

An Interview With Katherine Keyes, Co-Author With Sandro Galea Of New Book "Population Health Science"

At last month's one-day conference sponsored by the International Journal of Epidemiology, Katherine Keyes of Columbia University presented a talk entitled, "Why Does Epidemiology Matter?" Quite a thought-provoking question to discuss in a room full of epidemiologists.

Weaving through the ongoing debate about different approaches to causality in epidemiological research, Keyes ultimately concluded that she was not sure of the answer to her own question. She noted "the pages of our

journal are beginning to be filled with increasingly cantankerous debates in the field about who gets to define what a causal question is and the very role of science in our framing of study design and analysis, our research findings are increasingly questioned, and our funders are increasingly questioning our very relevance."

Keyes became uncomfortable with her role in epidemiology and decided that what she cares about and wants to work on may not be definable in

- Keyes continues on next page

Foundational Principles of Population Health

Below are the principles of population health presented by Katherine Keyes and Sandro Galea in their new book on Population Health Science. In a recent talk, Keyes explained how they identified these principles and what they hope to accomplish by enumerating them in this way. She said, "... with guides from decades of theoretical writing from foundational scholars like Mervyn and Ezra Susser, Geoffrey Rose, Jerry Morris, George

[Davey-Smith] and Shah [Ebrahim] and many others, we set out to start a discussion about the foundational principles of population health science, in an effort to energize discussion and research among epidemiologists for whom there is a disquiet about the fundamental assumptions and subsequent implications of our epidemiological approaches for community-based medicine and prevention."

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terms of epidemiology.

This conclusion created the motivation for her new book: *Population Health Science*. Co-written with Sandro Galea, now Dean of the Boston University School of Public Health, the text is meant to "articulate and expand on principles that allow readers to engage in population health thinking, and to have a platform and reservoir of theory from which to draw when formulating questions of relevance to population health." (See related article on the Principles of Population Health in this issue.)

Citing major past public health wins achieved through clean-water initiatives, vaccination campaigns and smoking cessation efforts, the authors note the landscape of disease is evolving. "We are faced increasingly with challenging chronic and acute diseases for which no clear answers are apparent," they note. (1) They lament that the methods currently in use in epidemiology research fall short in delivering impactful results on population health. We interviewed Keyes to learn more about what motivated her to write the book, the future relationship between epidemiology and population health science, and the role of population health science in public health. Galea concurred with all of the views expressed in the interview.

The Interview

EM: You've stated this in your talk, but can you briefly describe your take on the state of epidemiology that motivated you to write a book on

population health science?

Keyes: Epidemiology has always been a discipline that draws a diverse array of scholars with varied interests and backgrounds. There has also always been a discomfort about how to define epidemiology - it is a collection of methods, a set of research agendas, an approach to study design and analytic approaches, all of the above, or none of the above? If you ask 100 epidemiologists to define what they do, you will undoubtedly arrive at many different answers. Thus there has been an interest in defining epidemiology, and one predominant voice in the field has been defining epidemiology in terms of the policy relevance of the questions, the ability of the analytic approaches to generate estimates that can be interpreted as well-defined causal estimates. Such voices have advanced our field in important ways, and have forced us to confront the reality that many of our traditional analytic approaches are insufficient, and confront the assumptions that are embedded in the traditional design and analysis tools that we use.

That being said, as epidemiology is defining itself as a field in new and specific ways, there are scientists who increasingly do not fit the mold of the epidemiologist, those who seek to have a broad and cross-disciplinary research program that focuses questions of inequality and social justice, assessing the world's most significant disease burdens, using theoretical frameworks and tools that are not necessarily covered in standard epidemiological texts. We wrote *Population Health Science* with those scholars in mind, in an

- Keyes continues on page 7

Different Views About Causality Clash In The International Journal Of Epidemiology

December Marks Final Issue Under Davey-Smith And Ebrahim

It is likely to be remembered and useful for longer than the usual “shelf-life” of a journal issue. But then again, that may not be so surprising. The International Journal of Epidemiology under the co-editorship of George Davey Smith and Shah Ebrahim has been anything but a typical journal. Its upcoming December issue entitled “Causality in Epidemiology --The Final Frontier” ---will be the final one edited by Davey Smith and Ebrahim and promises to lay bare the tensions and controversies about how the work of epidemiologists can best serve public health.

In a journal already remarkable for the size of the individual issues, The December issue will exceed even its own norms by publishing what the co-editors have said “...will probably be the largest single issue we have published and will provide readers with an up to date and comprehensive review of schools of thought in causality.”

Plan for the Issue

As of late November, the plan for the December issue is to publish more than a dozen articles related to causality. Five of these papers, letters, and commentaries can be grouped around a paper published earlier this year by Jan Vandembroucke, Alex Broadbent, and Neil Pearce entitled “Causality and causal inference in epidemiology: the need for a pluralistic approach. A second group of papers can be grouped around a synopsis by Tyler VanderWeele of his

book “Explanation in Causal Inference: Methods for Mediation and Interaction” published last year. The IJE invited the synopsis, commentaries on the book, and a response to the comments by VanderWeele. Both groups of papers have now been published online by the IJE but will appear in print only when the December issue appears. The list of papers published to date is provided below.

Critics

Two papers published online, the first by Vandembroucke and colleagues, and the second more recent one by Nancy Krieger and George Davey Smith entitled “The tale wagged by the DAG: broadening the scope of causal inference and explanation for epidemiology” offer a vigorous challenge to the potential outcomes approach to causal inference in epidemiology.

Vandembroucke and colleagues describe the growing popularity of the “causal inference” movement in epidemiology and explain their purpose for writing a critique as “...to forestall the emergence of a ‘hardline’ methodological school within epidemiology, one which we feel would damage the discipline if it became the dominant paradigm.” Co-author Neil Pearce told the Monitor causal inference is the wrong term to be used in describing modern methods in epidemiology because inference requires

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“...we feel would damage the discipline if it became the dominant paradigm.”

"Both sets of authors call for a less restrictive approach..."

consideration of a broad array of evidence from different sources. Also, the focus on examining interventions causes investigators to lose sight of the broader concept of the health of populations.

For Krieger and Davey-Smith, the motivation is "...to strengthen epidemiological science and its capacity to contribute usefully to the multi-sectoral work urgently needed to improve population health and reduce, if not eliminate, health inequities." They fear that "these new 'cutting edge' methods will, by virtue of their rule-bound nature, limit the scope of epidemiology and its impact on the urgent real world problems of global population health."

High Stakes

Krieger and Davey Smith express concern about the prominence of causal inference in epidemiology using counterfactual and potential outcome reasoning. The stakes are high they assert because epidemiology seeks to explain the determinants of health and the answers provided or the causes pinpointed can make a big difference. "There is no short cut for hard thinking about the biological and social realities and processes that jointly create the phenomena we epidemiologists seek to explain, always with an eye towards producing knowledge that we and others can use to improve population health, reduce preventable suffering, and we add, advance health equity."

While both sets of authors acknowledge the usefulness of the potential outcomes approach in

particular situations, both sets of authors fear the same consequence, namely that it is too restrictive in terms of the questions that can be asked, the studies that can be designed, and the interpretations that can be rendered. Both sets of authors call for a less restrictive approach that considers many different types of questions and studies and considers varying types of evidence in reaching a conclusion about causality.

Pluralism

In thinking about causality, Krieger and Davey-Smith point to a framework called the "inference to the best explanation" which they believe has greater potential to consider different types of evidence, that is, to be more pluralistic in what it considers in making inferences. Likewise, Vandenbroucke and colleagues end up recommending a "pragmatic pluralism".

Papers from the December issue of the IJE published early online:

Krieger N and Davey Smith G. The tale wagged by the DAG: broadening the scope of causal inference and explanation for epidemiology
<https://tinyurl.com/hke5gcj>

Vandenbroucke et al. Causality and causal inference in epidemiology: the need for a pluralistic approach
<https://tinyurl.com/hm5l2zz>

VanderWeele et al. Letter to the Editor: Re: Causality and causal inference in epidemiology: the need for a pluralistic approach
<https://tinyurl.com/jpgfjqf>

"There is no short cut for hard thinking ..."

Epidemic Of Zika-Linked Microcephaly Fails To Materialize In Columbia

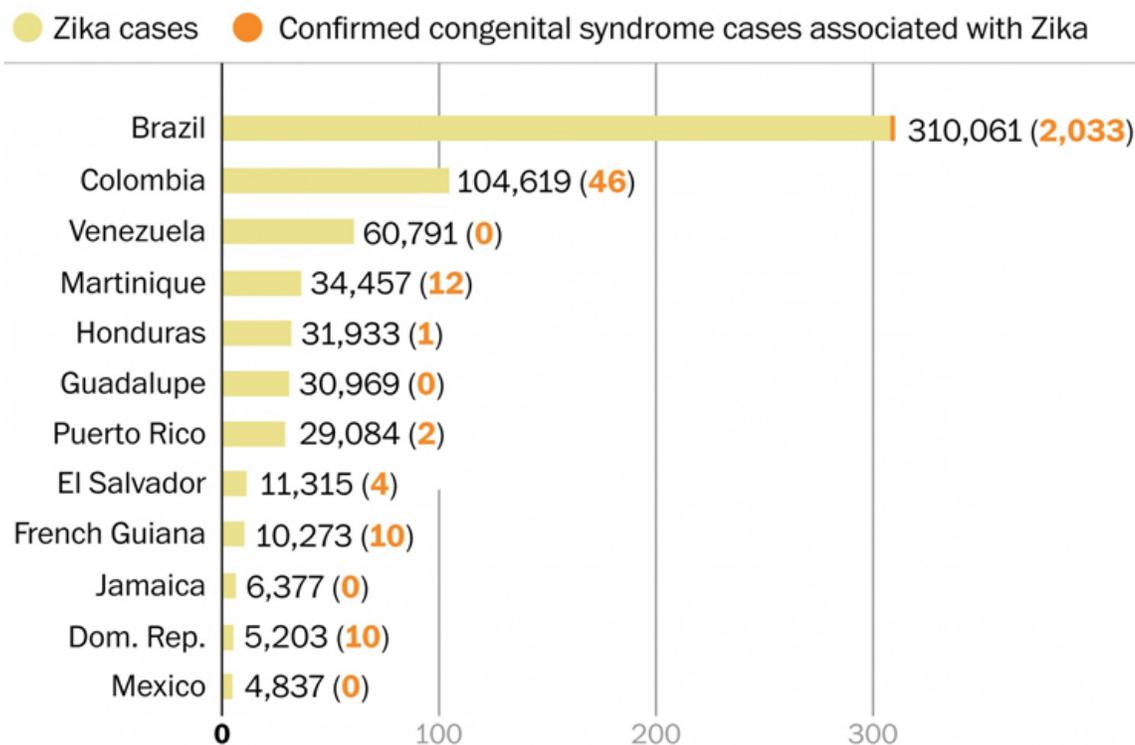
Causal Mystery Deepens

Nine months have now passed since the peak of the Zika epidemic in Colombia and the expected surge of birth defects has yet to appear. After over 2000 cases of microcephaly were reported during Brazil's epidemic, experts were predicting that Colombia would see as many as 700 babies born with serious neurological deformities. Yet Colombia has reported only 47 cases of microcephaly to date, despite experiencing over 100,000 cases of Zika infection (second only to

Brazil) including 20,000 pregnant women. While this discrepancy is most glaring in Colombia, the trend seems to be holding true throughout the Americas where the Zika epidemic has led to only modest increases in microcephaly outside of Brazil. The following graphic from the Washington Post illustrates the disproportionate rate of Zika-related microcephaly in Brazil relative to other countries in the region¹.

"...the Zika epidemic has led to only modest increases in microcephaly outside of Brazil."

Zika cases in the Western Hemisphere



Note: Data as of Oct. 20

Source: Pan American Health Organization

THE WASHINGTON POST

Co-factors

The missing cases of microcephaly in Colombia are not the first clue that the causal link between Zika and birth defects may not be as simple as first thought. Researchers and experts have been exploring the idea that additional cofactors are interacting with Zika virus infection to cause the high rates of severe microcephaly seen in Brazil since last summer when the Brazilian government launched an official probe to investigate the unusual geographical distribution of microcephaly cases within Brazil. Almost 90% of reported cases of microcephaly in Brazil were clustered in a small portion of the northeastern corner of the country, leading many to suspect that Zika alone could not be the cause of such a drastic increase in birth defects (covered previously in the July issue of *The Epi Monitor*²). While the Brazilian data alone are fairly compelling, the fact that a massive spike in microcephaly has not followed the epidemic across the rest of South and Central America provides further support for the idea that cofactors are likely involved. As Ernesto Marques, an epidemiologist from the University of Pittsburgh working with researchers in Brazil recently told the *Washington Post*, "Now we've settled on Zika as the smoking gun, but we don't know who pulled the trigger."

Colombia For Answers

Experts are now hoping that Colombia may provide clues as to what these other factors may be. The single biggest difference between the epidemics in Brazil and Colombia may simply be the numbers involved.

Colombia is a much less densely populated country with a total population of less than 25% that of Brazil. In addition much of Colombia's population lives at high altitude where there are fewer mosquitos, while nearly all of Brazil's population lives at low altitudes where Zika carrying mosquitos thrive. Zika appeared as early as 2014 in Brazil and circulated for some time before health officials even became aware of it. The disease can be difficult to diagnose with symptoms resembling other diseases endemic to the region, raising the possibility that Brazil may have experienced many more cases of Zika than is currently thought. By the time Zika spread to Colombia the health system was more prepared with a system already in place to thoroughly track and confirm suspected cases.

Cultural and Policy Factors

These differences seem unlikely to fully explain the large discrepancy in rates of microcephaly between the two countries, leaving some to suggest that social policies may be minimizing the effects of the epidemic in Colombia. Colombian officials believe that given the chance to witness the effects of Zika on newborns in Brazil, many Colombian women may have aborted fetuses showing signs of brain abnormalities. For instance, the vice minister for public health, Dr. Fernando Ruiz, said he believes it is "very possible" that abortions have decreased the microcephaly rate in Colombia. In Brazil, abortions are allowed only in cases of rape, incest or when necessary to save the mother's life. Illegal abortions are difficult to obtain and the timing of the epidemic meant that for many women it would

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attempt to begin aggregating and presenting theoretical and methodological ideas about population distributions of health and disease and what we might be able to learn about them. We draw on scholars not only from epidemiology but preventive medicine, philosophy, social science, and health policy in an attempt to begin formalizing what a discipline of population health science might look like, and what foundational principles should guide our work.

Conflict with Epi?

EM: In the introductory chapter of the book, you describe population health science as “quantitative underpinning” and “the scaffolding of a broader agenda for both preventive medicine ... and public health.” Epidemiologists have long stated that epidemiology is the basic science of public health. Does population health science supplant epidemiology? How do the two coexist moving forward?

Keyes: Yes, we see population health science and epidemiology as correlated and coexisting. Whereas epidemiology is increasingly being defined by a particular set of methods that answer a particular set of questions, we see population health science as a broader framework of ideas and methods that can be used for a diverse array of research questions - some of those questions may be ‘epidemiological’ but some may not. Thus, we do not see these disciplines as competing, but hopefully, as complementary and reinforcing each other.

EM: Can you expand on your

statement that population health science is less a collection of methods and more an articulation of values?

Keyes: We have disciplines that have developed and described methods - in epidemiology, biostatistics, economics, health policy, psychology, and many other disciplines. We see *Population Health Science* as a way to aggregate theory and ideas in ways that bring aligned researchers together towards common goals and research agendas, using a wide variety of methods and triangulations of evidence. Our book is not a textbook of methods that one can use to be a population health scientist, but the ideas and theories from generations of scholars who have laid the foundation for the formation of the discipline.

Reception

EM: What kind of reception are you getting to the new book and its ideas? Are epidemiologists seeing it positively? Some we know may be seeking to change the emphasis in epidemiology itself rather than trying to emphasize a new discipline. Why did you choose differently?

Keyes: Thus far the book has had a great reception - our colleagues from both epidemiology and aligned disciplines have had useful feedback and comments, and the book is beginning to be used in various classes, which was our ultimate goal. Part of the reason that we decided to work on ideas for invigorating a discipline of Population Health Science is that it is among the buzzwords that we keep hearing about in the public health community.

"...our work should always have in mind practical ways of improving population health..."

There are now degree programs, classes, and other academic programming labeled as "Population Health Science", but there was no formalized agenda, in our view, of what Population Health Science is, how it might be distinct from public health and epidemiology, what principles guide the work, and what questions fall under its umbrella. Our book was our attempt at a first pass on addressing those topics.

EM: As a pragmatic science, do you see population health scientists engaged in translating their science or advocating for solutions to population health problems? Will population health scientists be more "applied" than epidemiologists?

Keyes: I do not see population health science as more applied than epidemiology, which is already a very applied discipline that often explicitly recommends research that is directly policy relevant. Population Health Science, to me, is agnostic to direct policy relevance. Of course, our work should always have in mind practical ways of improving population health, but we should not privilege those research questions with direct policy relevance, as such approaches can often be limiting. For example, it is often difficult to envision direct policy applications of the study of inequality, but that does not make inequality less worthwhile to study. Perhaps the estimates that we obtain from studies of inequality should be interpreted with more caution as they might not be direct causal estimates, but inequality is well worth studying, both theoretically and empirically.

EM: In your words, "population

health scientists are charged with considering the causes of [health and disease] distributions, rather than the causes of cases." How distinct are the underlying causes of distributions rather than of cases?

Keyes: It would depend on the outcome under investigation. As an example we use in the book, consider intelligence. Within a high socio-economic population with high quality education, supportive learning environments, and excellent nutrition and health care, why one person is high IQ and another person low IQ might be entirely determined by inheritance and genetic lottery. But in a different environment in which goods and services are unequally distributed, the reasons why one person has high IQ and another does not might not be linked to genes. As such, the determinants of the population mean and standard deviation of a distribution of health may have different predictors than the determinants of being high or low on the distribution in any particular population.

EM: Principle #8 recognizes that improvements to overall population health may be a disadvantage to some groups. Can population health science help to choose between equity and efficiency in these cases?

Keyes: In my view, no. When there are tradeoffs between equity and efficiency (and it is important to note that often times the two can be aligned), whether equity or efficiency is the best approach will depend on the values of the decision makers, rather than on empirical evidence

Poll Examines American Perceptions About Obesity

Ask yourself this: "What is the most serious health problem facing the nation"? If you answered "obesity", you would be in the company of most Americans (81%) who ranked it as high as cancer and above heart disease and diabetes (72% each), according to a new survey by the American Society for Metabolic and Bariatric Surgery (ASMBS) and the independent research organization, NORC at the University of Chicago¹. Obesity has been linked to many other diseases and conditions including heart disease, diabetes, high blood pressure, and even some cancers, making it a serious threat to individual health and dramatically increasing the chances of premature death. But perhaps surprisingly, the ASMBS/NORC Obesity Poll found that although 94% of Americans understood this, only about two thirds of those struggling with obesity have spoken to a doctor or health professional about their weight, and far fewer still have considered or been suggested surgical options by their doctor.

Complex Causes

Now consider what the most effective treatment for obesity would be. Top of mind for more than three-quarters of the respondents in the ASMBS/NORC Obesity Poll was "diet and exercise". Yet, in addition to being too simplistic, this belief that obesity is driven by a person's lifestyle and/or lack of willpower may be counterproductive, and lead to anxiety and denial in adults concerned about their health. John M. Morton, MD, MPH, chief of bariatric and minimally invasive surgery at Stanford University School of Medicine, agrees. "We have to get

people, and even the medical community, to go beyond 'eat less and exercise more.' That's too simple an answer for a complex disease like obesity. We have an expanding spectrum of treatments and many are underutilized because they are misperceived or poorly understood." Underlying this complexity are a combination of genetic, environmental, and social factors that health professionals believe all play a role in the causes of obesity. The National Institutes of Health (NIH) National Heart, Lung, and Blood Institute also lists some other, perhaps overlooked, causes such as lack of sleep, emotional factors (e.g. stress or boredom), and smoking cessation. Taken together this means that while some elements of obesity may be in an individual's control, addressing others requires alternative interventions.

Surgical Treatment

Though not fit for everyone, weight-loss surgery may be one such alternative. Good candidates for bariatric surgery are those with a body mass index (BMI) of 40 or higher, or those with a serious obesity-related health problem and a BMI of at least 35, according to the NIH. Interestingly however, only 12% of eligible obese individuals in the ASMBS/NORC survey have been suggested this surgical option by their doctor, despite the fact that nearly a third of them have considered weight-loss surgery on their own. The main reasons that many of those who considered surgery did not pursue it were related to cost, affordability, and

"We have to get people, and even the medical community, to go beyond 'eat less and exercise more.'"

"...only 12% of eligible obese individuals...have been suggested this surgical option by their doctor..."

STD Rates Reach Unprecedented Levels In US

The number of STD cases reported in the US rose to an all-time high in 2015. These alarming findings were detailed in the CDC's recently released annual *Sexually Transmitted Disease Surveillance Report*. There were nearly 1.5 million cases of chlamydia (a 5.9% increase), 400,000 cases of gonorrhea (a 12.8% increase), and almost 24,000 cases of syphilis (a dramatic 19% increase), with all three conditions reaching record high levels. The Director of CDC's National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention Dr. Jonathan Mermin said, "We have reached a decisive moment for the nation. STD rates are rising, and many of the country's systems for preventing STDs have eroded. We must mobilize, rebuild and expand services - or the human and economic burden will continue to grow."

The CDC estimates these conditions cost the US healthcare system \$16 billion per year and left untreated, they can cause serious and irreversible health consequences including infertility and chronic pain. As all three diseases are curable with antibiotics, access to screening and treatment is critically important for both controlling their spread and minimizing associated health complications. However, state programs across the country have been experiencing budget cuts in recent years leading more than 20 state health department STD clinics to close in a single year. Dr. Mermin described the problem, "STD prevention resources across the nation

are stretched thin, and we're beginning to see people slip through the public health safety net." The report argues that a coordinated and sustained commitment from state, local and national health organizations is necessary to reverse the current trend.

View the full report here:

<https://tinyurl.com/joyxox3>



US Traffic Fatalities Up Dramatically

The US Department of Transportation's National Highway Traffic Safety Administration (NHTSA) reported recently that traffic deaths rose 7.2% in 2015 to 35,092, ending a 50 year streak of continuous declines. The last time the US experienced a single year increase in fatalities this large was 1966, which saw an 8.1% increase from the previous year. In just the last ten years traffic fatalities had decreased 25% from 42,708 thanks to safety programs to encourage seat belt use and reduce drunk driving, as well as improved vehicle safety technology like air bags and stability control. Officials say the surprising increase can be partly attributed to increased driving resulting from job growth and low fuel prices, as total vehicle miles traveled increased 3.5% compared to 2014, the largest increase in almost 25 years. Notably, the largest increases were among pedestrians, cyclists and motorcyclists.

"We have reached a decisive moment for the nation."

"...we're beginning to see people slip through the public health safety net."

The NHTSA in conjunction with the DOT and the White House has issued a call to action, hoping to engage a variety of stakeholders in the search for the underlying causes of this alarming increase in fatalities. As US Transportation Secretary Anthony Foxx said in an NHTSA press release, "Solving this problem will take teamwork, so we're issuing a call to action and asking researchers, safety experts, data scientists, and the public to analyze the fatality data and help find ways to prevent these tragedies." To this end, the NHTSA will share its Fatality Analysis Reporting System state and local officials, scientists and researchers who are interested in analyzing the data.

The NHTSA also notes that human behavioral factors continue to play a major role in traffic fatalities. Almost 50% of those who died in car accidents were not wearing seat belts, while almost a third of fatalities involved drunk driving or speeding and another 10% involved distracted drivers.

For more see an overview of the NHTSA report here:

<https://tinyurl.com/zj3fxpn>



Suicide Rates Among Adolescents On The Rise

Early this month, the CDC reported rates of suicide and death due to traffic accidents are now equivalent among young adolescents ages 10 to 14. This follows from a steady decline of 58% in motor vehicle related deaths since 1999 (recent traffic incident data

reported in this issue notwithstanding) and a doubling of the suicide rate beginning in 2007.

Echoing the statistics in the adult population, more boys than girls took their lives, however the rate of suicide among girls has tripled compared to an increase of only a third for boys in the same time period. Coverage of the CDC report in the New York Times highlights increased social pressure stemming from our changing online culture as one potential cause of the sudden increase. "The reasons for suicide are complex. No single factor causes it. But social media tends to exacerbate the challenges and insecurities girls are already wrestling with at that age, possibly heightening risks, adolescent health experts said." Young girls are also entering puberty at earlier ages and experience depression at higher rates than young boys. According to Arielle Sheftall, Center for Suicide Prevention and Research at Nationwide Children's Hospital in Columbus, Ohio, "Research has shown that puberty, unfortunately, is associated with the onset of psychological disorders, specifically depression."

For more on the topic, the CDC report and two articles can be found here:

<https://tinyurl.com/z66gefs>

<https://tinyurl.com/h8meh58>

<https://tinyurl.com/zushq8u>

■

"Solving this problem will take teamwork..."

"... social media tends to exacerbate the challenges and insecurities girls are already wrestling with at that age..."

alone. As an example that is often cited, age has been used as a factor in decision making for organ donation. Privileging the young is efficient but would not be equitable, as it discriminates based on age. The answer for what to do in that situation is a matter of values. The same issues arise when we discuss distributing health care resources at a population level, should we privilege preventive medicine and care for the young, or treatment and palliative care? Of course, this is a straw man argument as we would want to do both, yet in a world of finite resources, some difficult decisions need to be made.

Principles

EM: Your principles of population health are succinctly stated. Can you expand a bit on how you see them as being useful in doing population health science?

Keyes: I think that remains to be seen. The principles are not prescriptive of a particular research agenda, methods, or study design, rather guiding principles in how to outline our research program and choose topics of importance. I see them being used in training, to help young scholars understand the history of our field and the principles to keep in mind as they progress in their research program.

EM: This book and your previous book were both co-written with Sandro Galea. How did your collaborative writing partnership come about? Or what do you feel is the biggest advantage gained in collaborative writing?

Keyes: I began working with Sandro when he joined the department of epidemiology at Columbia University as chair as I was finishing my doctoral degree and beginning a post-doc at Columbia. Very quickly we saw that our interests and ideas were aligned and we began meeting regularly to talk about how to teach, think and write about epidemiology as a discipline. These discussions led to our first textbook, *Epidemiology Matters*, but throughout the writing of that book we realized that many of the ideas that guide our personal research agendas did not fit the subject matter of an introductory epidemiology text.

When we finished *Epidemiology Matters* we realized that we had another book to write which was very different in frame and content, and very quickly began writing the second book. I think our collaborative arrangement works because Sandro and I are both enthusiastic scholars. We love new and challenging ideas, love working on a wide variety of projects and topics, and are not dissuaded by setbacks or criticism. I think both Sandro and I also insist on thinking about larger questions in our discipline beyond the next grant or the next paper, and these inquiries naturally led us to collaborate.

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"...in a world of finite resources, some difficult decisions need to be made."

"The principles are not prescriptive of a particular research agenda, methods, or study design..."

The Principles of Population Health Science

1. Population health manifests as a continuum.
2. The causes of differences in health across populations are not necessarily an aggregate of the causes of differences in health within populations.
3. Large benefits to population health may not improve the lives of all individuals.
4. The causes of population health are multilevel, accumulate through the life course, and are embedded in dynamic interpersonal relationships.
5. Small changes in ubiquitous causes may result in more substantial change in the health of populations than larger changes in rarer causes.
6. The magnitude of an effect of exposure on disease is dependent on the prevalence of the factors that interact with that exposure.
7. Prevention of disease often yields a greater return on investment than curing disease after it has started.
8. Efforts to improve overall population health may be a disadvantage to some groups; whether equity or efficiency is preferable is a matter of values.
9. We can predict health in populations with much more certainty than we can predict health in individuals.

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have been too late to get the necessary ultrasounds and diagnosis in time. In contrast, abortion is legal in Colombia in the case of a severely deformed fetus as a means to protect the mental health and well-being of the mother. Women now typically get three ultrasounds during a pregnancy giving them much greater opportunity to diagnose developmental abnormalities early in pregnancy. Most abortions in Colombia are induced by a pill that can be prescribed by any doctor or easily obtained illegally. While official reports do not show an increase in abortion numbers, many women are told to go to the hospital after taking the pill where they appear to have had a miscarriage. Interestingly, the director of Colombia's National Health Ministry, Dr. Martha Lucia Ospina told the Washington Post in July that Colombia was experiencing an 8% increase in miscarriages as reported on fetal death certificates.

Dr. Ruiz also believes the government policy enacted in December asking women to delay pregnancy by 6 months has contributed to the lower rates of microcephaly in Colombia. Unlike some other countries in the region, where governments received pushback for asking women to wait 2 years to try to conceive, Dr. Ruiz feels that some Colombian women felt that a 6 month delay was reasonable. If he is correct, government statistics may show a decrease in birthrate when they are released next year. For the time being, global health officials will track new cases of microcephaly as babies are being born in countries where Zika arrived much later (the first baby with Zika-linked microcephaly was born in Puerto Rico

"...Colombia was experiencing an 8% increase in miscarriages..."

"... government statistics may show a decrease in birthrate when they are released next year."

just weeks ago) and continue to search for the potential cofactors that may explain vast discrepancies in microcephaly cases seen so far.

<https://tinyurl.com/hbcvpgn>

<https://tinyurl.com/j58dthc> ■

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Chiolero A. Letter to the Editor: Counterfactual and interventionist approach to cure risk factor epidemiology

<https://tinyurl.com/jhuhh8r>

Schooling CM et al. Letter to the Editor: Causality and causal inference in epidemiology: we need also to address causes of effects

<https://tinyurl.com/gwujvcr>

Broadbent A et al. Letter to the Editor: Authors' Reply to: VanderWeele et al., Chiolero, and Schooling et al.

<https://tinyurl.com/hqqt85o>

VanderWeele TJ. Explanation in causal inference: developments in mediation and interaction. *Int. J. Epidemiol.* first published online November 17, 2016.

[doi:10.1093/ije/dyw277](https://doi.org/10.1093/ije/dyw277)

<https://tinyurl.com/htgxbvv>

Kaufman JS. The epidemiology of two things considered together.

Commentary on: Explanation in Causal Inference: Developments in Mediation and Interaction, by Tyler J. VanderWeele *Int. J. Epidemiol.* first published online November 17, 2016.

[doi:10.1093/ije/dyw278](https://doi.org/10.1093/ije/dyw278)

<https://tinyurl.com/jy49mvh>

lack of insurance coverage (40, 29, and 11%, respectively). Thirty seven percent of respondents believed that the surgical option was unsafe but the majority of Americans still believed that weight-loss surgery is less risky than living with obesity.

Obesity is pervasive

Obesity is a personal issue for many Americans. Obese individuals are roughly twice as likely than non-obese people to report that their weight interferes with their romantic relationships, life goals, and family life. And although those with obesity are more likely than others to have a parent, spouse, child or close friend that is overweight, these problems are not isolated. The ASMBS/NORC poll found that more than half of Americans consider a close friend overweight and one-third of them "personally know someone who died or developed a disease or health condition because of obesity", a fact that is more common among Whites than African Americans or Hispanics.

New Approaches

Although the poll seems to indicate that Americans' awareness and knowledge on obesity is increasing, there is still some way to go to stem the tide of the disease. In 2013 the American Medical Association declared obesity a disease but only 38% of Americans agree, most considering it instead merely a risk factor for other diseases. According to a 2012 article in the Journal of the American Medical Association (JAMA), from 1999-2010 the overall

rate of obesity in adults remained roughly steady around 35-36% but the trend does not look good for what has been a decades old epidemic. The Centers for Disease Control estimated in 2012 that by 2030, 42% of adults will be obese, adding \$550 billion dollars in health spending over that time.

If the current education and methods on how to treat obesity is not sufficient, some have called for different thinking all together. In a recent commentary Dr. Jody Zylke and Dr. Howard Bauchner, editors of JAMA, said that after spending hundreds of millions of dollars on obesity research, drugs, and hospital and community programs "perhaps it is time for an entirely different approach, one that emphasizes collaboration with the food and restaurant industries that are in part responsible for putting food on dinner tables."

Sources:

<https://tinyurl.com/jhz36pf>

<https://tinyurl.com/z2jd937> ■

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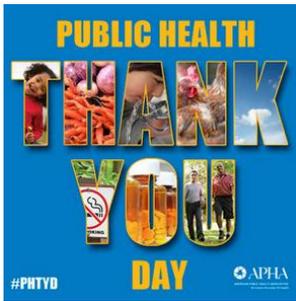
*"...by 2030, 42%
of adults will be
obese..."*

*"perhaps it is
time for an
entirely different
approach ..."*

Notes on People



Honored: Jonathan Samet, with the 2016 Fries Prize for Improving Health, for his pioneering research and decades of advocacy on the negative impacts of air pollution on health. Samet is chair of preventive medicine at USC and director of the Global Health Institute there. In giving the award, the chair of the Fries foundation stated that Samet's research and policy leadership have directly contributed to the avoidance of hundreds of thousands of premature deaths and hospitalizations.



Recognized: Community health workers, biomedical researchers, epidemiologists, nurses and many others devoted to public health, on November 21 Public Health Thank You Day organized by Research! America and other health organizations. "To all who have dedicated their careers to help us live our lives to the fullest, thank you!", said CDC Director Thomas Frieden on behalf of the organizers.



Honored: Kaare Christensen, with the Fondation IPSEN Longevity Prize for his pioneering work on the importance of genes and environment in aging and longevity. Christensen is Professor of Epidemiology at the University of Southern Denmark, Director of the Danish Twin Registry and the Danish Aging Research Center, and Senior Research Scientist at Duke University.



Named: Stella Uzogara as a Fellow of the Academy of Nutrition and Dietetics. Dr Uzogara is a nutrition epidemiologist who has worked for several years in the Massachusetts Department of Public Health in various capacities and as a faculty member in local universities. The Fellow designation recognizes Academy members who have distinguished themselves among their colleagues, made commitments to the field of nutrition and dietetics, served in their communities, gave their service to the nutrition and dietetics profession, and contributed to optimizing the nation's health through food and nutrition.

-IJE continued from page 14

Oakes JM and Naimi AI. Mediation, interaction, interference for social epidemiology *Int. J. Epidemiol.* first published online November 17, 2016. doi:10.1093/ije/dyw279
<https://tinyurl.com/gour5yw>

Pearce N and Vandenbroucke JP. Causation, mediation and explanation *Int. J. Epidemiol.* first published online November 17, 2016
doi:10.1093/ije/dyw281.
<https://tinyurl.com/jl9w7xf>

VanderWeele TJ. The role of potential outcomes thinking in assessing mediation and interaction *Int. J. Epidemiol.* first published online November 17, 2016 doi:10.1093/ije/dyw280.
<https://tinyurl.com/h3vr5yj>

■

Position: Associate/Full Professor of Epidemiology

Description: The Department of Epidemiology and Population Health in the School of Public Health and Information Sciences at the University of Louisville, is seeking applicants for a tenured/tenure-track Associate/Full professor position, beginning Fall 2017. Candidates for senior positions should have a strong record of peer-reviewed publications and extramural funding as a principal investigator. Applicants must have a doctoral degree in epidemiology or public health sciences with a concentration in epidemiology. Applicants with a degree in a closely related field may be considered if they have at least 5 to 10 years of direct experience in epidemiology, depending upon rank.

Candidates should be willing to collaborate within the department as well as within the school and university. All areas of expertise within epidemiology will be considered. The Department of Epidemiology and Population Health has established M.P.H., M.S., and Ph.D. curricula. Disciplinary strengths include environmental, occupational, community-based approaches to epidemiologic research, genetic, molecular, cancer, and reproductive epidemiology. We are seeking individuals interested in the challenges and opportunities associated with joining a small but growing department.

The University of Louisville, founded in 1798, is a state supported research university located in Kentucky's largest metropolitan area. The School of Public Health and Information Sciences is a fully accredited School of Public Health, and shares the downtown Health Sciences Campus with the Schools of Medicine, Dentistry, and Nursing as well as the Greater Louisville Department of Health and Wellness.

Interested candidates should apply online at <http://www.louisville.edu/jobs>, **Position ID 32457**. In addition please email: an updated curriculum vitae, a letter of interest including a statement of research interests, and a list of three references to: Kristina Zierold, Ph.D., Chair of Search Committee, Department of Epidemiology and Population Health, School of Public Health and Information Sciences, University of Louisville, 485 East Gray St., Louisville, KY 40292, kmzier02@louisville.edu.

Contact: Kristina M. Zierold

Email: kmzier02@louisville.edu

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Sponsored by the National Heart, Lung and Blood Institute, this program provides opportunities for training in vascular aging, women's health, high risk populations (e.g. diabetes), and international health. A special feature is the availability of experience in subclinical vascular measures. It includes didactic training in public health epidemiology, as well as practical experience in epidemiologic and prevention-based studies.

The standard post-doctoral fellowship duration is 2 years with a stipend commensurate with level of training and other benefits. We are committed to increasing representation of underrepresented minorities in this fellowship program. We are currently accepting applications for one open position. Application and eligibility information can be obtained at <http://www.cvdtraining.pitt.edu/>.

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Trevor Orchard, M.B.B.Ch., M.Med. Sci., FAHA, FACE
Professor Epidemiology, Pediatrics and Medicine
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The UT HEALTH SCIENCE CENTER (UTHSC) Colleges of Nursing and Health Professions invite applications for the position of a full-time position as faculty with a shared appointment within each College (.5 each). This position will be partially grant funded beginning in FY 2018.

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UTHSC has educated more than 53,000 health care professionals on three campuses across the state – Memphis, Knoxville and Chattanooga. The UTHSC campuses include colleges of Health Professions, Dentistry, Graduate Health Sciences, Medicine, Nursing and Pharmacy. Patient care, professional education and research are carried out at hospitals and other clinical sites across Tennessee. UTHSC is a major medical and research center located in Memphis, Tennessee, which is a medium size, ethnically diverse, culturally rich, family-friendly city with a low cost of living. Excellent opportunities are available for collaborative research in health services research, clinical trials, human genetics, genomics, epidemiological studies, systems biology, biostatistics, molecular biology, and bioinformatics.

QUALIFICATIONS:

We seek candidates with a strong training in biostatistics and statistical aspects of data science. The successful candidate will be expected to develop a diverse research portfolio with a mixture of collaborative and independent methodological research. All areas of biostatistics are of interest, but we are especially interested in candidates with a demonstrated interest in clinical trials, large observational studies, complex heterogeneous datasets, high-throughput data, and statistical computing. Minimum qualifications for the position are an MSN in Statistics or Biostatistics and a PhD in a health related area. Candidates with clinical and public health research experience are especially encouraged to apply. Primary criteria for appointment will be experience, demonstrated ability in research, a relevant publication record in peer-reviewed journals, and evidence of successful teaching. The successful applicant will work closely with faculty and staff in the Colleges of Nursing and Health Professions to develop grant applications and conduct research studies.

RESPONSIBILITIES:

Responsibilities for this position include: (1) Methodological research, alone or in collaboration with other faculty, that results in peer-reviewed publications; (2) Collaborative research with faculty including assistance with grant applications, and data analysis on grants; and (3) Teaching of 1 -2 graduate courses per year and supervision of graduate students.

Interested applicants should submit (electronically) a copy of their curriculum vitae, a cover letter describing research interests and teaching experience, two letters of recommendation and photocopies of transcripts to Wendy Likes, Ph.D., Dean, College of Nursing, @ mlikes@uthsc.edu or Audrey Zucker-Levin, Assistant Dean of Research, College of Health Professions, @ azuckerl@uthsc.edu, the University of Tennessee Health Science Center .



Post-Doctoral Research Fellow In Cancer Epidemiology at Harvard TH Chan School of Public Health

We are seeking an outstanding post-doctoral research fellow to join our **cancer epidemiology research team** in the Division of Urology at Brigham and Women's Hospital and the Department of Epidemiology at the Harvard TH Chan School of Public Health. The research fellow will become an integral member of our group and lead research projects that integrate epidemiological and biomarker data in international cancer epidemiology cohorts to study the etiology and survival of cancer of the prostate. Our team is dedicated to understanding the causes of these cancers with the ultimate goal of improving men's health.

Training: The fellow's research program and training will be primarily directed by Dr. Adam Kibel with three co-mentors, Drs. Lorelei Mucci, Mark Preston and Kathryn Penney, who will provide additional expertise and guidance. All have a strong record of teaching, research and mentoring. The fellow will have the opportunity to work closely with fellows, residents and students at BWH, DFCI and HSPH as well as clinical, biostatistical, and pathology colleagues across the Dana-Farber/Harvard Cancer Center. The fellow will also be encouraged to be an active participant in an international, collaborative team of faculty, fellows and students. (<http://topcapteam.org/>). The fellow will have access to large existing well annotated internal and external cohorts with biological specimens such as Harvard Physician's Health Study (<http://phs.bwh.harvard.edu>), Gelb Center Biorepository (<http://www.dana-farber.org/Research/Departments-and-Centers/Arthur-and-Linda-Gelb-Center-for-Translational-Research.aspx>), and PRACTICAL (<http://practical.ccg.medschl.cam.ac.uk>). The fellow will be encouraged to participate in workshops, courses, seminars, and leverage resources and interdisciplinary environment of Brigham and Women's Hospital, Harvard Chan School and the Dana-Farber/Harvard Cancer Center.

The fellow will be supported to lead original analyses and manuscripts, and gain experience in the study design, analysis and molecular methods in the field of integrative molecular epidemiology. Research and training opportunities will help build and strengthen the fellow's skill set, while promoting career development in multiple ways, including developing skills in grant writing, gaining and building on national and international collaborations, and fostering the transition toward independent funding and an independent research career. The position offers a competitive salary, benefits, and travel/educational opportunities.

Eligibility: The ideal candidate will hold a doctoral degree in epidemiology or biostatistics, with demonstrated interest in molecular epidemiology and quantitative methods. We will also consider candidates who are trained in medicine or biology who also have a strong background in quantitative research skills and interest in cancer research.

Application: Please send cover letter describing your research experience and interests, CV and References to Dr. Adam Kibel (akibel@bwh.harvard.edu)

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The Department of Public Health Sciences and the Center for Epidemiology and Prevention at the University of Chicago seeks candidates for postdoctoral positions in the area Epidemiology with special focus on big data as it relates to medical data science and/or genetics. Applicants should have a doctoral degree in epidemiology or related fields of data science or public health.

Successful candidates will participate in large-scale multi-site studies including the NIH Precision Medicine Cohort Initiative that will recruit participants through the Illinois Precision Medicine Consortium (IPMC). The general research focus will be understanding the interplay among genetics, environmental exposures, and clinical history in chronic disease risks and their prevention avenues. Candidates with interest and experience in collection and analyses of large-scale population health datasets, especially utilizing medical records and/or genetic data are preferred.

To review the full job description, please visit the [Link to Job Posting.](#)



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CANCER CENTER

Tenure-Track Faculty Position in Epidemiological Research

The University of Hawai'i Cancer Center (UHCC) is seeking applications for a tenure-track faculty position at all ranks. We encourage applications from candidates with experience across the spectrum of cancer epidemiology research, from etiological studies to intervention trials, and particularly including molecular, genetic or clinical epidemiology. Applicants must have a PhD or MD with direct training and experience in epidemiological studies. The successful candidate will have demonstrated research excellence in epidemiology, strong interpersonal and communication skills, a record of extramural funding, and interdisciplinary collaborations. The most competitive applicant should have a track record of NIH funding, and will be able to develop an independent epidemiology research program.

The work of the Epidemiology Program focuses on the ethnic/racial differences in cancer risk that exist in Hawaii and the Pacific as a means to better understand the etiology and progression of cancer in order to develop new interventions. The Program has developed a number of important resources for its work, including the Hawaii SEER registry, the well-established Multiethnic Cohort Study, and shared resources in nutrition, biostatistics, analytical biochemistry, metabolomics and high-throughput analysis of genetics and epigenetics.

For the complete job description (which includes the qualifications for the position), search information, and how to apply please go to

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