consequentialist epidemiology
big push initiatives in global health
nyc’s new health commissioner
ON THE COVER: A graphic reduction of John Snow’s mapping of the 1854 London cholera outbreak. The map has been reduced to the representation of deaths—marked by rectangular bars set perpendicular to streets. The bars are colored red for emphasis. Featured in Bringing ‘consequentialism’ back to epidemiology on page 10.
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Colleagues,

2x2 has a new look. Our spring 2014 issue has been redesigned to accommodate more in-depth articles about epidemiology, and to draw on and better synchronize with our online presence on the2x2project.org.

This move reflects our growing focus on communicating our findings to better inform and influence the epidemiologic conversation. Our ultimate goal is to translate our science into policy and action that improves population health. We see communicating the science of epidemiology with the broadest possible audience as a step in that direction.

In keeping with this shift, two of the feature articles in this issue reflect some of our musings on the role of epidemiology in the public health sphere: where should the science be going, and how should it best be implemented? We also feature a profile through the eyes of our trainees of our colleague Dr. Mary Bassett, New York City’s new health commissioner, who exemplifies the translation of epidemiologic knowledge into policy.

Welcome to the new 2x2.

Warm regards,

[Signature]
Close relatives of people with epilepsy are at a greater risk of developing the disorder compared to the general population, according to a new study led by Dr. Ruth Ottman, professor of epidemiology (in Neurology and the Gertrude H. Sergievsky Center) at Columbia University, with co-author Dr. W. Allen Hauser, professor emeritus of epidemiology at CUMC, and other colleagues from Columbia’s department of neurology, the Mayo Clinic, and the University of Calgary.

Although this group is not the first to find that risk for epilepsy runs in families, past studies had potentially serious methodological limitations according to the paper, which will run in the March issue of the journal Brain.

The researchers analyzed data from the Rochester Epidemiology Project, a partnership of three medical centers in Minnesota, which allows all records of medical care received by patients residing in the area it covers to be used for population studies.

The researchers studied the families of 660 residents of Rochester, Minnesota, with new cases of epilepsy occurring during a 60-year period— from 1935-1994. Among the nearly 2,500 parents, siblings, and children of these individuals, the risk of developing epilepsy by age 40 was 4.7 percent—three times that of the general population.

Those at highest risk were relatives of individuals with idiopathic generalized epilepsy, which, though its origins are uncertain, is believed to have a strong genetic basis. Also at greater risk were relatives of individuals who have types of epilepsy associated with intellectual or motor disability that are likely related to prenatal or developmental problems. Epilepsies of unknown cause and of prenatal/developmental cause clustered within families, suggesting shared genetic influences.

The family members of individuals whose epilepsy had a known cause occurring after birth, such as a stroke, severe traumatic brain injury, or brain tumor were not at increased risk.

Epilepsy is characterized by recurrent seizures caused by abnormal electrical discharges in the brain. Approximately 1.3 percent of individuals will develop epilepsy by age 40, and 3 percent will develop it before age 80. While epilepsy cannot be cured, seizures can be controlled with medication in about two-thirds of affected individuals.

It is believed that genetics are involved in the majority of cases, although how exactly the disorder comes about is complicated, involving interplay among the environment and multiple genes.

“One of the most important concerns of people with epilepsy is whether the disorder is inherited—what are the risks in their family members, and especially in their offspring?” says Dr. Ottman.

Although genetic research is moving quickly, in most individuals with epilepsy, the specific genes that affect risk of the disorder have not been identified.

“That means we need to rely on solid risk estimates from rigorous studies like this one to obtain answers about risks to family members,” Dr. Ottman says. “One thing that’s important about our findings is that people with epilepsy tend to overestimate the risk in their children, and we found that risks in offspring are only about 4 percent overall, and are less than 10 percent even in the highest risk groups—so that even though risk is higher than in the general population, more than 90 percent of the offspring will remain unaffected.”

Medical professionals should take note of a recent study that reported a significant association between the use of antidepressants during pregnancy and the risk of hemorrhage after giving birth, two Columbia University Medical Center researchers said in an editorial in the late November issue of the BMJ group journal Evidenced-Based Nursing. Use of antidepressants has not been commonly recognized as a risk factor for abnormal bleeding during pregnancy or childbirth.

“The findings from this study add considerably to limited prior research on this subject, which has found similar associations despite methodological shortcomings,” write Drs. Cande Ananth, professor of epidemiology and obstetrics and gynecology, and Dr. Alexander M. Friedman, professor of obstetrics and gynecology. “The magnitude of increased hemorrhage risk in relation to serotonin exposure demonstrated in this study is clinically relevant.”

The study at issue, which was published in BMJ in August by epidemiologists at Harvard’s School of Public Health, adds to a growing body of research that has connected the popular class of antidepressants known as SSRIs (selective serotonin re-uptake inhibitors) to hemorrhage, as well as excessive bleeding in the gastrointestinal system and during surgery.

Hemorrhage during delivery is one of the leading causes of maternal death in the United States. It has been on the rise in the U.S. and several other developed countries since the 1990s, despite no change in the frequency of multiple pregnancies or induction of labor, which are established risk factors for postpartum hemorrhage.

The Harvard study looked at seven years of Medicaid data on 106,000 low-income women who were pregnant and had a diagnosis of mood or anxiety disorder, comparing those who had been prescribed antidepressant medication against those who had not.

Risk for postpartum hemorrhage was greatest (4 percent) for women on SSRIs compared with 3.8 percent for women using anti-depressants that were not SSRIs and 2.8 percent for women who were not on medication.

These are significant enough numbers for medical professionals to take notice, wrote Drs. Ananth and Friedman: “While the benefits of antidepressants may outweigh the relatively small attributable maternal and neonatal risks for many women, clinicians should be aware of a modestly increased risk for this serious adverse obstetric outcome.”

More evidence is needed to establish whether antidepressants directly cause hemorrhage, they say. Research has suggested that SSRIs might deplete serotonin that is stored in platelets, which are cells in blood that reduce bleeding. Yet a 2008 study by scientists at the University of Toronto found that SSRIs do not put women at greater risk of postpartum hemorrhage than non-SSRI antidepressants. Comparisons of risk between SSRI and non-SSRI antidepressants are generally limited by the relatively infrequent use of drugs in the non-SSRI class during pregnancy.

Celexa, Lexapro, Prozac, Paxil, and Zoloft, and their generic versions are all popularly-prescribed SSRIs. These drugs are commonly used to treat psychiatric problems such as anxiety and depression that may occur during or predate a women’s pregnancy.

Rates of maternal mortality and severe morbidity are high in the U.S. compared to other rich countries, and findings from this study may help clinicians anticipate increased risk in a specific subset of patients.

Ananth CV, Friedman AM. Late pregnancy use of selective serotonin reuptake inhibitors and serotonin and norepinephrine reuptake inhibitors is associated with increased risk of postpartum haemorrhage. Evid Based Nurs. 2013 Nov 28. doi: 10.1136/eb-2013-101595. [Epub ahead of print] PMID: 24288247
Although their attitudes are more positive than the general public, a significant number of mental health professionals would be unwilling to live near or work with someone who has an untreated psychiatric disorder, especially schizophrenia, according to a new study in the journal Psychiatric Services.

“How people with mental disorders are viewed by treatment providers and the general public can have a significant impact on treatment outcomes and the quality of life of clients,” writes Dr. Bruce Link, professor of epidemiology and sociomedical sciences at Columbia’s Mailman School of Public Health, with co-author Dr. Jennifer Stuber and her team at the University of Washington.

The researchers compared the survey responses of a representative sample of 731 providers of mental health services, including psychiatrists, therapists and psychologists, case managers, psychiatric nurses, program directors and managers, with a general population sample of 770.

The mental health providers were recruited from community mental health agencies in Washington State and were demographically representative of the national mental health workforce. The general population sample came from the General Social Survey, an in-person survey that is widely used for its extensive data on Americans’ attitudes about a variety of subjects.

Both groups were presented with vignettes that described people with untreated depression and schizophrenia without being told of their diagnosis. The groups were asked how they would respond if these people lived next door, worked closely with them, married into their family, or lived in a nearby group home.

Both providers and the general population had more positive attitudes toward those with depression compared to those with schizophrenia, who they sometimes viewed as potentially violent.

Over a third of the providers said they would be unwilling to have an individual with schizophrenia as a coworker, and about one-third said this individual was likely to use violence toward others.

Negative perceptions toward disorders that involve psychosis has increased with rising news coverage of mass shootings implicating people with mental illness, according to the authors, even though such illness is almost never the only reason for this violence.

Older, male mental health professionals were more likely to view people in the depression and schizophrenia vignettes as less competent, compared to younger, female professionals. Providers with more advanced degrees held more positive attitudes than those with less education.

So did those who had been professionally active for longer, or had been diagnosed with a mental illness (32 percent of the sample).

Among the general population sample, older people and women were more likely to have positive attitudes than younger people and men.

“People with mental illnesses often ask me whether I have studied stigmatizing responses of mental health providers. They say that the experience of negative attitudes from providers is particularly troublesome to them because it occurs in the place where they go to get help for such problems,” says Dr. Link. “I can now answer that we have done such a study and can use the results to advocate for interventions that might improve attitudes and thereby the treatment experience of people who seek help.”

Nelson Rolihlahla Mandela was a lawyer, protester, revolutionary, anti-apartheid leader, prisoner, negotiator, president, statesman, anti-AIDS campaigner, and philanthropist, says Dr. Salim Abdool Karim, professor of clinical epidemiology at the Mailman School of Public Health and director of the Centre for the AIDS Programme of Research in South Africa, in a tribute published in Science magazine in January.

Although as president of South Africa, Mandela’s top priority was bringing together a nation torn by apartheid, he made invaluable contributions toward the fight against AIDS both during and in the years after his presidency.

When Mandela took office in 1994, 7.6 percent of the population and 1 in 13 pregnant women were HIV positive. To reduce rates of HIV in pregnant mothers and newborns, Mandela declared these groups should have free health care. He also appointed a leading local AIDS scientist to direct a national AIDS program. As a personal project, in 1995 he founded the Nelson Mandela Children’s Fund to support community programs working to prevent mother-to-child-transmission and to care for children orphaned by AIDS. Despite these efforts, AIDS was only one of many priorities of his government and as a result did not receive the amount of attention Mandela knew it deserved. By the time he left office in 1999, 1 in 4 pregnant women was HIV positive. Unfortunately, his successor, Thabo Mbeki, denied the existence of the AIDS virus, significantly holding back South Africa in the fight against AIDS.

Mandela, filled with regret for not prioritizing AIDS, spent the next chapter of his life as an influential anti-AIDS activist, framing the epidemic as a human rights issue. He directed the Nelson Mandela Foundation to pay for a household survey to gauge the AIDS’ impact upon South Africa. In 2000, he spoke at the 13th International AIDS Conference, his most important contribution as an anti-AIDS activist, according to Dr Abdool Karim activist. There, Mandela told the audience that South Africa and the world should make AIDS treatment accessible to all. His speech received 17 standing ovations.

In the foreword for the book HIV/AIDS in South Africa, coedited with Dr. Abdool Karim, Mandela acknowledged the delicate gender politics and damaging social attitudes holding back prevention, testing and AIDS treatment efforts, stating, “we will not succeed until we appreciate the gender dimension of vulnerability to HIV” and “until we have addressed the stigmatization and discrimination.” He fought stigma around the disease, announcing in 2005 that his son had died of AIDS and by wearing and posing for pictures in a Treatment Action Campaign “HIV Positive” t-shirt.

In the words of Dr. Abdool Karim, Mandela’s “long walk was the first step toward freedom from oppression, freedom from want, and freedom from disease. With his passing, his legacy is in each of us as we follow in his footsteps in the enduring quest to make our world a better place for all.”

Scientists are proposing a new approach to treating schizophrenia, one which would draw on research that connects the psychiatric condition with early life exposures to infection.

In an article in the February issue of the journal Biological Psychiatry, Dr. Alan S. Brown, professor of epidemiology at Columbia, with Columbia colleagues Dr. Ragy Girgis, assistant professor of psychiatry, and Samhita S. Kumar, an MPH student in epidemiology, propose running a clinical trial of a biological immunotherapy that would target the brain’s inflammatory response.

A chronic and debilitating disorder of the brain, schizophrenia is one of the most difficult psychiatric illnesses to treat. Often emerging in the late teen years or early twenties, it can cause hallucinations, delusions, disordered thinking, unusual speech or behavior, and social withdrawal. Individuals with schizophrenia are often stigmatized as violent, even though only a small number act out.

The only current medication treatment for schizophrenia is a class of medications known as “antipsychotics.” These drugs are usually only partially effective and can cause side effects such as metabolic syndrome, tremor, and sedation.

The treatment proposed by the authors is based on the “cytokine model” of schizophrenia. This model hypothesizes that schizophrenia arises from prenatal or early childhood exposure to infection, which leads to chronic peripheral nervous system inflammation in adulthood.

Cytokines are a group of proteins that are important in immune and inflammatory responses and to the development of the nervous system. They are produced in increased numbers when exposed to infections. If a woman experiences certain viral or bacterial infections during pregnancy, her cytokines may transmit immune and inflammatory signals to the developing prenatal brain, studies suggest.

Dr. Brown and colleagues have previously shown in large birth cohorts that elevations in prenatal serum cytokines measured over time and several in utero infections are associated with schizophrenia.

The authors suggest a novel clinical trial to test a medication with an antibody that can neutralize IL-6 proteins by binding to their receptors. One such drug is called tocilizumab, which has been approved by the Food and Drug Administration for rheumatoid arthritis in patients who haven’t responded to other therapies.

The authors say they only know of one study in which a “cytokine antagonist” has been used to treat a psychiatric disorder. In this trial, patients diagnosed with depression who took infliximab, an antibody that neutralizes a different cytokine protein, and who had elevated inflammatory biomarkers initially, significantly improved after 12 weeks.

Since publishing the study, Dr. Brown and Dr. Girgis have begun a trial of tocilizumab, which is underwritten with a grant from the Stanley Foundation.

“If the medication is successful, and is replicated by other investigators, the study has the promise of a novel approach to treating schizophrenia by reversing a key component of its putative pathophysiology,” says Dr. Brown, adding that the medication may be most effective in patients with evidence of systemic inflammation.

 Moreover, the study provides a more robust test of the cytokine model of schizophrenia, since it is based on a randomized controlled design, in contrast to previous studies of cytokines in schizophrenia, which were observational and therefore subject to confounding.”

Bringing ‘consequentialism’ back to epidemiology

In a challenging funding environment, epidemiologists urge more action

BY ELAINE MEYER
The large and long-enduring Framingham Heart Study is known as one of the success stories of epidemiology. The Washington Post in 2000 named it a top ten medical accomplishment of the 20th century. Data the study has gathered through its regular and detailed physical examinations of over 15,000 participants since 1948 have led to a number of breakthroughs that are credited with dramatically reducing deaths from heart disease.

But in July the Framingham website announced a 40 percent cut to the $9 million budget contract with the National Institutes of Health's National Heart, Lung and Blood Institute (NHLBI), which supports the study’s core operations. The cuts are not only a blow for Framingham but indicative of a more worrying trend, according to some observers.

“[NHLBI] is dramatically reducing its support for the large cohort studies that are ongoing because they are very expensive,” says Dr. Lewis Kuller, a cardiovascular epidemiologist at the University of Pittsburgh Graduate School of Public Health. “However they generate a huge amount of valuable data, so you might say on a value basis they are not expensive, and they’re certainly not more expensive than the amount of funding that goes into what you might say is basic research.”

A field that is devoted to scientifically studying the distribution, cause, and effects of disease and injuries, epidemiologic discovery has motivated public health campaigns and policy changes that have led to longer life spans across the globe, such as anti-smoking regulations, seatbelt laws and speed limits, water treatment, vaccines against infectious diseases, sex education, and folate supplementation in water to prevent birth defects.

Despite those “big wins” of the past, some epidemiologists are concerned that because their field hasn’t achieved comparable public health improvements in the last decade, it will have difficulty weathering the current financial climate. “Implicit in pressures [from large funders] is a growing dissatisfaction outside the field of epidemiology with epidemiologic description and correlation and a sense that our current approaches are not leading to ‘wins,’ to practical solutions to diseases and challenges to health, or to science that is more saliently useful to decision makers with a responsibility to the health of the public,” says Dr. Sandro Galea, chair of the department of epidemiology at Columbia University’s Mailman School of Public Health.

On top of this, a few critics have argued that the observational cohort studies commonly used in epidemiology are “leading the public astray,” as Drs Paul Sorlie and Gina S. Wei put it in a 2011 article that itself is sympathetic to the use of such studies.

The critics compare observational research of risk factors unfavorably to the methods of randomized controlled trials that are commonly used in drug studies. “While the tools of epidemiology—comparisons of populations with and without a disease—have proved effective over the centuries in establishing that a disease like cholera is caused by contaminated water, as the British physician John Snow demonstrated in the 1850s, it’s a much more complicated endeavor when those same tools are employed to elucidate the more subtle causes of chronic disease,” writes one of the most vocal critics, science journalist Gary Taubes, in the New York Times in 2007.

While this is a controversial view among epidemiologists, some still believe their field needs to re-assert its relevance. “I think over time, a lot of epidemiology has become data analysis and data dredging and highly sophisticated statistical modeling but without any emphasis on the application of epidemiology on public health and preventive medicine,” says Dr. Kuller.

‘Consequentialist epidemiology’

In June, Dr. Galea stood before a hotel ballroom filled with his peers to give the annual outgoing president’s speech at the Society for Epidemiologic Research (SER) meeting in Boston.

“We are seeing a gross failure in our improving the health of populations,” he said. Epidemiology risks being shunted aside if its practitioners do not use it for “consequentialist” purposes. “Academic epidemiology now spends most of its time concerned with identifying the causes and distributions of disease in human population, and far less of its time and imagination asking how we might improve health,” Dr. Galea wrote in a follow-up article published in September in the American Journal of Epidemiology.

Reviewing articles in the four leading epidemiology journals, Dr. Galea and his colleagues found that over 85 percent focused on causality or etiology of a disease “with little particular attention to how that etiology may be relevant to intervention.” The 14 leading epidemiology textbooks “devote[d] the overwhelming majority of their content to educating the reader about how we may identify causes and distribution of disease.”
“Our focus on causal thinking at the expense of pragmatic thinking is not cost free, and runs the risk of marginalizing us as a discipline,” he says, citing as examples journal articles that focus on “illicit drug use and cognitive function in the mid-adult years” and “the relationship between pre-mature birth and age at onset of puberty.” Epidemiology needs “a demanding, rigorous approach that focuses us ruthlessly on our outcomes—rather than our approaches and methods,” he continues.

One example of where epidemiology could be more focused on outcomes is on the issue of gun violence. Although epidemiologists have found evidence that gun availability leads to an increase in homicide and suicide, the field could make a more meaningful contribution if it studied the consequences of different regulatory approaches to gun control.

“This approach would have epidemiology leading the way on both implementation science and on translation of population health science, when, in actuality, we are at best involved in these emerging movements on the margins.”

Dr. Galea is not the first to express these concerns. In 1967, the president of the American Public Health Association (APHA), Dr. Milton Terris told attendees at the organization’s annual meeting that: “Public health problems, whether new or old, are essentially social in character and can only be solved in terms of social policy.

“The task of public health workers is to convince society to undertake the specific social measures, governmental or other, which are required to solve specific health problems, and to participate in the implementation of these policies,” said Dr. Terris, who was known as an outspoken advocate for a progressive public health policy.

At another APHA annual meeting, in 1983, Dr. William Foege made his own call for a consequential epidemiology. In his talk, he said that epidemiologists should not shy away from political involvement. “[Epidemiology] is a tool to change the world, not merely to study the world,” said Dr. Foege, whose own consequentialist resume included working on the 1970s campaign that eradicated smallpox and directing the U.S. Centers for Disease Control and Prevention (CDC).

Eleven years later, as president of SER,
“The bulk of our research efforts identified risk factors but rarely affected public health actions,” says Dr. Cates.

Based on the deaths and a water sample from the Broad Street source, he became convinced that cholera was transmitted not through the atmosphere—the popular theory of the time—but through contaminated water. He took this theory to the local government parish, prevailing on authorities to remove the Broad Street pump handle so it could no longer be used as a water source. Although Dr. Snow did not have complete information to prove his theory, cholera stopped spreading soon after. (It would take many more years for health authorities to embrace water and sewage treatment).

Dr. Snow’s decision to act for the public good based on the imperfect information he had is what epidemiology of the best kind looks like, say consequentialists. “It is unlikely that John Snow would be revered in public health if he had merely studied cholera,” says senior vice president of the Robert Wood Johnson Foundation Dr. James S. Marks in a 2009 article in the journal Preventing Chronic Disease. “Our heroes have been tied to action.”

Worries in a time of austerity

Epidemiologists admit that whether or not the field can adapt, the funding climate is one of the worst in recent memory.

The 2013 budget sequester forced the CDC to slash 5 percent of its $285 billion budget for 2013, which will reduce global efforts to eliminate malaria, polio, and other infectious diseases and cuts to prevention programs for HIV, cancer, heart attack, and stroke.

The sequester also cut 5 percent or about $1.6 billion of the $30 billion budget for the NIH, which is now funding only 15 percent of grant applications, a decline from about 30 percent from nearly a decade go. Going forward, the NIH’s budget is slated to shrink by 8.2 percent annually.

“I’m very worried about the effect of cuts. I think it will change the nature of epidemiologic research. Epidemiology has been able to build itself up as its own discipline because we have been able to get large grants to fund our work,” says Dr. Galea.

Dr. Michael Lauer, director of the division of cardiovascular science at NHLBI, is more optimistic. “Look at [the budget cuts] as an opportunity to do things in ways that are bigger and better and more effective than what we’ve ever done before,” he says. “When resources become scare, people become resourceful. There are a lot of exciting developments that are happening that should make it possible for epidemiology to not only stay relevant but to actually grow to much higher levels than we’ve ever seen.”

In fact, some epidemiologists have been concerned about the future of the NHLBI, which funds many notable epidemiology cohort studies. NHLBI last year suspended Framingham’s regular exams, which its principal investigator has called “the life-blood of the study,” and future exams in the Multi-Ethnic Study of Atherosclerosis cohort (MESA), a medical research study involving more than 6,800 men and women from six communities in the United States. Patient health information will, however, be collected by phone or mail.

“We cut exams to allow us time to engage in longer term strategic planning in the setting of ever decreasing budgets,” says Dr. Lauer, adding that the NHLBI’s buying power is 30 percent lower than it was ten years ago because of flat or decreasing budgets and inflation.

“As part of being careful stewards of public monies, we see a need to carefully review all long-term, higher-cost projects,” he adds, noting this is not the first time...
in its history that NHLBI has suspended exams. “In this era of big data and small budgets, we need to think about how we realign our strategies in order to maximize what we get out of the dollars we receive.”

Yet some experts believe that the data from contemporary cohort studies still provide the most thorough and up-to-date picture of the changing risk factors and prevalence of chronic diseases in the U.S. Cohorts have shifted focus to study not just cardiovascular events—which have been on the decline for several decades—but contemporary problems like rising rates of diabetes, obesity, and lung disease using state-of-the-art technologies, says Dr. R. Graham Barr, an associate professor of epidemiology and medicine at Columbia University’s College of Physicians and Surgeons who studies respiratory illness using MESA data.

“The ability to use novel imaging approaches in these cohorts allows us to start to re-define the disease for clinical purposes,” he adds. “MESA, for example, has the longest longitudinal follow-up of measures of emphysema on computed tomography of any study.”

The infrastructure of the cohorts has also allowed rapid responses to new public health concerns, such as acquiring data on e-cigarette use, says Dr. Barr.

Even before the cuts, some observers believed that epidemiology was already losing influence at the NIH to biological sciences like genetic and molecular biology and neurology.

“I don’t think it gets the same kind of respect as some of the most basic sciences, and there are some reasons for that. It seems to many a little bit more subjective. Rarely are there randomized trials,” says Dr. Marks.

“Because epidemiology is ultimately population level findings, it has been devalued in the eyes of NIH, and it has devalued the extent to which epidemiologic findings are useful, particularly as NIH has become more interested in translation of its findings to clinical cures,” says Dr. Galea.

Epidemiologists point out that such clinical cures can be expensive and can take years or decades to become available to the general public, while preventive approaches that often come about because of epidemiologic research—such as awareness campaigns, regulations, and improving access to health care—can be implemented sooner. “Epidemiology is a crucial part of the way that case is made for the public and policy makers. We can’t afford to treat ourselves out of our health crisis. We can’t continue to pay for more and more treatment for more and more disease,” says Dr. Marks.

“What’s happened over the last couple

Although epidemiologists have found evidence that gun availability leads to an increase in homicide and suicide, the field could make a more meaningful contribution if it studied the consequences of different regulatory approaches to gun control.
of decades has been the growing awareness of the implications of social factors for health, whether that’s education, poverty, transportation, parks, etc.—the social environment. Epidemiology or its techniques are one of the few ways that those factors can be assessed.”

Should epidemiologists be more like economists?

Despite this sense of urgency, epidemiologists as a culture are hesitant to over-state the meaning of their data and rarely use their research to take strong policy positions. They commonly offer the disclaimer that a study they’ve done does not show that an exposure caused a disease, simply that there is a link between the two.

“The challenge for us as epidemiologists is we can get committed to an issue and sometimes over-interpret or over-value the science that we’ve done and push the policy decision that is premature,” says Dr. Marks. “On the other hand, science that is immature or incomplete may be better than no knowledge. If a body of work, even if relatively modest, points in a single direction it probably indicates a higher likelihood that that direction is causal than another—not a certainty, but a higher likelihood. When you’re in a policy discourse sometimes you have to speak with greater confidence than your data warrant in order to be heard,” he adds.

He acknowledges that “the most important issues” are “among those that are the hardest to measure: connectedness, support for each other. And many things that are outside of medical care: quality of a diet, the access to fresh food, safe places to play.”

According to Dr. Galea, by not getting involved in policy discourses, epidemiologists are ceding an important policy role to another discipline: economics.

“Epidemiology is very conservative about its causal thinking. In some respects that’s a good thing and sort of refreshing. But what it has done is it has allowed the insertion of economics into the health arena. Economists have positioned themselves as people who ask big questions that are of societal interest. They have the self-confidence as a discipline to say that their findings shed light,” he says.

He points to the theory that attributes lowering crime rates in the U.S. to the legalization of abortion, which was put forward by two economists. “The methods used in that kind of assertion are the same type as used in epidemiology. But epidemiology would never have the boldness to make that assertion,” he says. “[Economics] gets bashed around for its shortcomings. That’s where the saying ‘dismal science’ comes from. It is a dismal science but at the same time, it is a science that has an impact on day to day public discourse.”
Big push initiatives in global health

“Big push” global health initiatives are popular, but do they work?

the2x2project.org
http://2x2.ph/NDfVSP
Employees at a textile mill manufacture durable insecticide-treated mosquito nets for distribution to high-risk areas for malaria.

Above: British Rotarians immunize children in the streets of Lucknow during the polio immunization campaign in Northern India. Right: Charles Machiridza, 52, a nurse at the Chiparawe Clinic in Zimbabwe, administers a rapid HIV test.
A laundry list of ambitious global targets now greatly influence the agendas of the many non-government, private, and government organizations that work on global health.

Faced with what they view as colossal global health challenges, public health advocates have increasingly turned to “big push” approaches, focusing enormous financial and human resources on a single specific issue for a finite time, with high target goals.

This includes eradicating malaria, eliminating new cases of pediatric HIV, curing dementia, eradicating polio, and reducing cancer mortality and heart disease by one-fourth what it is today.

While aggressive global targets like those above from the United Nations, the G8, and private foundations are credited with motivating funders and improving the effectiveness of aid, critics have accused these initiatives of imposing on local structures and approaches, diverting resources from more urgent needs, and being difficult to sustain after the interest and initial cash infusions from rich nations and private funders is gone.

“We have a lot of unfinished objectives in global health. The whole field is littered with partially achieved objectives,” says Dr. Stephen Morse, a professor of epidemiology at Columbia University who is the co-director of the USAID program PREDICT, which conducts global surveillance for emerging infectious diseases.

Concern about the proliferation of incomplete or abandoned initiatives is becoming more acute with the decline in global aid from the flush aught years even as awareness of new global health needs emerges. The fear is that in this environment, these “big push” initiatives are too single-minded.

That fear was expressed by Dr. Duncan Green, the senior strategic adviser for Oxfam Great Britain, who spoke at a seminar in 2013 about the future after 2015, the target year for achieving the United Nation’s Millennium Development Goals, which are a significant motivator for national government and NGO public health efforts.

“Most of the discussion on post-2015 has been what I call ‘if I ruled the world.’ So a range of people, businesses, politicians, NGOs, in spades, have said, ‘if I ruled the world, I would do x, y, zed, and the world would be a better place, which is a fascinating conversation, and you know, it’s great, but it’s also weirdly sort of self-indulgent,’” Dr. Green recounted having to facilitate the participation of 200 NGOs in a consultation with a high-level panel. Each NGO had 15 seconds to suggest a focus for the UN after 2015. “It was a Christmas tree. It was decorating the Christmas tree with your issue,” he said.

Nothing may better illustrate both strengths and the flaws of an aggressive big push health initiative better than the World Health Organization’s (WHO) Global Malaria Eradication Program, begun in 1955 with a target of eradicating the disease in five years.

From the start GMEP, as it was known, saw containment of the disease as at odds with eradication. A UNICEF regional director called the two priorities “as great a difference as that between night and day,” according to a 2011 article published in PLOS Medicine about GMEP. Believing that the science of malaria eradication was settled, GMEP dismissed local knowledge about disease control if it didn’t align with the new eradication technique of spraying DDT or other insecticides. The program also did not integrate well with communities, sometimes creating separate, parallel structures from already existing local health services.

By 1969, facing financial constraints and a new outbreak in Sri Lanka, a country that was once a model of success for those who studied eradication, GMEP determined their goal was not feasible and abandoned it.

When GMEP was disbanded, there were drastic cuts in human and financial resources that resulted in weakened ability to control malaria. These cuts, combined with the emergence of resistance to first line anti-malarial drugs and the withdrawal of DDT from many control programs for environmental reasons, contributed to a resurgence of malaria in many parts of the world.
Asia, Africa, and Latin America during the 1970s and 1980s.

“There were real costs to having failed to achieve eradication,” says Dr. M. Randall Packard, chair and professor of history of medicine at Johns Hopkins University, who is the author of The Making of a Tropical Disease: A Short History of Malaria and is currently working on a book about the history of global health.

Presciently, the League of Nations’ Malaria Commission wrote in 1927: “the history of special antimalarial campaigns is chiefly a record of exaggerated expectations followed sooner or later by disappointment and abandonment of the work.”

Yet, GMEP did drive down rates of malaria and help to mobilize resources that would not have been brought to bear without the campaign. “While it didn’t eradicate the disease and there were lots of criticisms about that campaign, nonetheless, you look at where malaria was before and where it was afterword, I don’t think anyone would argue that we’re not better off, and we probably wouldn’t have gotten there without that,” says Dr. Packard.

The contemporary “big push” efforts for better or worse are a legacy of that campaign. People who have worked on these campaigns say that they mobilize resources that would otherwise be hard to bring together.

“There’s always debate: do you set a target that’s easy to achieve or do you set an ambitious target that’s harder to achieve that kind of puts a fire under people’s butts that you probably know in your heart might not be achieved in that timeline but will be achieved shortly thereafter?” says Craig McClure, the chief of the HIV/AIDS section of UNICEF, who is based in New York. “You have to strike a balance of how ambitious you want to go because if you get too ambitious you could de-motivate people.”

McClure leads UNICEF’s participation in the UNAIDS Global Plan to eliminate by 2015 new cases of HIV transmitted from mother to child, which means reducing the rate of transmission by 90 percent, or from 400,000 new infections to fewer than 40,000 worldwide.

There is still a way to go. At the end of 2012, there had been a 35 percent drop in the rate of new infections from when the Global Plan started in 2009, to 260,000 new infections. But that number is a significant improvement compared to the years 2000-2008, when new infections dropped by 26 percent.

McClure says he is not sure at this point whether the Global Plan targets will be met, but he credits them with making a difference in bringing together resources and giving the governments a concrete goal to aim for.

According to executive director of Merck for Mothers Dr. Priya Agrawal, having a goal of reducing maternal mortality by 50 percent in 5 years was key to bringing everyone, including the governments of Uganda and Zambia, together in a private-public $200 million effort called Saving Mothers, Giving Life.

An external evaluation from researchers at Columbia and New York Universities found that in its first year, the program was largely successful in the approaches it took toward achieving this goal, including working with the community to improve quality of health facilities and providers and raising positive awareness of these facilities.

At a symposium held in November at Columbia University’s Mailman School of Public Health on “the potential of big push initiatives in global health,” experts inside and outside the project weighed in.

“Big pushes are in fact a recipe for chaos, however there’s something to be said for quick wins. Saving a life is saving a life,” said Dr. Angeli Achrekar, a senior public health adviser for the U.S. Centers for Disease Control and Prevention, which was involved in the Saving Mothers campaign.

Others at the event acknowledged that the program’s long-term prospects remain to be seen. “Sustainability is probably the hardest nut to crack,” Dr. Margaret Kruk, an assistant professor of health policy and management at the Mailman School who with Dr. Sandro Galea, chair of the school’s department of epidemiology, led the external evaluation of Saving Mothers, Giving Life, said in closing remarks.

She expanded on that idea in a later interview: “Having an ambitious goal is very motivating. The converse of that though is that it’s not enough. There is almost no one who would disagree with the statement that you can change a lot in a short time with a lot of money and a lot of motivated people. That’s not the trick. The question is how does this sustain,
year two, year five, year ten. That requires an invested government, a committed workforce. These kinds of projects can demonstrate the possibility, but to sustain the success, you need a long-term view and an increasing role for government.”

Sometimes an ambitious goal can be too ambitious, like the Gates Foundation’s decision in 2007 to renew the goal of malaria eradication. “Eradication is not something that is normally feasible. It’s a rare event,” says Dr. Morse.

To this day, smallpox is the only disease that has been eradicated by humans. And smallpox was “low-hanging fruit,” says Dr. Packard. “It was a real achievement, but it was the easiest of all diseases to eradicate. The unfortunate part is having become successful, it became this model of ‘oh we did it once, we can do it again,’ without really looking at the realities of what it took to do it and how relatively easy it was.”

Dr. Morse recalls attending a meeting in the 1990s of a pan-American organization about eradicating the mosquito that causes malaria and dengue and yellow fever—the *Aedes aegypti*. “We knew it’s not feasible to do this. There’s no strategy for eradicating this mosquito. We managed to control it and then it came back. So why were they talking about eradication? And the reason is that eradicating motivates people.”

Even the Gates Foundation appears to have scaled back its expectations, says Dr. Packard. “I don’t know that they actually believe in their hearts of hearts it’s possible. I’ve had a lot of conversations with people at Gates, people who have a direct role with malaria. My sense is that early on, there was optimism and much concern that without that kind of goal, the achievements that would be gained with the rollback of malaria would not be sustainable, and they were afraid ministers of finance as well as international donors would get to the point where they’d say, ‘things have gone well, there are lots of other problems in the world, let’s move on.’”

Another issue that has surfaced around big push initiatives is measurement. In December, the WHO released a damning evaluation of the once highly regarded Chiranjeevi Yojana program to reduce maternal and child mortality in India, which are two of the United Nations’ Millennium Development Goals.
Several experts admit that while there have been mistakes in big push initiatives, the global health community have learned a great deal from them.

The $25 million public-private program, based in the northwestern state of Gujarat, aimed to prevent deaths related to pregnancy complications by paying women under the poverty line to deliver at designated private hospitals. Initially the program received positive reviews, and won the Wall Street Journal’s Asian Innovations Award, which honors private companies or academics that have developed an innovative idea in Asia. The Indian government began recommending it be adopted in other parts of the country.

But the WHO evaluation found that there was no statistically significant change in the probability that women would deliver in health care institutions, in the rate of complications during delivery, and the likelihood that physicians or nurses would be present during birth—all goals of the program. “[T]he program’s accomplishments are likely far more modest than have been claimed,” says Dr. Manoj Mohan, an assistant professor of public policy, global health, and economics at Duke University, who led the recent evaluation.

Earlier evaluations that rated the program as successful were based on possibly inaccurate data from participating hospitals, rather than population-based surveys of mothers who gave birth, and did not account for increases in hospital deliveries that were unrelated to Chiranjeevi Yojana or for the self selection of women who chose to deliver in hospitals, according to the WHO study.

Another effort, the Millennium Villages Project out of Columbia’s Earth Institute, has also been the target of criticism around how it measures success, which researchers there have defended.

And the Millennium Development Goals themselves have been criticized for not taking into account where different countries are in being able to meet those targets, something many hope will change when new global priorities are set after 2015.

Several experts admit that while there have been mistakes in big push initiatives, the global health community has learned a great deal from them. “One of the big lessons learned by most people, if they’re honest with each other, who work with HIV is that when the money started to flow around 2000—big money started to flow—and targets began to be set, the way the world approached the support to countries and spending that money was kind of like an emergency operation—parachute in, create a vertical program, and get something done. And now, 13 years later, we are trying to undo the parallel systems and better integrate,” says McClure.

Several people involved in global health initiatives say that they have been better at integrating with already established health infrastructure and with communities since the more competitive days of the early 2000s.

A contributing factor to the success of Saving Mothers, Giving Life was that it provided care by building on infrastructure that was put in place as a result of the President’s Emergency Plan for AIDS Relief, says one of the evaluators, Dr. Miriam Rabkin, associate professor of epidemiology at and director of systems strategies for ICAP, a center at Columbia’s Mailman School that works on building and sustaining systems for prevention and treatment of HIV and related health issues.

“This approach prevented duplication of effort and enabled implementers to leverage their existing resources—from staff, to vehicles, to relationships with district-level partners—rather than having to start from square one,” she says.

The investments in obstetric care infrastructure and personnel have also improved the health facilities’ capacity to deliver other services as well. “It’s not just going to benefit mothers but people who have car accidents and trauma victims, and various events of this nature,” says Dr. Kruk.

For these efforts to work, it is important to be flexible, say others. In the world of HIV/AIDS, the goal of treatment used to be pitted against the goal of prevention—not dissimilar to the WHO’s malaria eradication effort. But now the mantra in the AIDS field is “treatment as prevention,”—the scientifically proven idea that treating HIV also helps prevent its transmission.

“There has been an evolution in the global aspirations for HIV over time, and this has often been motivated by availability of new scientific evidence, new resources or new imperatives,” says Dr. Wafaa El-Sadr, university professor and professor of epidemiology at the Mailman School and the director and founder of ICAP.

“The HIV world has learned that achieving results is complicated, and it’s not going to take one technology or one magic bullet that will make a difference,” she adds.

Regarding the Global Plan to Eliminate Pediatric HIV, she says it has been important that the big picture goal is translated into clear local targets “to enable those at the frontlines to know what they need to do—to have clarity as to what needs to be their precise contribution to achieving the big goal.”

“Having goals, having timelines is a great motivator,” she adds. “Whether it be the Millennium Development Goals or the PEPFAR goals or the Global HIV goals, I think having very concrete objectives with clear targets is enormously helpful. Targets motivate me, they motivate my teams on the ground. These targets can be very ambitious and their achievement not easy, but they serve an important purpose.”
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How cities affect health

The complex influence urban features have on health

BY TIM PAUL

WRITER, MAILMAN SCHOOL OF PUBLIC HEALTH OFFICE OF COMMUNICATIONS

The Red Square apartments in New York's Lower East Side were gentrified in the 1980s.

IMAGE: STEPHEN HARLOW
When the influential urban thinker Jane Jacobs wandered the streets of New York’s West Village in the 1950s, she recognized the vitality of the city in its chaotic sidewalks and stores—a notion that upended the orthodoxy of city planners who prized order and efficiency.

Today’s urban health researchers carry on that tradition, honing in on aspects of urban life that shape our health, and in doing so, challenging conventional thinking.

In a January 28 presentation, the first in Columbia University’s Maiman School of Public Health’s Urban Health Conversations series, Dr. Gina Lovasi, an assistant professor of epidemiology at the Mailman School, mapped out current thinking in urban health and invited the audience to add to the discussion. As a member of the school’s research group on the built environment and health, Dr. Lovasi examines the health impact of urban features from green space to fast food restaurants, often uncovering surprises.

One fertile area of inquiry is the recent large-swath transformation of New York City through the policy of “upzoning” neighborhoods to promote greater density, giving more people access to bike lanes and mass transit. “Creating new buildings may not be an obvious choice to improve health,” said Lovasi, but “getting people to move throughout their day is an important priority.”

Some at the talk questioned whether all density is created equal. Dr. James Colgrove, associate professor of sociomedical sciences at the Mailman School, pointed to the Barclays Center in Brooklyn and luxury development in Manhattan. “I’m not sure how bringing high-rise condominiums to Tribeca is going to increase the health of populations who are most in need,” Dr. Colgrove said.

Gentrification was another concern. Investments in the built environment could be detrimental to people who are forced to move as their rents skyrocket, noted Dr. Diana Hernandez, assistant professor of sociomedical sciences at the Mailman School. Dr. Lovasi agreed, noting, that many people in rezoned areas resist the changes. “There is tension between improving facilities and potentially displacing some of that population if there is a market response that values those improvements.”

Further clouding the picture: these interventions don’t work for everyone. Dr. Lovasi cited studies showing neighborhood density and proximity to mass transit encourages walking and cycling and is linked with healthier weights but noted that associations suggesting a potential benefit were strongest among the educated and affluent. “Interventions to make neighborhoods more walkable may not work in disadvantaged groups,” said Dr. Lovasi. For those groups, safety concerns may be more salient as barriers to walking than the built environment.

Related outcomes were seen in a study of trees. Working with colleagues at the Columbia Center for Children’s Environmental Health, Dr. Lovasi set out to measure the health benefits of a city initiative to plant trees in low-income areas. The expectation was improved air quality and less asthma. Instead they found asthma rates were steady in children who lived near a tree canopy, but they had more tree pollen allergies. “It may be that we need to be more strategic in how we go about tree planting,” Dr. Lovasi said. “It’s a cautionary tale pointing us to unintended side-effects of interventions envisioned as health promoting.”

The tree study also serves as an example of how urban research could reshape policy. Selecting tree species that are less allergenic could help maximize the health benefits of massive tree planting campaigns like MillionTreesNYC.

Another line of research has looked at whether living near a lot of fast food restaurants makes people more obese. Surprisingly some studies have seen the opposite, where proximity to fast food restaurants is associated with healthier weights. How is this possible? One explanation points to the underlying level of commercial investment as a driver for both restaurant locations and a healthier...
There is a tension between wanting to design perfect, completely formed communities that support health, and letting communities change in a way that serves the needs of the population.

lifestyle. “We looked at whether having banks and credit unions nearby predicted lower BMI, and it did,” said Dr. Lovasi.

Singling out fast food restaurants is also a challenge for researchers since calorie-dense foods are available everywhere from bodegas to pharmacies. Supermarkets on the other hand may turn out to be the superheroes of the urban environment, lowering rates of obesity.

Jane Jacobs, who is one of Dr. Lovasi’s favorite writers, wrote that every city is distinct and has its own stories to tell. This spring, Dr. Lovasi will travel to Rio de Janeiro to spend time in the favelas to learn from communities that grow organically and make decisions for themselves. “There is a tension between wanting to design perfect, completely formed communities that support health, and letting communities change in a way that serves the needs of the population,” she said.

In thinking about ways to shape urban health, it’s important to realize that cities aren’t made to create health. “Cities aren’t a pharmaceutical or healthcare intervention,” said Dr. Lovasi. Interventions must mesh with the larger goals of urban life. Doing so may require thinking about co-benefits and tri-benefits. For example, lowering reliance on automobiles has benefits for health, the environment and the economy. “I think we need to do a much better job at monetizing those impacts,” added Dr. Frederica Perera director of the Columbia Center for Children’s Environmental Health.

On the other hand, health may hold a special place as a prerequisite and starting point for everything else. “When you don’t have health, it stands in the way of other goals,” said Dr. Lovasi. “Making cities more supportive of health is making cities more supportive of people.”

This article originally appeared on the Mailman School of Public Health website.
Preventing Brain disorders: Improving global mental health

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Trainees draw lessons from NYC’s new health commissioner

Dr. Mary Bassett’s commitment to an epidemiology that makes a difference

BY ELAINE MEYER

In January, Mayor Bill de Blasio appointed Dr. Mary Bassett, a long-standing associate professor of epidemiology at Columbia’s Mailman School of Public Health, to be New York City’s health commissioner.

About one year ago, Dr. Bassett spoke at the department’s DrPH seminar series about her career in public health, which has spanned from training epidemiologists and conducting AIDS research in Zimbabwe to implementing New York City’s ban on smoking and trans fats in restaurants.

Recently, the five DrPH students who attended that seminar came together to recount the lessons they drew from Dr. Bassett’s talk, inspired by her story as an academic who has made a difference in community and global health and policy and now prepares to lead one of the world’s most influential health departments.

“What she gave the students is a thoughtful example of how you combine rigorous research design, research translation and implementation globally and locally with making things happen,” says Dr. Leslie Davidson, professor of epidemiology at Columbia University and director of the department of epidemiology’s doctoral programs.

Dr. Bassett earned an MD at Columbia with other Columbia department of epidemiology faculty including Drs. Davidson, Steven Shea, and Ezra Susser, and did a residency at Harlem Hospital. She then moved to Seattle to complete an MPH as a Robert Wood Johnson clinical Scholar at the...
University of Washington. “What I liked about Mary’s profile a lot was that she had this academic background but also this really interesting public work,” says Julian Santaella, a second-year student. “You could feel how passionate she is about public health work, of being involved with communities.”

In 1985, Dr. Bassett moved to Africa, where she would work at the University of Zimbabwe and the Rockefeller Institute and consult for the World Bank and UNICEF. She published papers on many facets of HIV/AIDS, including how to monitor the progress of antiretroviral treatment among HIV-positive patients, co-incidences with other diseases like cancer, and prevention strategies such as getting men to increase their participation in safe sex. Charlene Goh, also a second year student, recalls Dr. Bassett telling the seminar to “think of journal writing not as advancing your career but as communication.”

In 2002, Dr. Bassett was asked by then New York City health commissioner Dr. Thomas Frieden (who is now head of the Centers for Disease Control and Prevention) to serve as deputy commissioner of health promotion and disease prevention.

Students were impressed that Dr. Bassett could transition from researching infectious diseases in a low-income country to implementing policy to decrease obesity prevalence and related non-communicable diseases like cardiovascular illness and diabetes under a mayor and health commissioners who made public health improvements a high priority. “She was part of many key decisions that led to the ban of trans fats in restaurants,” says second-year student Mila González.

González worked as an associate program officer when Dr. Bassett served on an Institute of Medicine committee that evaluated the President’s Emergency Plan for AIDS relief, or PEPFAR, the U.S.’s multi-billion dollar aid program to treat and prevent HIV/AIDS in nations struggling with the virus. “She can form an opinion very quickly, and she sticks by it. You could hear her voice in every meeting, in every discussion. She’s very vocal about her perspective,” says González. “She’s going to tell you what she thinks, but she’s very reasonable.”

After Dr. Bassett’s discussion, Santaella, who is interested in working in domestic violence, approached her for advice. She subsequently helped him get in touch with people at a child welfare program in Harlem. “She was really nice in her emails and really open to help me contact those people,” he says.

Dr. Bassett has several challenges ahead as health commissioner, including pushing forward with Mayor Michael Bloomberg’s controversial proposal to ban large size sugary drinks in certain venues and helping to implement Mayor de Blasio’s Vision Zero program to eliminate pedestrian vehicle crash deaths.

Students hope that despite these immediate demands, she will not shy away from tackling underlying causes of disease and pursuing a progressive agenda in line with her past history. “Clearly the focus will shift to overcoming health disparities among the underserved and marginalized of NYC, and Dr. Bassett is an ideal choice to steer that ship,” says Michael Rosanoff, a second-year student.

Focusing on health disparities means “improving the health outcomes for immigrants without any legal rights, reducing the gap in health outcomes between black and white and Hispanic and white groups, and also reducing the gap in risk factors, such as access to healthy food, knowledge of how to make healthy food, spaces that would increase walkability, and the problem gentrification causes for minority populations,” says Santaella.

Students believe she will bring her academic background and training in epidemiological methodology to her job as health commissioner. “She is someone who knows and understands the utility of evidence-based medicine and reliable epidemiologic information; in fact she has contributed extensively to the field” says Víctor Puac-Polanco. “It elevates our hopes that in the near future if we are called upon to support and assist with a state health project, we will be collaborating with someone who will be open to listening.”

Other students agreed that it is meaningful to see someone with a strong academic background in such a high policy position. “To get that political appointment, coming from academia, coming from research, it’s just inspiring,” says González. “If you truly want to work in public health, in programs, in policy, and you’ve had a long trajectory in academia and research, why not?”

“The focus will shift to overcoming health disparities among the underserved and marginalized of NYC,” says DrPH trainee Michael Rosanoff.
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In the middle of the twentieth century, epidemiologic studies began to establish a statistically significant link between smoking and lung cancer. Although scientists did not know the mechanism by which exposure to tobacco smoke gave rise to cancerous growth in the lungs, the correlation became increasingly overwhelming when assessed through a process known as causal inference. While tobacco companies argued that the proof was not strong enough, epidemiologists and other scientists believed taking action to reduce smoking was necessary.

Because of resulting government regulation and public health campaigns, smoking and lung cancer both declined in the US. That story is an example of how understanding causation is at the heart of epidemiologic analysis. Because epidemiologists must study the health of populations in the absence of controlled variables, they must often infer causes of health and illness.

The process of causal inference can be controversial. Critics have charged that epidemiologic studies are not rigorous at it, that they too often contradict each or are contradicted by later clinical trials. However, the continuing evolution of the field has led to breakthroughs in methodology that minimize uncertainty and produce ever more finely tuned findings that result from inferring a cause. This has led to vast improvements in public health that would not have been possible if scientists and policymakers had waited to make recommendations until a cause was definitively established, such as in the cases of smoking or in other examples such as the link between diet, high cholesterol, and heart disease.

Struggles with causal inference are not unique to epidemiology. Many other social sciences face the same difficulties. Recognizing this, the department brought together researchers from across many disciplines for a CUESS in November on “Philosophy and medicine: Explanation and prediction in population health.”

“[R]epresentatives of epidemiology, economy, psychology, and philosophy may shed some light on what is needed to build a valid and philosophically sound inferential process in the social sciences in general and in epidemiology in particular,” said symposium organizers Dr. Alfredo Morabia, professor of epidemiology at Columbia University, and Dr. Jeremy R. Simon, associate professor of medicine at Columbia and scholar-in-residence at the Center for Bioethics.

Speakers talked about what causal inference looks like in their particular field and how methods might be improved and generalized across disciplines—or whether this is even possible.

The event represented a rare instance of different disciplines discussing a path toward a common underlying philosophy of causal inference. Participants acknowledged that establishing such a philosophy is not simple, given varying methods of causal inference in each discipline, such as systems models that can make predictions by accounting for complex and interwoven parts and “big data” sets that enable scientists to study large populations. As the CUESS concluded, participants and attendees were eager to keep the conversation going, aware of the opportunities this unique event presented.
Philip Seymour Hoffman’s death a reminder of the toll of addiction

The death of acclaimed actor Philip Seymour Hoffman is the “story of a life abruptly cut short by addiction during his peak of creativity,” says Dr. Lloyd Sederer, medical director of the New York State Office of Mental Health and adjunct professor of epidemiology at the Mailman School of Public Health. The leading cause of preventable death in the U.S., there is “no one size fits all” approach to treating addiction, he adds.


Mayor Bloomberg’s public health legacy, by statistics

There were more than 100 public health measures during Michael Bloomberg’s 12 years as mayor of New York City, according to a review of government databases by Dr. Ryan Demmer, assistant professor of epidemiology at Columbia University’s Mailman School of Public Health, and colleagues. Read more in Scientific American.

SCIENTIFIC AMERICAN  http://bit.ly/1eHtHeQ
Spirituality may protect against depression

A study by Dr. Myrna Weissman, professor of epidemiology and psychiatry at Columbia and chief of the division of epidemiology at New York State Psychiatric Institute, and colleagues has found an association between thickness of the brain cortex, level of spirituality, and depression.

Reuters Health  
http://reut.rs/1lPOpLV

Significant weight-gain a side effect of PTSD?

Post-traumatic stress disorder may be a cause of sizable weight gain in women, according to a study in JAMA Psychiatry that compared female participants with and without PTSD diagnoses over time. The paper was co-authored by Dr. Karestan Koenen, associate professor of epidemiology at the Mailman School, and Dr. Magdalena Cerdá, assistant professor of epidemiology at the Mailman School.

LATimes  
http://lat.ms/KEixPe

Car crashes involving pot use tripled over 10 years

Deadly car crashes involving marijuana use rose sharply over the period of 1999 to 2010. “Currently, one of nine drivers involved in fatal crashes would test positive for marijuana,” says Dr. Guohua Li, Finster Professor of Epidemiology and Anesthesiology at Columbia, who authored the study with Mailman School epidemiology doctoral student Ms. Joanne Brady.

WebMD  
http://bit.ly/1gbil3I

Gluten-free diet may reduce fracture risk for people with celiac disease

People with celiac disease lower their likelihood of bone damage if they stick to a gluten-free diet, according to a study by Dr. Benjamin Lebwohl, assistant professor of medicine and epidemiology at Columbia, and colleagues. Celiac disease is an auto-immune response in the small intestine to the protein gluten. Long-term intestinal damage increases the risk of hip fracture.

Health Day  
http://bit.ly/1f20dHr

Africa’s under-appreciated medical talent

Dr. Salim Abdool Karim, professor of clinical epidemiology at the Mailman School and director of the Centre for the AIDS Programme of Research in South Africa, co-authors an article that points to the “troubling myths” about Africa that persist, such as that it can’t develop new medical vaccines. “The fact is globalization of research over the past few decades has seen the strengthening of international links and a steady flow of external investments for research that has enabled African countries to train highly qualified scientists and establish a research infrastructure,” the authors say.

Business Day  
http://bit.ly/1ngElqP