals rarely overdose alone, providing a unique opportunity to avoid death, particularly for those witnessing an overdose. Provision of the opioid antagonist naloxone along with education about overdose to people who use drugs is one example of a way to potentially stop the harm of an overdose before it leads to death.

But mortality is far from the only consequence of drug use. Other associated outcomes include hospitalization cost, family and relationship problems, a focus on drug use to the exclusion of other activities, and lost work productivity. Additionally, consequences of nonfatal overdose among victims include cardiac and muscular problems, cognitive impairment, renal failure, and other injuries. Effects of substance use can also spill over from generation to generation: using alcohol and other substances during pregnancy, for example, is associated with a myriad of outcomes, including preterm birth, placental abruption, neonatal withdrawal, and cognitive deficits.

The growing focus on non-medical prescription opioid overdose in the US is welcome, but this approach deals only with a small part of a much larger problem with the use of substances worldwide. The burden of substance use is very much a chronic challenge to population health that has long been underappreciated and on the fringes of mainstream public health. Unfortunately, this marginalization is accompanied by a substantial shortage in opportunities for treatment for those with substance use disorders, attendant unmet need, and an even deeper paucity of engagement around prevention of substance use. The recent attention to the issue is an important, if small, turn in the right direction.
ALANA BRENNAN WON THE 2016 CAROL BUCK STUDENT PRIZE PAPER AWARD FROM THE EPIDEMIOLOGY CONGRESS OF THE AMERICAS.

Brennan, a doctoral candidate and statistical manager in the Department of Global Health, was the lead author of “HIV Treatment Outcomes in Patients Initiating Tenofovir: A Regression Discontinuity Analysis.” Co-authors included Assistant Professor of Global Health Jacob Bor and Associate Professor of Epidemiology Matthew Fox, who are both on Brennan’s dissertation committee.

The paper uses a novel method to evaluate a major change in World Health Organization (WHO) guidelines for HIV treatment in Zambia and South Africa.

In the guidelines for first-line antiretroviral therapy, the drug stavudine has been replaced with tenofovir, which has lower toxicity and fewer side effects. Zambia followed the WHO guideline change in 2007, while South Africa made the same change in 2010. Because each country made the switch nationwide at specific points in time, “it offered a natural experiment to evaluate the impact of tenofovir as standard of care on patient outcomes,” Brennan says.

Using a method called regression discontinuity, the researchers compared patient outcomes before and after the switch. They found the new guidelines had the expected effect: Aside from tenofovir’s lower toxicity, treatment outcomes were comparable using either drug.

Brennan received the award at the Epidemiology Congress of the Americas’ 2016 conference in Miami.

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PRE-PREGNANCY OBESITY is strongly associated with infant mortality, and compliance with weight-gain guidelines during pregnancy has a limited impact on that mortality risk, a new study led by SPH researchers shows.

The study, published online in Obstetrics and Gynecology, is the largest study to date of the relationship between pre-pregnancy obesity, prenatal weight gain, and infant mortality. It used birth and death records of more than 6 million newborns in 38 states from 2012 to 2013, which included information on the mother’s height and pre-pregnancy weight, needed to compute BMI (body mass index). The authors examined overall infant mortality in three major categories: infants who died from preterm-related causes, congenital anomalies, and sudden unexpected infant death.

The study found that infant mortality rates from preterm causes increased at higher BMIs, with rates twice as high for obese women (i.e., >175 lb. for a woman 5’4” tall) than for normal-weight women (110–144 lb. at 5’4”). Deaths from congenital anomalies and sudden infant death also were higher among babies born to obese mothers. Mortality rates rose consistently across obesity categories.

Compared to babies born to women with normal pre-pregnancy weights, the risk of infant death was 32 percent higher for mothers in the obese I category and 73 percent higher for those in the obese III category, even after controlling for demographic and medical risk factors.

Lead author Eugene Declercq, professor of community health sciences, said the findings support the importance of clinicians and public health officials addressing the issue of obesity before pregnancy begins, and the need for more research into the underlying processes that might link pre-pregnancy obesity and poor infant outcomes.
CELEBRATING OUR 40TH ANNIVERSARY

IN 2016 WE CELEBRATED SPH’S 40TH anniversary with the theme “Four Decades Forward.” We reflected on the excellence and achievements of our School over the past 40 years while looking ahead to the next 40. To celebrate this milestone year, we reconnected with our alumni, friends of the School, staff, faculty, students, and scholars in the global public health community.

FORTY FOR FORTY CELEBRATIONS AROUND THE WORLD

TOTAL EVENT ATTENDEES
AS OF JULY 1, 2016, ACROSS 11 COUNTRIES INCLUDING CANADA, ENGLAND, FRANCE, GERMANY, INDIA, ISRAEL, SOUTH AFRICA, SOUTH KOREA, SWITZERLAND, UNITED STATES, AND ZAMBIA.

TOTAL ATTENDEES
1,275

TOTAL EVENT ATTENDEES AS OF JULY 1, 2016, ACROSS 31 COUNTRIES INCLUDING CANADA, ENGLAND, FRANCE, GERMANY, INDIA, ISRAEL, SOUTH AFRICA, SOUTH KOREA, SWITZERLAND, UNITED STATES, AND ZAMBIA.

REGIONAL CELEBRATIONS AND CONVERSATIONS WITH FACULTY

FEBRUARY 22, 2016
SPH 40th Anniversary Regional Celebration
With Michael McClean, Associate Professor and Associate Dean for Research and Faculty Advancement

MARCH 15, 2016
SPH 40th Anniversary Regional Celebration
With Martha Werler, Professor and Chair of Epidemiology

MARCH 21, 2016
SPH 40th Anniversary Regional Celebration
With Harold Cox, Associate Dean of Public Health Practice

MARCH 28, 2016
SPH 40th Anniversary Regional Celebration
With George Annas, William Fairfield Warren Distinguished Professor

FEBRUARY 4, 2016
40th Anniversary Kickoff at The Algonquin Club
BOSTON, MA

OCTOBER 31, 2016
Annual APHA Reception at The Denver Athletic Club
DENVER, CO

NOVEMBER 17, 2016
40th Anniversary Gala at The State Room
BOSTON, MA

40TH ANNIVERSARY RECEPITIONS
We hosted two bookend events to celebrate the 40th anniversary: a February 4 kickoff event and a November 17 gala. We also held our annual alumni reception at APHA in Denver, CO.

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40th Anniversary Gala at The State Room
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Depression lowers women’s chances of pregnancy

Women with severe depressive symptoms have a decreased chance of becoming pregnant, while the use of psychotropic medications does not appear to harm fertility, a study by researchers from SPH and School of Medicine shows. The study, published in the American Journal of Obstetrics and Gynecology, found a 38 percent decrease in the average probability of conception in a given menstrual cycle among women who reported severe depressive symptoms, compared to those with no or low symptoms. The results were similar regardless of whether the women were on psychotropic medications.

Despite associations in prior studies between infertility and the use of antidepressants, antipsychotics, or mood stabilizers among already infertile women, “current use of psychotropic medications did not appear to harm the probability of conception,” said lead author Yael Nillni, an assistant professor of psychiatry at the School of Medicine and a researcher with the National Center for PTSD (posttraumatic stress disorder), Women’s Health Sciences Division of the VA Boston Healthcare System. “Our findings suggest that moderate to severe depressive symptoms, regardless of current psychotropic medication treatment, may delay conception.”

Among the study’s secondary findings was that current use of benzodiazepines—sedatives used to treat anxiety and other disorders—was associated with a decrease in fecundability. Also, women who were formerly treated with a class of antidepressants known as SSRIs (selective serotonin reuptake inhibitors) had improved chances of conception, regardless of depressive symptom severity. The authors speculated that former SSRI users could experience some long-term psychological or neurobiological benefits from past treatment that influence fertility. However, the numbers of individual classes of medications were small, and further study is needed, they said.

On Paternalism and Public Health

If mild, conscientious regulation stands to help a population sidestep the emotional, financial, and physical burdens of disease, then it is an option we ought to embrace. It is worth remembering that the so-called nanny state is not the only actor at play here. There is a broad range of efforts—from corporate interests to other public sectors’ agenda—that aim to influence consumers’ decisions. If we make no attempt to nudge the public toward a higher standard of living, there are others who will be all too happy to steer us down a more hazardous road.”

—SANDRO GALEA, DEAN, ROBERT A. KNOX PROFESSOR

Paternalistic measures are employed in public health because public health wants a compliant population, not an informed one. When informed people make choices we do not like, we increase the pressure on them to be compliant. The use of such prevarications is unseemly and should be rejected by an ethical profession. Protecting people from serious risks of harm they cannot protect themselves from is what public health should be doing. It is important to distinguish between regulating people and regulating things.”

—LEONARD GLANTZ, EMERITUS PROFESSOR, HEALTH LAW, POLICY & MANAGEMENT

Read the rest of the Dean’s Note and accompanying Viewpoint at bu.edu/sph/2016/03/13/paternalism-and-public-health and bu.edu/sph/2016/03/13/a-commentary-on-dean-galeas-note.
HELPING WITH ANOTHER'S HEALTH TAKES A TOLL ON YOUR OWN.

BY LISA FREDMAN

FEW PEOPLE ARE AWARE OF WHAT CAREGIVING ACTUALLY entails. This lack of recognition prompted researchers in the 1970s and 1980s to call caregivers “the hidden patients.” They are defined by the assistance they provide to family members and friends with disabilities and health problems, but they are unpaid for this assistance. Most importantly, caregivers are termed “hidden patients” because their distress related to caregiving is ignored by the physicians who are treating their care recipients.

Lisa Fredman is a professor of epidemiology.
Despite the public’s general lack of awareness of caregivers, an estimated 39.8 million adults, or 16.6 percent of the US adult population, provided unpaid help with I/ADLs (Instrumental Activities of Daily Living/Activities of Daily Living) to a family member, neighbor, or friend in 2015. Of these caregivers, 34.2 million provided assistance to someone over age 50, and 22 percent of those were caring for someone with dementia. The common perception is that caregiving is stressful and will have deleterious effects on the caregiver’s mental and physical health. This is because of the physical and emotional aspects of caregiving tasks, neurodegenerative disorders such as dementia that require caregiving and the unpredictable nature of these diseases, and the time commitment. Yet, there is no epidemiologic evidence that caregiving increases the risk of health decline. In fact, virtually all population-based studies have found better health outcomes in caregivers than non-caregivers on a variety of indicators, including mortality, cognitive performance, and incidence of frailty.

My personal experience as a caregiver showed me the disconnect between being a caregiver and doing epidemiologic research on caregiving. It opened my eyes to the inadequacies of the healthcare system in dealing with family caregivers and to caregiving-related stresses that are not addressed by epidemiologic studies. Studies as well as education might improve the lives of caregivers and their care recipients.

The caregiver as “hidden patient” will probably diminish as increasingly more people become caregivers due to the aging of the population and the increasing prevalence of conditions such as Alzheimer’s disease. Resources will be needed to help this growing population deal with caregiving stress, get respite, and become educated about their care recipient’s condition so that they can better predict what is needed.
Link Between Pornography Use and Dating Abuse Among Urban Teens

BLACK AND HISPANIC TEENAGERS FROM URBAN AREAS who were victims of dating abuse reported viewing pornography twice as often as non-victimized peers, suggesting a possible link between dating abuse and pornography exposure, according to a new study led by an SPH researcher.

The study, appearing in the journal Behavioral Sciences, gauged pornography use and adolescent dating abuse in a sample of 72 youths ages 16 and 17, most of whom were Black or Hispanic and economically disadvantaged. On average, the youths reported watching pornography twice per week, with half reporting at least weekly exposure.

Dating abuse victimization was not a criterion for joining the study, yet nearly 70 percent reported experiencing at least one instance of physical or sexual dating abuse victimization in the past year.

The study found that more than half of all participants (51 percent) had been asked to watch pornography together by a dating or sexual partner. Overall, 44 percent of the youths reported that they had been asked to do something sexual that a partner saw in pornography, with a higher likelihood of that occurring among dating abuse victims. Fifty-eight percent of those who were asked to participate in a sexual act that their partner saw in pornography reported that they were not happy to have been asked.

Emily Rothman, associate professor of community health sciences and lead author of the study, said the relationship between adolescent dating abuse and pornography exposure warrants further study, given the wide availability of pornographic material on the internet.

“It’s possible that dating abuse victims are coerced or forced to watch more pornography or perform pornography-inspired acts, but it’s also possible that their pornography exposure predisposes them to victimization,” or that some other unmeasured factor is driving the association, she said. More study is needed to determine “the strength and nature of the association.”

CHRISTINE BAUGH (MPH'12) is included in the 2016 Forbes 30 Under 30: Sports list. “As a former athlete, it was exciting to be on the sports list,” says Baugh, who rowed in college and made the list for her research on concussions and repetitive brain trauma in contact sports—and the policies that could prevent them.

Her research has been reported by the New York Times, ESPN, Sports Illustrated, and other major news outlets. As an MPH student at SPH, Baugh won multiple awards for her work on concussions in youth sports. She also began to look at how National Collegiate Athletic Association (NCAA) institutions create and implement policies to reduce the dangers of contact sports.

While at SPH, she was also the research coordinator at BU’s Chronic Traumatic Encephalopathy (CTE) Center, and after graduation was appointed a research instructor in the Department of Neurology at the School of Medicine. She is currently a doctoral student and graduate research assistant in health policy at Harvard University and a graduate research assistant in the Division of Sports Medicine at Boston Children’s Hospital.

“I hope that those who saw my profile on the sports list might pause to think about the importance of athletes’ health during and after their sports careers.”

—CHRISTINE BAUGH (MPH'12)
RESEARCHERS FROM SPH AND THE UNIVERSITY OF PENNSYLVANIA have found that prior studies of the link between obesity and mortality are flawed because they rely on one-time measures of body mass index (BMI) that obscure the health impacts of weight change over time.

The study, published online in the journal Proceedings of the National Academy of Sciences, maintains that most obesity research, which gauges weight at only a single point in time, has underestimated the effects of excess weight on mortality. Studies that fail to distinguish between people who never exceeded normal weight and people of normal weight who were formerly overweight or obese are misleading because they neglect the enduring effects of past obesity and fail to account for the fact that weight loss is often associated with illness, the researchers said.

“The risks of obesity are obscured in prior research because most of the studies only incorporate information on weight at a single point in time,” said lead author Andrew Stokes, assistant professor of global health. “The simple step of incorporating weight history clarifies the risks of obesity and shows that they are much higher than appreciated.”

The study used statistical criteria to compare the performance of various models, including some that included data on weight histories and others that did not. The researchers found that weight at the time of the survey was a poor predictor of mortality, compared to models using data on lifetime maximum weight.

“The disparity in predictive power between these models is related to exceptionally high mortality among those who have lost weight, with the normal-weight category being particularly susceptible to distortions arising from weight loss,” the researchers said. “These distortions make overweight and obesity appear less harmful by obscuring the benefits of remaining never obese.”

The study comes amid controversy over the relationship between obesity and mortality, with some recent studies indicating that being overweight is associated with lower mortality, and that slight obesity confers no excess risk of death.

A number of past studies have shown that people who lose weight have higher rates of death than those who maintain their weight over time. Part of the reason for that disparity is that illness may be a cause of weight loss, through decreased appetite or increased metabolic demands. Few studies have adequately accounted for that source of bias, Stokes and Preston noted.
THE PUBLIC HEALTH PRACTICE LAUNCHED THE ACTIVIST LAB this spring to help bridge the gap between academic work and action. Seeking to educate, innovate, and advocate, the lab serves as a catalyst between SPH and the wider community, creating workshops and workforce training programs, engaging partners and community stakeholders, and developing and implementing programs and policy.

Harold Cox, associate dean for public health practice and associate professor of community health sciences, talked about the thinking behind the Activist Lab and the role of advocacy in public health.

What role does activism play in public health?
Public health is about research, about identifying problems—and sometimes it’s about taking a stand. When we talk about activism, the first thing that comes to mind is standing outside holding a sign. Well, that’s one kind of activism, but it’s also activism to bring together stakeholders to define what is a problem. It’s also activism when you decide that smoking is a problem in the world and that we should do something to decrease smoking and exposure to smoke to individuals.

What are you most excited about so far?
I’m excited about the chance to be able to do this. There are certainly a number of schools that address a variety of different issues—we’re clearly not the only ones that have decided that a problem exists somewhere. We are, however, the only place I know of that has pulled it together in quite this way, and who embrace the idea of taking a stand.

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“THE PEOPLE WHO WE ATTRACT ... WANT TO CHANGE THE WORLD.”
—DEAN SANDRO GALEA

SPH PROFILED IN THE LANCET

“The Lancet has honored SPH’s 40th anniversary with an article that examines the School’s history and vision for the future. The story includes interviews with Dean Sandro Galea and several faculty members. It reviews highlights of the School’s research history, including developing the basis for US drunk-driving laws, laying the intellectual foundation for patient rights and applied bioethics, and contributing to the understanding of the health effects of environmental toxins in conditions such as Gulf War syndrome.

“We have faculty and staff who are drawn here because this is a school that does top-tier research but is deeply committed to real-world practice,” Galea tells The Lancet. “The people who we attract... want to change the world.”

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NEW CHAIRS BRING PASSION TO THE TABLE.

FOR PATRICIA HIBBERD, IT WAS NEONATAL SEPSIS, PNEUMONIA, AND OTHER CHILDHOOD DISEASES.

FOR MICHAEL STEIN, IT WAS ADDICTION.

The two widely known researchers who took over as SPH department chairs this summer—Hibberd, of global health, and Stein, of health law, policy & management—have been sounding the alarm in their respective areas of expertise for more than a decade. Both are advocates of arming vulnerable communities with the tools of technology and evidence-based medicine to tackle their own public health problems.

Hibberd, a physician and epidemiologist, has been working in Malawi, India, and Pakistan to develop a low-cost thermal imaging system for smartphones that would help to detect bacterial pneumonia in children.

“X-ray machines are not going to magically appear in the health clinics of poor countries. We can’t wait for that,” she says. “Smartphones are everywhere. This is about giving clinicians the tools they need to save lives, now.”

Hibberd came to SPH from Harvard University, where she was a professor of global health at the Harvard T.H. Chan School of Public Health and professor of pediatrics at Harvard Medical School. She also headed the Division of Global Health in the Department of Pediatrics at Massachusetts General Hospital (MGH).

A native of Liverpool, England, who earned her PhD from Leicester University and her MD from Harvard in 1986, Hibberd, a leader of the National Institutes of Health (NIH) Global Network for Women’s and Children’s Health Research at MGH, has collaborated for years with a colleague in India on ways to reduce the rates of neonatal sepsis and pneumonia.

Stein, a health services researcher, warned more than a decade ago about the “disease burden” for opioid-dependent individuals, which related to overdoses, transmission of diseases, and hospitalizations. He was among the first physicians to prescribe and study the use of buprenorphine, which blocks the effects of opiates on the brain.

In his secondary role as an award-winning author, Stein channeled his experience into a bestselling book, The Addict: One Patient, One Doctor, One Year, which chronicled his dealings with a patient.

“One role of the scientist is to sound alarms,” Stein says. “My book came out of both my research and my clinical sense that this opioid epidemic was different: prescription pill-related, suburban, and reaching women equally to men. I certainly knew it wasn’t something that was going away—it had all the makings of something that would only get worse.”

Stein came to SPH from Brown University, where he was a professor of medicine, health services, policy & practice. His research has focused on substance use disorders, HIV/AIDS, mental health disorders, and risk-taking.

A graduate of Harvard College, Stein has been recognized by the NIH as being among the top one percent of federally funded clinical investigators over the past two decades in substance use disorders and behavioral health.

Recently, he says, he’s become interested “in the possibilities—and limits” of using technology to reach greater numbers of people who have substance use and behavioral health problems.
**SPH BY THE NUMBERS**

### SPH Campaign Update
- **Total Raised by SPH So Far:** $47.2M
- **Campaign Goal:** $60M
- **79% of Goal**

### Ranking
- U.S. News & World Report: 10th Best Graduate Schools of Public Health

### Application Numbers
- **Total Applications, Fall 2016:** 2,195
- **Students at SPH:** 1,024

### Students
- **Alumni Living in 107 Countries:** 8,596

### Faculty
- **Staff:** 233
- **265**

### 2015 Graduate Employment
- **Employed Full Time or Pursuing Advanced Education Within 6 Months of Graduation:** 92%
- **Employed in Domestic Public Health Positions:** 80%
- **Employed in Global Health Positions:** 20%

### Scholarships
- **Scholarships Awarded:** $7,801,587
- **Research Awards:** $51M
- **Current Grant Portfolio:** $184M

### By the Numbers
- **By 2019**
- **8,596**
- **107**
- **233**
- **265**
- **92%**
- **80%**
- **20%**
HOW TOXINS IN CAPE COD DRINKING WATER SHAPED THE CAREER OF EPIDEMIOLOGIST ANN ASCHENGRAU.

THE CAPE CRUSADER.
As frustrating as the experience was, it ultimately led Aschengrau to the work that has defined her career for a quarter-century: the unique and tragic case of Cape Cod water pipes contaminated with PCE, a solvent still used at dry cleaners and machine shops. Over 25 years, Aschengrau has made remarkable observations about the relationship between PCE—a common but little-studied groundwater contaminant—and not only cancer, but also effects as diverse as illicit drug use, bipolar disorder, and diminished color vision. The research has helped establish Aschengrau as one of the leading environmental epidemiologists in the world, while building a body of knowledge about PCE.

In 1976, the EPA discovered PCE-contaminated water, first in Providence, Rhode Island, and then in other towns around New England, including towns on the Cape. Though the contamination was eventually removed, the damage was done: thousands of residents were exposed, sometimes for years, to a neurotoxin and probable carcinogen in their drinking water.

In 1992, Aschengrau began her PCE research in earnest. She first constructed a cohort—in this case, people who lived on Cape Cod and were exposed to PCE in their drinking water between 1969 and 1983—and then restricted it to women who were pregnant and gave birth during this time.

In her first study, Aschengrau found an association between PCE exposure and neural tube defects like spina bifida and oral clefts. In subsequent studies, she questioned the children—now adults—and added neuropsychological testing, vision exams, and MRIs to look at things like motor skills, visual acuity, intelligence, and mood. She found surprising associations between PCE exposure and risk-taking behavior, such as cigarette smoking, alcohol consumption, and cocaine and heroin use. She also found links between PCE and bipolar disorder, diminished color vision, and decreased attention. Over the past two decades, she has published more than 20 papers on the neurotoxic effects of PCE, the largest body of research ever compiled on the subject.

Aschengrau continues her research with the original birth cohort today, most recently looking at social factors that may increase or decrease the effects of PCE.

“I’ve become really interested in the interaction between environmental exposures and social stressors,” she says. “Alcohol and drug use have enormous health, social, and economic costs, and I hope this novel approach will help unravel their complex causes.”

In January 1992, Professor of Epidemiology Ann Aschengrau stood in front of a packed auditorium in Falmouth, Massachusetts. Hundreds of people had gathered to hear her explain why the cancer rates on Cape Cod were so high. There were a few possible culprits: smoke from a coal-fired electric plant, leaking landfills, pesticides sprayed on cranberry bogs, the sprawling Massachusetts Military Reservation, and water pipes contaminated with a neurotoxin called tetrachloroethylene (also known as perchloroethylene and commonly referred to as PCE). Community groups had demanded that the commonwealth launch an investigation, and the task fell to Aschengrau and her colleague David Ozonoff, an SPH professor of environmental health.

The study results presented that night pleased nobody. The scientists found an association between fumes from burning propellant bags on the military reservation and lung and breast cancer. They also found links between cranberry growing and brain cancer, and between PCE-laden drinking water and leukemia and bladder cancer. But there was no smoking gun.
WIDELY Praised as an Innovative Teacher

Deeply committed to mentoring, Christopher Gill, an associate professor of global health at SPH and a research scientist at the Center for Global Health & Development, was honored with the University’s highest teaching accolade, the Metcalf Cup and Prize, at the University’s 143rd Commencement in May. Gill’s research has focused on child survival and includes diarrheal diseases, tuberculosis, pneumococcal and meningococcal disease, and adherence to HIV medications as well as neonatal survival, particularly in Zambia, where he was principal investigator of a major study. From 2011 to 2014, Gill directed SPH’s Pharmaceuticals Program, which aims to educate public health practitioners about the role of pharmaceuticals in public health. He is a member of the World Health Organization Collaborating Centre in Pharmaceutical Policy, which provides research and programs to improve access to essential drugs in developing countries and develops policies that make drugs more affordable and their use more straightforward.

“Dr. Gill’s experience working in the pharmaceutical industry inspires him to teach theory, but more importantly, how to apply theory to solve public health problems,” says Dean Sandro Galea, “Students describe his courses as challenging, practical, innovative, and inspiring, and his enthusiasm, creativity, and dedication in teaching also extend to his research.” Funded by a gift from the late BU professor and Board of Trustees chairman emeritus Arthur G. B. Metcalf (SED’35, Hon.’74), the Metcalf awards date to 1973. The Metcalf Cup and Prize winner receives $10,000; the Metcalf Award winners $5,000 each.

“Dean based his selection on the outstanding contributions that these members of our faculty have made toward advancing the field of public health,” says Michael McClean, associate dean for research and faculty advancement. “As a school, we aim to be among ‘the world’s most influential’ and are inspired by their accomplishments.”

Using citation data from 2003 to 2013, Thomson Reuters compiled the list of almost 3,000 researchers who published the greatest number of articles ranking among the top one percent by citations in respective fields in each paper’s year of publication.

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Dean Sandro Galea is listed in the “Social Sciences, General” category. The “Clinical Medicine” category includes four SPH professors:

Martin Larson is research professor of biostatistics at SPH, research professor of mathematics & statistics at the College of Arts & Sciences, and research associate professor of medicine at the School of Medicine.

Emelia J. Benjamin is professor of epidemiology at SPH and professor of medicine at the School of Medicine.

Ralph B. D’Agoinstein Sr. is professor of epidemiology at SPH, professor of mathematics & statistics and executive director of the biostatistics program at CAS, and professor at the School of Law.

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“Overheard at SPH

“Had it not been for that clinic, had it not been for the contraceptive care that I received… it would have completely derailed my opportunity to create a better life for myself and my daughter.”

Wendy Davis
Former Texas State Senator

“Nobody is born with a gun in their hand.”

Clementina Chéry
President and CEO, Louis D. Brown Peace Institute

“Many states either implicitly or explicitly tell me, ‘Why look at us? If the United States tortures, why can’t we do it?’”

Juan E. Méndez
Special Rapporteur on Torture, United Nations
Dean’s Symposium: Beyond Science, Justice, and the Health of the Public

“He’s giving people with addiction to treatment instead of jail.”

Leonard Campanello
Former Chief of Police, Gloucester, MA
Dean’s Seminar: Why Cops Are Sending People With Addiction To Treatment Instead Of Jail

“There are an awful lot of people in this country who are dying prematurely, unnecessarily. We need to change that.”

Tom Farley
Former Health Commissioner, New York City

“What would the world look like if every undergraduate could be exposed to public health?”

Donna Petersen
Senior Associate Vice President, USF Health, and Dean, College of Public Health, University of South Florida

“Public Health Forum: Framing the Future: Transforming Public Health Curricula Toward Improved Population Health

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“What the community was saying was, ‘We don’t want you arresting people with this disease anymore.’”

Leonard Campanello
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“We are much more than our genome.”

Ellen Wright Clayton
Craig-Berrier Professor of Pediatrics, Professor of Law, Vanderbilt University

“Public Health Forum: Why Public Health Is Critical in a Precision Medicine World

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ENOUGH.

In June, a gunman walked into a popular Florida gay club with an assault rifle and perpetrated the deadliest mass shooting in US history, killing 49 people and wounding more than 50. This crime, already horrible, was made more egregious for being a hate crime against minority populations, specifically the lesbian, gay, bisexual, and transgender (LGBT) population, and populations of color.
The hostility in Orlando was expressed in the most violent way possible, enabled by a culture that prioritizes unfettered access to guns over the safety of its citizens. It is worth noting that many structural stigmas against LGBT populations—same-sex marriage resistance, anti-trans bathroom policy, protections for discrimination under the guise of “religious freedom,” bans on blood donation for men who have sex with men and trans women who have sex with men—are upheld by the same legislatures that enforce this country’s status quo on firearm access.

Guns enable hate. They give it a voice that it does not deserve to have, and should not have, in our society. The massacre in Orlando underscored this point, and reminded us what we have long known: that these events happen with shocking regularity. In 2013, the US suffered more than 30,000 gun deaths. It would not be hyperbolic to say that, in our country, this type of event has become routine.

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Extant studies on the risks of firearm availability on firearm mortality have provided clear evidence of an increased risk of both homicide and suicide. A meta-analysis of 16 observational studies, conducted mostly in the US, estimated that firearm accessibility was associated with an odds ratio of 3.24 for suicide and 2.0 for homicide, with women at particularly high risk of homicide victimization. In the case of firearm suicide, adolescents appear to be at particularly high risk relative to adults.

Despite the clear evidence that guns pose a threat to health, the public health community has been unable to get traction as an effective voice on this issue. Instead of quality scholarship and policy efforts to map and respond to the risks of guns, we have seen the silencing of gun researchers, health practitioners, and policymakers intent on addressing these problems.

Actions by Congress fueled by the National Rifle Association in 1996 effectively defunded federal gun research, a still extant legacy. While translatable lessons from successful public health campaigns on smoking, unintentional poisonings, and car safety abound, the political will necessary to implement and test them with respect to guns has been absent.

When we prioritize the proliferation of weapons of war over the safety of our communities, we signal our peace with the status quo. We say that we can live with the harm directed daily toward our neighbors and friends; that we accept the possibility that an angry, spiteful person could, at any time, access an assault rifle and use deadly force to broadcast his grievance to the world. It falls to academic public health to organize itself in a way that will allow us to be a clear and compelling voice on this issue, toward making the acceptable unacceptable. Enough.
Prenatal exposure to endocrine disruptors: a developmental
N Engl J Med. 2015

Affirming the right to health care over the right to life: physicians and lawyers working together. N Engl J Med. 2015

HRS Expert Consensus Statement on remote interrogation (RI) of pacemakers and implantable cardioverter-defibrillators


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Race/ethnicity identification: vital for disparities


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Rothrock NE, Hays RD, Schalet BD, Rothendler JA

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