

EXCLUSIVE INTERVIEW On The Opioid Crisis

A Conversation With Robert Pack

"This is tragedy. This is misery. This is all kinds of pain, for families, for friends, for loved ones."

"Good epidemiology is of paramount importance to our work and I'm so grateful for the work that epidemiologists do."

Robert Pack

[Editor: Last month President Trump declared the opioid drug problem a national emergency and called for an all out effort to defeat this ongoing epidemic. To obtain a deeper understanding of the magnitude and causes of the problem, The Epidemiology Monitor interviewed Robert Pack, Associate Dean for Academic Affairs & Professor of Community and Behavioral Health at the East Tennessee State University (ETSU) College of Public Health. Dr Pack is chair of the Prescription Drug Abuse/Misuse Working Group at ETSU, Executive Director of the ETSU Center for Prescription Drug Abuse and Treatment and PI of an NIDA-funded five year research infrastructure grant that includes three research projects. The interview which follows makes compelling reading and provides epidemiologists with an in-depth understanding of the current crisis and how epidemiologists might further contribute to addressing the problem.]

EM: The President recently declared the opioid crisis a national public health emergency stating that 175 persons die each day from drug overdoses. What do you think best conveys the magnitude of the crisis?

Pack: Most commuter jets, such as those that take many of us from our hometowns to central air travel hubs, hold between 70-100 passengers. Would Americans be OK with losing one or two commuter jets full of people each day? Absolutely not. Airlines would be grounded and all hands would be on deck to identify the problem, the very best engineers would be brought in to fix the

- Opioid cont'd on page 2

In This Issue

-10-
*International
"Surveillance
Report" on
Climate Change*

-12-
*WHO & UN
Team Up on
Climate Change*

-13-
*Lancet
Commission
Releases Major
Pollution Report*

-15-
Notes on People

-17-
Marketplace

The Epidemiology Monitor
ISSN (0744-0898) is
published monthly
by Roger Bernier, Ph.D.,
MPH at 33 Indigo
Plantation Rd, Okatie, SC,
29909, USA.

Editorial Contributors
Roger Bernier, PhD, MPH
Editor and Publisher

Operations
Linda Bernier, PhD, MS
Operations Manager

Advertising Sales
Linda Bernier, PhD, MS
Director of Advertising
770.670.1946
linda@epimonitor.net

2016 Advertising Rates

All ads listed below also
include a banner ad on
our website and in our
EpiGram emails.

Full Page \$1,195
7.5" w x 10" h
Half Page \$895
7.5" w x 5" h
Quarter Page \$695
3.75" w x 5" h

Website Ad \$495/ mo.
Includes a banner ad in
our EpiGram emails

Multi-month discounts
available upon request.

Contact Us
The Epidemiology
Monitor
33 Indigo Plantation Rd,
Okatie, SC, 29909 USA
678.361.5170
epimon@aol.com

problem and no resources would be spared. Stricter safety policies would be enacted, and checklists made and completed at a scale heretofore unimaginable. We simply would not allow the industry to continue. The conditions that allowed such a tragic scale of events would be fundamentally altered and the problem would be corrected, such that air travel became safe again. This is the type of national level commitment that we need to address the opioid problem.

EM: The President compared the problem of drug overdoses to gun homicides and motor vehicle deaths. Help us to understand the toll being exacted by opioid drugs.

Pack: Unintentional poisonings, a category that includes overdose deaths, is the overall leading cause of injury death. It surpassed motor vehicle accidents, falls, suicides and homicides in the US several years ago. But the problem does not lie just in the numbers, though they are tragic. It lies in the suffering of the family grieving for a son lost to overdose, or a daughter numbed for years by substance abuse, or the son or daughter that is confused and has no words to express the grief of losing their mom. It lies in the stigma and shame of the broken relationships and trust that substance use disorder causes. Suicide is similar in that it is shrouded by value judgements and whispers. We can speak objectively about motor vehicle accidents and even homicides, to a large extent. Until we can begin processing overdose and suicide objectively, and acknowledge the scale of the public health problem that we are facing, we will continue to accept fragmented, short-term solutions to the problem.

EM: What are the projections for the impact of this epidemic if current trends continue?

Pack: Dr. Don Burke, Dean of the University of Pittsburgh Graduate School of Public Health, leads a team of epidemiologists that has demonstrated that drug poisoning deaths have increased exponentially, far outpacing population growth, since at least 1979. The exponential curve is striking when you see it, but is even more so when you see that, when transformed by logarithmic function it plots with an R^2 of .99, i.e., that the next several years of the epidemic can be plotted with 99% accuracy. They showed that the number increases about 9% each year, with a doubling rate of every eight years. They have shown that it took about 15 years for our country to experience 300,000 overdose deaths, but that we will experience 300,000 more in the next five years unless we do something dramatically different. His team has made similar plots for the data in each state, and for most major cities. There are only a few examples of places that do not fit the same trend.

EM: The report from the Presidential Commission states that prescription opioids now affect a wide age range, both well-off and financially disadvantaged families, urban and rural populations, and all ethnic and racial

groups. What should epidemiologists understand about the epidemiology of the opioid crisis?

Pack: The short answer is that it is complex and changing. The overdose epidemic used to be one of older people and is now clearly moving into a younger demographic. I have seen some bimodal plots of this wherein there are peaks currently emerging in the later 20s and the middle 40s. Plots that break that data down over time show a transition from mid 40s to this bimodal shape.

The recent MMWR article that elaborated upon the distinctions between the epidemic in rural vs urban areas, as well as some of our team's own work, has shown that the epidemic is very different along the urban-rural continuum. Prescription drug abuse has been a more (but by no means exclusively) rural phenomenon, and heroin/fentanyl abuse more urban.

EM: How does risk perception influence the opioid crisis?

Pack: When many of us were young, our perception of risk about heroin was that it was extremely risky to even try it, and in most cases that perception, and a general lack of availability, at least when we were young, was likely protective.

From the Monitoring the Future data, which is specific to youth (taken from a random sample of high school students each year) we know that for some drugs, like marijuana, risk perception and use are negatively correlated. For the most part, opioid use disorder has historically been a condition of older users that graduated to opioids after other drugs in their teens. Because of this, the same annual cross sectional data for opioid use disorder and risk perception are less clear mostly because the numbers were historically so small for high school student use of heroin (the survey did not ask about prescribed opioids until a few years ago). But I believe that a lot of people slipped into this condition because the risk perception of prescribed opioids was so low for so long. The risk perception for heroin use was likely very high, but for prescribed opioids, quite low. I think people went over the 'risk threshold' into heroin when it became known that heroin was more cheaply and readily available to satisfy the craving for opiates.

EM: What are the main drivers of the overdose problem?

Pack: The current overdose problem is a result of several different drivers, a few of which I will describe here. First, there has been tremendous growth in the amount of prescribed and dispensed milligrams of morphine equivalent (MME; a standardized unit of measurement for opioids of different strength) which started in the late 1990's and has grown into a large scale of individuals that are physically dependent on opioids. Beginning around 2010, the medical and policy community began to see the risks of over-prescribing and subsequently clamped down both on over-prescribing and the phenomenon that became known as

"The short answer is that it is complex and changing."

"...risk perception and use are negatively correlated."

doctor-shopping, or individuals going to several different prescribers to get prescriptions for opioids, for consumption or sale. I believe this contributed to a larger demand for illicitly traded opioids, including heroin. Fentanyl is, I am told, easily synthesized and trafficked from China and Mexico to sites in Canada and the US, and then cut into both heroin and other street drugs, including counterfeit prescription drugs. Fentanyl-laced heroin is largely responsible for the current spate of overdose deaths. The 2017 National Drug Threat Assessment from the Drug Enforcement Administration is very informative on this topic.

EM: Can you describe how you see risk perception changing?

Pack: I believe that, at some point, there will be a large enough awareness about the topic, that it is going to cause people to fear the outcome of a drug overdose and we will begin to see population level declines in the initiation of opioid misuse. I believe this will cause a slowing in the rate of new people with opioid use disorder, over a long period of time. However, there are a lot of people with opioid use disorder already, and some with massive tolerance for opioids.

Depending on how long and how severe their disorder many will not have volitional control over their behavior and won't follow rational decision making processes that you may expect from most. A large number of them are immersed in this new reality of their supply being more deadly than ever. Hence, between now and then (when the population level perception of risk is extremely high and new initiates to opioids have greatly decreased) there will be a lot of misery.

EM: What other drivers are you aware of?

Pack: There are other drivers of this problem, to be sure. For example, a lot of money has been made by profiteering all along the legitimate supply-side, such as by pharmaceutical companies, poorly run pain clinics, overprescribing physicians (both willing and unwitting), and even by some people in the business of treating those with opioid use disorder such as with medication-assisted treatment or in-patient treatment. However, these are difficult things to prove and our team is trying to stay focused on the larger picture, which is that a lot of people are suffering and need help urgently and that excellent primary prevention programs need to be put into place quickly.

EM: You have said in another venue that we need to think about the opioid problem as a "chronic relapsing disease" and treat it accordingly. Is this the most beneficial way to think about the opioid crisis? What other conceptual approaches have been put forth?

Pack: I am certainly not the first to frame it as such. In fact, I'm not sure who said it first, but I think framing it as a chronic relapsing disease, such as diabetes, helps to frame opioid use disorder as a medical problem, with all the inherent physical complexities of a medical problem, rather than a moral failing or a behavioral

"A large number of them are immersed in this new reality of their supply being more deadly than ever."

"...excellent primary prevention programs need to be put into place quickly."

problem. The analogy is particularly apt because type-2 diabetes can be controlled by diet and exercise in some while others may need insulin for life. Yet we should not and would not judge people for having type 2 diabetes and we certainly would not restrict their access to insulin. We would also endorse social support, cooking classes, other tertiary prevention opportunities for them. Stigma about mental illness and substance use disorder prevents us from being so objective about overdose and even suicide.

EM: Do we know enough to control this epidemic or is there a scientific or technical breakthrough that is needed to effectively end the epidemic?

Pack: Much is made of personalized medicine and the potential for an addiction vaccine. I support the type of science that is leading to such breakthroughs. While I am hopeful for the utility of such amazing tools, I know that they are many years away from being applicable in my community, state and region. Hence, our team has been focused on identifying the tools that we already know to be effective, and we're systematically trying to implement them in multiple different places, to have the greatest effect.

We are presently doing original scientific work on communication between prescribers, dispensers and patients with the aim of creating interventions to improve accurate risk and help-seeking communication between each part of the triad. This work is being led by my colleague Nick Hagemeyer, Associate Professor of Pharmacy Practice and our Center Research Director, and my senior doctoral student (who just defended her dissertation!) Stephanie Mathis. Most of the rest of our work is guided by principles of dissemination and implementation science, or the science of getting people to use evidence-based tools that we already know are effective.

EM: What key interventions exist to counter this epidemic?

Pack: The epidemic of opioid use disorder is fundamentally interprofessional in its origin. Hence, solutions to the problem should also be interprofessional. No one entity is responsible for the epidemic and efforts to address it need to include all stakeholders. In 2012 we established the ETSU Prescription Drug Abuse/Misuse Working Group, a volunteer group that meets monthly. The group is intentionally highly interprofessional and engaged with the community. The group actually has over 240 people on the email list but between 30-50 people show up to our meetings each month. Its open to anyone, and we listen to and discuss all ideas.

EM: What happens at these meetings?

Pack: We alternate on-campus and off-campus meetings to learn more about programs in the community. Of all the things we've done, the Working Group is by far the one that is most rewarding and the place where the best ideas originate.

"The epidemic of opioid use disorder is fundamentally interprofessional in its origin."

"...the Working Group is by far the one that is most rewarding and the place where the best ideas originate."

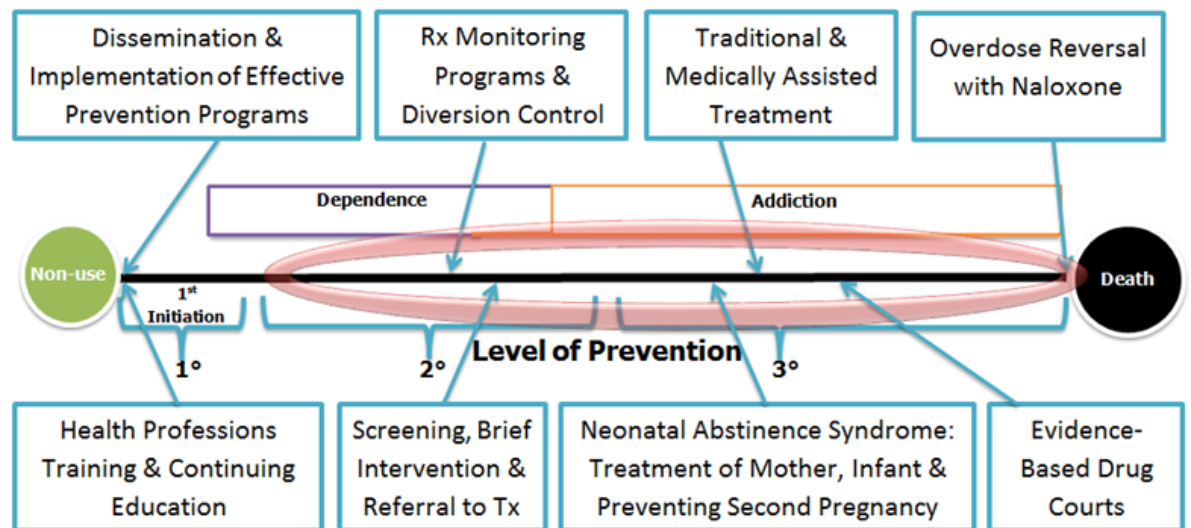
I view it as a very fertile ground for new ideas and a place where informal connections can lead to powerful new partnerships. Members are from many different organizations and sometimes have very different views on a topic, but what they all have in common is great interest in finding solutions, high engagement and tremendous expertise. I wish I could list them all here, because they are such valuable colleagues, but one person in particular facilitates these relationships with such skill that I need to mention her by name. Ms. Angie Hagaman is our NIDA grant project director, our Center Operations Director, a Masters prepared counselor and part time DrPH student that has tremendous instincts for relationships and community engagement.

"... what they all have in common is great interest in finding solutions..."

EM: How does the Working Group think about the opioid situation?

Pack: To frame our Working Group efforts, we use a conceptual model based on a simplified "life course" or "continuum" of addiction to demonstrate the complexity of the problem and to highlight the fact that there are many evidence-based interventions that can be implemented at different points along the continuum. The figure is provided below. By focusing on the continuum of addiction, it is possible for both university and community partners, who might normally only work at different points along the continuum, to coordinate and collaborate towards the common goal of having a measurable impact on the problem in the region.

Figure 1. Conceptual model of the problem of prescription opioid abuse



"...public health efforts to address the problem have been fragmented, or focused on only one or two of the interventions on the continuum."

EM: In talking about the complexity of the crisis, you have said that different groups are seeing only one part of one elephant in what is actually a herd of elephants!

What more holistic approach do you see to bending the curve downward?

Pack: Heretofore, public health efforts to address the problem have been fragmented, or focused on only one or two of the interventions on the continuum. For example, just this week, we learned of a well-resourced team that met for

several days to plan healthcare-focused solutions to the problem centered around the prescribing of pain medication. I feel like that was truly missing the point. That will control some of the supply, but the healthcare industry has multiple points of concern all along the continuum.

As another example, national level efforts to educate and train many stakeholders about naloxone have been a recent focus of the public health systems in many states. While our Center is also devoted to naloxone distribution, and Dr. Sarah Melton, Center-affiliated Professor of Pharmacy Practice in our Gattton College of Pharmacy, worked with our partners to create a training programs for naloxone administration that have been completed by more than 38,000 people, it is an unfortunate reality that naloxone alone will not be the answer to the problem. In fact, though essential, a focus on naloxone to reverse overdose should be viewed as a loud and clanging alarm of how urgently primary and secondary prevention efforts should be brought to bear against the problem. That's what I mean when I say that this is like a large group of people with blindfolds on describing an elephant. It's a well known analogy. You describe the part of the elephant that is in front of you. I have also said it is more like a herd of elephants because there are so many different perspectives on the right thing to do at different points along the continuum.

All of the interventions listed along the continuum have the potential to be scaled up, implemented with high fidelity and evaluated for local performance. Many even have different points of intervention at each level of the social-ecological framework. For example, a primary prevention program for school children may have modules for the child and also a parent component, a school level plan, a system level plan and perhaps even a community information component.

With respect to the figure shared above, ultimately, the effectiveness of each intervention is interdependent with the scale of implementation of each of the others. We can't focus on just one point along the continuum. We must have a concerted effort at all points across the social-ecological framework as they target individuals, families, healthcare initiatives, communities and systems that all play a role in the epidemic.

EM: The President stated it will take many years and even decades to address this scourge in our society. Given that we are in an emergency situation, is there a reasonable prospect that we can achieve a significant decrease in deaths more quickly? What would have to happen to rapidly achieve this desired outcome?

Pack: One thing that must happen quickly is to create high quality access to care for everyone that needs it. And we need to reduce payment and waitlist barriers for people to get engaged in treatment. Payers, such as Medicaid and insurance providers would be smart to scale up the treatment side of this as quickly as possible, because the problem will be even bigger the longer they wait.

EM: What are the main obstacles to a rapid and effective end to the epidemic?

"...a focus on naloxone to reverse overdose should be viewed as a loud and clanging alarm..."

"One thing that must happen quickly is to create high quality access to care for everyone that needs it."

Pack: Stigma and denial. And the drug cartels trafficking in heroin and fentanyl.

EM: Unlike other public health problems such as lack of physical activity, you mentioned that there is a layer of physical dependence that underlies the drug addiction problem and consequently a deficit in volitional control that impedes safer and healthier behaviors. In that way this problem may be similar to sexual risk behavior. Can you expand a bit further on why this opioid crisis is different from other public health problems.

Pack: I mention this because I think many people misunderstand substance use disorder to be a moral failing and just evidence of bad character, and that if someone suffering from opioid use disorder just really wanted to, they could get better. In fact, many of the theories that we learn about in our public health training are based on a rational decision making process, that behavior can be changed if we just value health more than the reward that we get from some risk behavior, or that behavior is influenced in a predictable fashion when considering social influences and peer norms. That is simply not true when you are talking about opioid use disorder. Habitual use of opioids results in a physical craving for the drug, when the body is in withdrawal from opioids, that can overwhelm even the best predictors and models for behavior change.

EM: What single underused intervention or interventions might we employ now to ameliorate the epidemic?

I truly wish there was a single intervention that was that effective for the problem. But there is not.

Pack: If you were named the Opioid Czar and given \$100 million dollars to control this epidemic, how would you invest it to produce the best results? Is there agreement among the professionals in your field about how to invest this money?

I was recently asked this question at a national meeting. My response reflected the answer I gave above, which is to accept the complexity of the problem and implement, with high fidelity, the interventions all along the continuum that have the greatest potential for return on investment. But on further reflection, a \$100 million investment would represent a unique opportunity to create a sustainable infrastructure for clinical treatment that would produce revenues for re-investment into other primary, secondary and tertiary prevention strategies that I outlined above. It would create a flywheel effect, to adapt an idea from Jim Collins' Good to Great. If done carefully, leveraging partnerships with health systems, mental health care organizations and networks of community coalitions, that scale of investment would be transformative for our region and several others. It would require the establishment of public-private partnerships with much greater creativity and flexibility than we have seen to this point. I would use it to establish non-profit, but revenue-generating medical, pharmaceutical and other treatment entities that would then reinvest most revenue, above costs, into other non-revenue

"I think many people misunderstand substance use disorder to be a moral failing..."

"That is simply not true when you are talking about opioid use disorder."

generating activities.

For example, health systems with a focus on population health metrics could establish non-profit medication assisted treatment clinics, non-profit methadone clinics, and non-profit pharmacies that could all leverage revenues into programs that are generally non-revenue generating, such as, but not limited to, school based primary prevention, harm reduction outreach, clinical education, naloxone distribution and drug courts. Most of the latter are typically funded by grants which are usually time limited, limited in scope and simply not sustainable. In the model I describe, as the problem shrinks in magnitude, the available revenues would also shrink. As it grows, revenue for prevention would also grow. Our Center has entered into such a partnership with our regional health system, Mountain States Health Alliance, and our regional mental healthcare system, FrontierHealth and we have opened a non-profit treatment center wherein revenues will support prevention, outreach, research and evaluation efforts of our ETSU Center for Prescription Drug Abuse Prevention and Treatment. It is brand new, having just opened in late September, but our goal is to deliver state of the art care to our region, and to reinvest any revenues back into the same community for population health improvement, evaluation of those programs and research.

However, if I was actually named the Opioid Czar the first thing I would do would be to use that massive power to step down and replace myself with my colleague Stephen Loyd, MD, a true hero both for the tireless and creative work he is doing every day as the Medical Director for the Tennessee Department of Mental Health and Substance Abuse Services, but also for the life of purpose and impact that he is living while in long-standing recovery from this very problem.

EM: What do you think our epidemiologist readers can do to help address this opioid crisis? Is there a role for them to assume easily and readily at work or in their communities?

Pack: This is a great question. Epidemiologists have a tremendous role to play in the epidemic. A couple of epidemiology highlights, if you will, are the role that epidemiologists played in halting the spread of HIV in the rural Indiana countryside in 2015. If your readers don't know, which is unlikely, Scott County Indiana had an HIV spike around 2014-2016 where around 200 new cases of HIV were found that were mostly attributable to sharing needles for injection of opioids. Some needles were used dozens of times a day and shared between multiple people. The CDC acted quickly and mitigated the threat. They did so with great epidemiologists using tried and true shoe-leather epi methods, network modeling, and the establishment of systematic harm reduction including one-stop shops for HIV testing, counseling, safe syringe programs and other preventive services.

Another highlight is the advent and promotion of use of creative sampling techniques like Respondent Driven Sampling, which can help investigators learn

"In the model I describe, as the problem shrinks in magnitude, the available revenues would also shrink."

"Epidemiologists have a tremendous role to play in the epidemic."

First International “Surveillance Report” On Climate Change Published As The Lancet Countdown

US Version Also Released

Health Threats Are Here Now ---Situation Is Urgent

“...we need to be against climate change too...”

“Health professionals are clear-eyed about major threats to population health... We’re against dirty air and water, we’re against drunk driving, and we’re against smoking. As this report makes clear, we need to be against climate change too, because it threatens health in so many, and such serious, ways.”

That was the take home message from the University of Washington’s Howard Frumkin, a US participant in The Lancet Countdown, an international multi-disciplinary collaboration of 26 institutions to track progress on health and climate change. The purpose of the initiative is to provide annual reports on a series of at least 40 indicators across a group of five action areas considered crucial for success in combating climate change. These are:

- Measuring Climate Change Impacts, Exposures and Vulnerability
- Adaptation Planning and Resilience for Health
- Mitigation Actions and Health Co-Benefits
- Economics and Finance
- Public and Political Engagement

The 2017 report, the first in a series to appear periodically over the next several years, has just appeared in The Lancet and is said to have reached three central conclusions:

1. The human symptoms of climate change are unequivocal and potentially irreversible – affecting the health of populations around the world today.
2. The delayed response to climate change over the past 25 years has jeopardized human life and livelihoods.
3. The transition to low-carbon electricity generation is gathering pace, suggesting the beginning of a broader transformation that will benefit human health.

In a University of Washington news article about the Countdown, some of the report’s key findings were highlighted, including:

- Researchers noted a 46 percent increase in weather-related disasters since 2000, causing \$129 billion in economic loss.
- Undernutrition is the largest health impact of climate change, with a 6 percent decline in global wheat yields and a 10 percent fall in rice yields for each additional 1 °C rise in global temperature.
- A record 175 million people were exposed to heatwaves in 2015.

“The human symptoms of climate change are unequivocal and potentially irreversible...”

- Lancet continues on page 11

- 87 percent of cities globally are in breach of World Health Organization air pollution guidelines, exposing billions of people to unsafe levels of atmospheric particulate matter.
- Transmission of dengue, a mosquito-borne disease, has increased by 3 percent to 5.9 percent.

A companion report providing findings nationally-relevant to the United States was prepared and presented at the 2017 APHA meeting in Atlanta by Frumkin.

He called climate change a “pressing public health issue” because it affects not just one outcome but multiple outcomes, is severe in that it threatens the very basis of civilization, and also challenges everyone’s personal beliefs requiring us to change our personal behaviors.

The companion report highlights several US relevant findings listed below:

- Between 2000 and 2016, the average number of Americans exposed to heatwave events annually increased by an average of 14.5 million, compared to the reference period (1986-2008). 2011 was a year of extremely high risk, with nearly 130 million additional Americans exposed to heatwaves.
- Between 1990 and 2016, the US experienced 623 instances of droughts, floods, heatwaves, wildfires and storms, resulting in at least 9,551 deaths and

affecting over 110 million Americans . On average, 15 Americans lose their lives per weather-related disaster - a relatively low fraction of those affected, but still too high. Continued efforts to improve disaster preparedness and response will be needed as climate change increases the severity and frequency of weather-related disasters.

- Climate change is contributing to changing patterns of infectious disease in the US - intensifying several risks - and is worsening allergy risks.
- The US has made strides toward reducing its energy supply’s carbon intensity (tCO₂/TJ), with 2013 levels 6.7% lower than 1990 levels. Major contributors to this are the phase-out of coal, the increased competitiveness of natural gas, the deployment of renewable and zero-carbon emission electricity sources, as well as a variety of energy and fuel efficiency measures in buildings, cars, and across manufacturing and industry.

The health effects of climate change are not some far off future event, but are already with us in the here and now says Frumkin, a Professor of Environmental and Occupational Health Sciences at the University of Washington School of Public Health. Frumkin was speaking at the recent APHA meeting in Atlanta on the theme of climate change. Iso challenges our own beliefs requiring us to change our personal behaviors.

"On average, 15 Americans lose their lives per weather-related disaster..."

"Climate change is contributing to changing patterns of infectious disease in the US..."

WHO & UN Team Up To Combat Climate Change

Call Issued For “All Hands On Deck”

The World Health Organization and the United Nations Climate Change Secretariat have signed a new memorandum of understanding at a meeting in Bonn Germany to better protect and enhance health as an essential pillar of sustainable development. The agreement will help ensure a strategic collaboration between the two world bodies and provide a focus on health as part of the larger effort to mitigate climate change.

Patricia Espinosa, head of the UN Climate Change effort, told the group “The Paris Climate Change Agreement needs all hands on deck if we are to ensure a healthy world and healthy citizens now and into the future.”

The Director General of WHO, Tedros Adhanom Ghebreyesus, told the meeting that climate change is one of the most pressing public health threats and the health of future generations depends on concrete actions we take now. He noted that for certain island populations climate change is not a political argument but an everyday reality.

Mechanisms

Climate change operates to impact health because the consequences of extreme weather events and variable climate affect 1) clean air, 2) safe drinking water, 3) food security, and 4) secure shelter. These in turn directly impact health. According to the communique, these consequences could cause approximately 250,000 additional deaths per year from heat

stress, malnutrition, diarrhea, and malaria between 2030 and 2050.

Warning Labels

In striking remarks to the Bonn attendees reported by the Thomson Reuters Foundation, former California governor and Hollywood actor Arnold Schwarzenegger called for “slapping” a public health warning on fossil fuels much like the warnings on cigarette packages inspired by the 164 nation tobacco control pact in 2003. He suggested telling customers at gas stations that “what you pump into your tank may kill you” and adding similar messages on oil trucks driving along the highways.

Schwarzenegger said more than 9 million people are killed each year by environmental pollution (see related story in this issue) most of it from air pollution, and the topic is only rarely discussed in connection with climate change. ■

- Opioid continued from page 9

how to access representative samples of hidden populations to learn about and assist with their health needs. Another is the maintenance and reporting of our behavioral and health statistics that are so important for understanding these complex issues and how they change over time. I could go on and on. Good epidemiology is of paramount importance to our work and I’m so grateful for the work that epidemiologists do. ■

“...for certain island populations climate change is not a political argument but an everyday reality.”

“...what you pump into your tank may kill you...”

Lancet Commission Releases Major Report On Pollution

Problem Called “Neglected” And “Underestimated”

The Lancet has been at the center of major public health initiatives made public in October. In addition to the first Climate Change Countdown report (see related story in this issue), a Lancet Commission working with the Global Alliance on Health and Pollution has released a comprehensive review of the environmental pollution problem and called for greater recognition of the toll which it exacts.

“It is time to put pollution on the map”, and “we bring pollution out of the shadows”, declare Mount Sinai epidemiologist [Philip Landrigan](#) and Pure Earth’s [Richard Fuller](#) in their introduction to the Commission’s report which has been two years in the making.

They add “For too long, pollution has been sidelined, overshadowed, ignored by the world, in part because it is a complicated topic with many causes, and as many outcomes. Often it kills slowly, and indirectly, hiding its tracks.”

The Commission report highlights these key facts and conclusions about pollution from 2015 data:

- It is the largest environmental cause of disease and premature death in the world today.
- It caused 9 million premature deaths in 2015, 16% of all deaths worldwide. This translates to an astonishing ~25,000 deaths per day!
It caused three times more deaths than from AIDS, TB, and malaria combined.

- It caused fifteen times more deaths than from all wars and other forms of violence
- Nearly 92% of pollution related deaths occur in low-income and middle-income countries
- Most prevalent among minorities and the marginalized at every income level
- Children are at high risk of pollution-related disease
- Air pollution and climate change are closely linked and share common solutions
- Losses due to pollution are estimated at \$4.6 trillion per year, which is 6.2% of the global economic output
- The claim that pollution control stifles economic growth and that poor countries must pollute is false
- The good news is that much pollution can be eliminated and pollution prevention can be highly cost-effective.

The aim of the The Lancet Commission is to raise awareness about pollution, end the neglect of pollution-related disease, and mobilize the resources and political will needed to combat pollution effectively, according to the report.

Recommendations

The Commission’s report identifies six recommendations.

1. Elevate Pollution As A National And International Priority, And Integrate It Into Country And City

“...we bring pollution out of the shadows...”

"It caused 9 million premature deaths in 2015..."

Planning Processes.

Pollution can no longer be viewed solely as an environmental issue. It now affects the health and well-being of entire societies.

"Pollution can no longer be viewed solely as an environmental issue."

2. Increase Funding For Pollution Control And Prioritize By Health Impacts

The level of funding for pollution control in low- and middle-income countries is meager and should be substantially increased, both within national budgets and among international development agencies.

3. Establish Systems To Monitor Pollution And Its Health Effects.

Data collected at the local and national levels are essential for measuring pollution levels, identifying and apportioning pollution sources, evaluating interventions, guiding enforcement, informing civil society and the public, and assessing progress toward goals.

4. Build Multi-Sectoral Partnerships For Pollution Control.

Inter-agency partnerships and public-private collaborations can prove to be effective tools in the development of clean energy sources and clean technologies that ultimately will prevent pollution at the source.

5. Integrate Pollution Mitigation Into Planning Processes For Non-Communicable Diseases.

Interventions against pollution need to be a core component of the Global Action Plan for the Prevention and Control of Non-Communicable Diseases.

6. Conduct Research Into Pollution's Impacts And Pollution Control.

Research is needed to understand and control pollution and to support change in pollution policy. Pollution-related research (research of the "pollutome") should:

- Explore emerging causal links between pollutants, diseases, and subclinical impairment, for example between ambient air pollution and dysfunction of the central nervous system in children and in the elderly;
- Quantify the burden of disease associated with known toxic chemicals such as lead, mercury, chromium, arsenic, asbestos, and benzene.
- Characterize the health impacts from newer chemical pollutants such as developmental neurotoxicants, endocrine disruptors, novel insecticides, chemical herbicides, and pharmaceutical wastes;
- Identify and map pollution exposures in low- and middle-income countries;
- Improve estimates of the economic costs of pollution and pollution; *and*
- Improve estimates of the cost of inaction and returns from interventions.

In an effort to be practical, the Commission Report lays out a 12 step action plan for local areas to address the various kinds of pollution, including outdoor air, household air, water, and soil pollution and pollution in the workplace.

To view the full Commission report, visit: <https://tinyurl.com/y8j5zdfy> ■

"Research is needed to understand and control pollution and to support change in pollution policy."

Notes on People



Awarded: to Bill Shaffner, Vanderbilt Professor of Preventive Medicine, the Senior Scholarship Award from the Society for Healthcare Epidemiology of America. The award is in recognition of Dr Schaffner's many contributions over the years as an investigator/practitioner in infection prevention and health care epidemiology.



Honored: Venkat Narayan, Professor of Global Health and Epidemiology at Emory University, with the Marion Creekmore award for Internationalization for his work in advancing the University's commitment to internationalization. "Venkat's passion for science and global collaborations have helped position Emory as the premier US institution in the global cardiometabolic disease community," said James Curran, Dean of the School of Public Health.



Retired: Lon Kightlinger, as state epidemiologist at the South Dakota Department of Health after almost 20 years of serving the Department. The governor of South Dakota proclaimed a recent Friday as "Doctor Lon Kightlinger Day" in South Dakota. Kightlinger worked in Madagascar for 20 years before taking the South Dakota position and now plans to return there next year as a Peace Corps volunteer.



Honored: Noel Weiss, Professor of Epidemiology at the University of Washington School of Public Health, with the American Public Health Association's Abraham Lilienfeld Award for his lifelong excellence in teaching epidemiology. According to interim dean Joel Kaufman, Weiss has "...served as an inspiration and mentor to a generation of epidemiologists trained at the UW, and developed and taught the core instructional content that underpins the outstanding training program here."



Honored: David Abramson, New York University Clinical Associate Professor of Public Health, with the Translation of Disaster Epidemiology into Public Health Special Award, given by the American College of Epidemiology. This special award recognizes an individual who has worked at the intersection of epidemiology and policy by advancing evidence-based public health interventions targeting disaster preparedness, disaster recovery, or other aspects of disaster science.



Honored: Roberta Ness, Professor of Public Health at UTHHealth School of Public Health, with the Abraham Lilienfeld award from the American College of Epidemiology. This is the College's most prestigious award and is given to a senior leader who has made extraordinary contributions to the field of epidemiology over the course of her career through teaching/mentoring and research or scholarship.



Retired: Robert White II, regional epidemiologist for the West Virginia Monongalia County Health Department, after 40 years of service. He told the local paper, "I think we make an impact...After 41 years of doing restaurant and disease inspections and follow ups and just giving people some peace of mind I think that's important and that's what gives me a lot of job satisfaction."

Do you have news about yourself, a colleague, or a student?

Please help The Epidemiology Monitor keep the community informed by sending relevant news to us at the address below for inclusion in our next issue.

people@epimonitor.net



ROLLINS
SCHOOL OF
PUBLIC
HEALTH

Department Chair and Endowed Professor

The Rollins School of Public Health (RSPH) of Emory University is recruiting a leader with a forward-looking vision to serve as Chair of the Department of Epidemiology (EPI; www.sph.emory.edu/departments/epi). Applicants should possess a doctoral degree (e.g., PhD, MD, or equivalent) in an appropriate discipline; a prominent record of academic achievement; a demonstrated capacity to secure external research funding; dedication to faculty career development and to training the next generation of epidemiology students; and strong advocacy for methodological and applied research. Candidates should have a strategic understanding of trends in the field; demonstrated ability to foster creativity and innovation; and proven leadership and management abilities. The committee will accept applications from candidates with a record that merits appointment as a tenured full professor. The Department Chair position is supported by an endowed chair. Women and minorities are encouraged to apply.

More Info: <http://www.epimonitor.net/2017-2383.htm>

Applicants should apply to <http://bit.ly/2w5XK2h> and email a letter of interest and curriculum vita to: Dr. Paige Tolbert, Search Committee Chair, c/o Nancy Sterk (nsterk@emory.edu). Applications will be kept confidential and references will not be contacted without the permission of applicants.

The starting date is negotiable and salary is commensurate with qualifications. Review of applications will begin immediately and continue until the position is filled.

*Emory University is an
Equal Opportunity / Affirmative Action / Disability / Veteran Employer.*



DALHOUSIE 1818
UNIVERSITY 2018

Assistant / Associate Professor Community Health & Epidemiology

Dalhousie University's Department of Community Health & Epidemiology, Faculty of Medicine invites applications for a tenure stream position as an Assistant/Associate Professor in patient-centered outcomes research.

Applicants must have a PhD (or equivalent) and a strong track record of conducting research in the areas of epidemiology or health services to be considered for this position.

This position will be based at Dalhousie Medicine New Brunswick (DMNB) in Saint John, NB.

The application deadline is midnight on January 2, 2018, or until the position is filled. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Click here to read a full description of this position and how to apply: <https://tinyurl.com/y9urdqpd>

TENURE-SYSTEM FACULTY POSITIONS IN NEUROEPIDEMIOLOGY

The Department of Epidemiology and Biostatistics invites applicants for a tenured or tenure-track position at the Assistant, Associate or Full Professor level in epidemiology. Requirements include a Doctoral Degree in Epidemiology, or in a related field with additional epidemiology training. Academic rank will be commensurate with experience.

Areas of ongoing research within our department include mental health, neurologic disorders, infectious diseases, cardiovascular health, reproductive health, perinatal and pediatric health, nutrition and cancer, women's health, environmental health, health services, health economics, biomarkers for disease risk and progression, health equity/social determinants of health, and biostatistical methods. We welcome applicants who work in complementary areas of epidemiological research and have a strong record of scholarship along with evidence of building an independent, externally-funded research program. This position includes teaching in graduate (MS, PhD), professional, and/or undergraduate programs and mentoring graduate students and post-doctoral fellows. We offer a competitive salary and start-up package and excellent benefits.

MSU has 4 health-related colleges (Human Medicine, Osteopathic Medicine, Veterinary Medicine, Nursing) and Colleges of Natural Sciences, Agriculture and Natural Resources, and Social Sciences, all of which participate in population health research. The 2 human medicine colleges have campuses in multiple Michigan cities, offering unique opportunities for epidemiological research in this distributed campus system. There is a strong, campus-wide history of international research and of collaborations across colleges and departments, clinical and non-clinical. The Greater Lansing area, home to MSU and the state capital, offers residents a family-friendly lifestyle, low cost of living, an abundance of art and cultural activities, and easy access to year-round outdoor recreational activities.

Candidates should apply on-line at <http://www.careers.msu.edu> for posting #472345. Include a curriculum vitae and a statement of scholarly activities, research and teaching interests (2 page limit). Upon request, candidates should arrange for three letters of reference to be submitted to Jill Hamilton (jhamilton@epi.msu.edu). Applications will be reviewed November 13, 2017, and will continue until this position is filled, with an anticipated start date of August 2018. For additional information visit <http://www.epi.msu.edu>.

MICHIGAN STATE
UNIVERSITY

College of Human Medicine

MSU is committed to achieving excellence through cultural diversity. The University actively encourages applications and/or nominations of women, persons of color, veterans and persons with disabilities.

MSU is an Affirmative Action, Equal Opportunity Employer.

Your Ad Should Be Here

Do you have a job, course, conference, book or other resource of interest to the epidemiology community? Advertise with The Epidemiology Monitor and reach 35,000 epidemiologists, biostatisticians, and public health professionals monthly.

Advertising opportunities exist both in this digital publication, on our website and Facebook page, and in our Epi-Gram emails.

For more information please contact:

Linda Bernier, Director of Advertising
770.670.1946
linda@epimonitor.net



University of Pittsburgh

ASSISTANT PROFESSOR OF EPIDEMIOLOGY

The Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh invites applications for a full-time faculty position at the level of Assistant Professor. The position is available immediately and requires a doctoral degree in epidemiology or a related discipline with post-doctoral training in Epidemiology. Candidates should have training and experience in the conduct and analysis of large cohort studies and/or prevention clinical trials of chronic disease. Successful candidates will be responsible for developing research in the epidemiology of maternal and child health. Of particular interest are candidates who bring expertise in novel epidemiologic methods such as geospatial analysis, ecological momentary assessment and mixed qualitative and quantitative methods that support work that addresses disparities, equity and social context in pregnancy and birth outcomes, reproductive health, or women's health.

The position will require that candidate obtain independent research grant funding, publish manuscripts and develop an independent program of research. Successful candidate will also develop coursework and mentor master and doctoral degree students within the epidemiology program. The position is in the tenure stream. Salary will be commensurate with experience.

Applications will be reviewed until position is filled. Send letter of intent, curriculum vitae, and the names of three references to: Position #0135841, c/o D. Bushey, Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh, A528 Crabtree Hall, 130 DeSoto Street, Pittsburgh, PA 15261, E-mail: dlb22@pitt.edu. EEO/AA/M/F/Vets/Disabled.

The Epidemiology Monitor in a Digital Version is available **FREE to subscribers**

The Epidemiology Monitor is available exclusively online in the same familiar print format subscribers are accustomed to, and they can read through the publication on their electronic devices in the same manner they did with the print version. In addition, you'll be able to download and save copies of The Epidemiology Monitor for easy future access. Over the next year we'll be exploring ways to make this publication available on additional mobile devices.

This publication format provides:

- ▶ Easier access to information that is more timely
- ▶ Publication alerts via email
- ▶ Embedded hot links in articles
- ▶ Full color advertising
- ▶ Wider circulation for advertisers

SUBSCRIBE FOR FREE TODAY AT: <http://epimonitor.net/Subscribe.htm>