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SARAH BALDWIN: From the Watson Institute at Brown University, this is *Trending Globally.* I'm Sarah Baldwin. In 2017, more than 40,000 people died from opioid overdose. It's a public health crisis, and there's no end in sight.

BRANDON MARSHALL: Deaths, of course, are just one way to measure the total burden of this epidemic. We can also think about the number of Americans who are suffering from addiction. And that's estimated to be about 20 million. So this crisis really touches, at this point, many lives, and countless families.

SARAH BALDWIN: That's Brandon Marshall. He's an associate professor at the Brown School of Public Health, and his work focuses on substance abuse epidemiology. He spoke with Susan Moffitt, director of the Taubman Center for American Politics and Policy, at a conference about this epidemic hosted by the Taubman Center and the Watson Institute.

BRANDON MARSHALL: As epidemiologists, we look at the numbers and we see the statistics every day. That's what we do. And it's easy to lose sight of what those actually mean.

SARAH BALDWIN: In this conversation, Brandon and Susan try to answer that question. What do these numbers mean, and how do we change them? On this episode of *Trending Globally,* a deep dive into the opioid crisis.

SUSAN MOFFITT: Thank you, Brandon, for joining me today. And I wondered if you could set the stage for us. How does this epidemic compare with other public health crises in recent history?

BRANDON MARSHALL: The opioid epidemic is, I would say, at this point, one of our greatest public health challenges in this country. Over 70,000 people die of an overdose in 2017. And that was the most ever recorded in American history, much greater than even the number of deaths due to HIV/AIDS at the peak of that epidemic in 1995. So the magnitude in terms of mortality is overwhelming, to say the least.

I think what's also concerning about this epidemic is not just the burden, but also the rate at which we continue to see it accelerating. A paper published in *Science* earlier last year showed that the rate of overdose deaths has been increasing exponentially for several decades. So it's

alarming if we were to continue on that trend, but we are starting to see some states make some progress, and perhaps at least a stabilization or even an arc downward in some of the high rates of mortality that we've been seeing for the last five years or so.

Deaths, of course, are just one way to measure the total burden of this epidemic. We can also think about the number of Americans who are suffering from addiction. And that's estimated to be about 20 million.

SUSAN MOFFITT: And are there particular moments for you in your career when you saw explicit highlights or manifestations of the extent of this problem?

BRANDON MARSHALL: You know, as epidemiologists, we look at the numbers and we see the statistics every day. That's what we do. And it's easy to lose sight of what those actually mean. In 2014, I was asked to sit on the governor's overdose task force here in Rhode Island and design a strategic plan to address the crisis here in our state. And as part of putting together that plan, we were able to go down to the medical examiner's office and actually review individual cases of overdose deaths to get a sense of what it actually looks like in the lives of people who have died from overdose.

And it's just tremendously sad and shocking to see so many cases, especially young people, succumb to this epidemic. So for me, that was really a moment where I think I finally understood what this actually looks like in households and families across Rhode Island, and of course across the United States, as well.

SUSAN MOFFITT: And can you help us understand how we got here? So I'm thinking about your recent article in the Journal of the American Medical Association that looks at the role that pharmaceutical companies' marketing practices have played, and the relationship with doctors. Can you talk with us about that relationship and its role in the current crisis?

BRANDON MARSHALL: We now know that much of the origins of this epidemic are in the pharmaceutical industry and in prescribing of opioids to levels that I don't think anyone had ever anticipated. There was a confluence of factors that came together, I think, to create a perfect storm. We see pharmaceutical companies, manufacturers pushing these medications, marketing them very aggressively, and trying to expand, basically, the market share of these drugs to conditions where such strong pain medication normally wouldn't have been necessary, from people being prescribed opioids in palliative care settings, cancer patients, to really anyone with chronic pain, dental procedures. And so that just exposed a vast number of people to these

medications.

At the same time in the '90s, there was a push on physicians to think of pain as a fifth vital sign, and to treat pain very aggressively. And this, at the time, was what many physicians pulled off the shelf to do that. And now we're seeing the outcome of all of those come together. High rates of opioid addiction, a shift to illicit drugs, which has more recently-- and very high rates of overdose. So unfortunately, the medical community, pharmaceutical companies ultimately, I think, created this crisis, and now it's just manifested to levels that I don't think many people actually expected.

SUSAN MOFFITT: And how has the mix of drugs that contribute to the current epidemic changed? And what are the implications of that change for how we respond as a public health community?

BRANDON MARSHALL: Most people describe the opioid epidemic actually as having three waves. So in the early and mid 2000s, we saw the height of the prescription opioid epidemic, when most of the overdose deaths were due to prescription opioids, like OxyContin, Vicodin, and Percocets. And those were predominantly people who were taking those medications as prescribed or were being diverted or used non-medically, either in families or friends.

Then, in 2011, 2012, we saw sudden shift to heroin and illicit opioids, for a couple of reasons. And now, in the last several years, we've seen a third wave of fentanyl, which is a highly potent synthetic opioid, which is used in medicine and surgery. The fentanyl that we talk about is illegally manufactured and cut into illicit drugs, and has created a very toxic illicit drug supply. And so that now is the fundamental driver of overdose deaths in this country, is illicitly manufactured fentanyl.

SUSAN MOFFITT: And how about in Rhode Island? What does the epidemic look like here?

BRANDON MARSHALL: We were one of the states that actually recorded among the first cases of fentanyl-related overdose deaths in 2010, 2011. We were a canary in a coal mine, actually, for what this fentanyl crisis would become, for reasons that we don't entirely understand. And so year after year, we see increasingly fentanyl just dominating the overdose crisis in Rhode Island.

So far, looking at 2018 overdose deaths, over 70% of those involved fentanyl or related analogs. So it's really the bulk of the mortality now due to fentanyl. We've actually made good progress on the non-fentanyl overdose deaths. Those numbers have been going down for several years. It really is the fentanyl overdoses that we continue to struggle with managing

and mitigating.

SUSAN MOFFITT: And what do you attribute to the decline in the non-fentanyl? What has helped decrease those rates?

BRANDON MARSHALL: I think, you know, in Rhode Island, we were relatively on top of this crisis. We mounted a strategic and fairly aggressive response relatively early, especially compared to other states, focusing on four major areas-- prevention, treatment, rescue, overdose rescue, and then supporting long-term recovery. So we really went after those four domains, feeling like that's where we could have the biggest impact on reducing overdose deaths. And I think we're starting to see the focus on those four strategies pay off, specifically on those non-fentanyl overdose deaths, where we've seen the decline.

The silver lining with this epidemic is that we have the tools to address it. We have treatments that are effective and that are evidence-based. So it's a matter of scaling those up, increasing access, and making sure they're available to everyone who may benefit from these treatments. And we've done that very well in Rhode Island, particularly compared to other places, which continue to struggle with scaling up effectively treatment for opioid use disorder.

SUSAN MOFFITT: And what are some of the interventions that you would like to see scaled, or that you think, if taken to scale, could have a greater impact? Are you thinking of supervised injection facilities or fentanyl testing programs? What comes to mind as scalable interventions?

BRANDON MARSHALL: There's no silver bullet here. So I think we do need a multi-pronged strategy to fully bring down overdose deaths from these historic levels. When we look at treatment, we want to focus on people that are at highest risk of overdose, and where can we find those folks. We know, for example, that people who are incarcerated have very high prevalence of opioid use disorder and are at very high risk of relapse upon release from prison without proper support.

And so knowing these data, we were able to launch a universal treatment program in our integrated jail prison system, so that anyone who screens positive for opioid use disorder would have access to all three of the FDA approved medications for opioid addiction. And that's been going on for several years now.

And we've just started to study its impacts, and showed two years ago that that led to a 12% reduction overall in the entire state in overdose deaths, just focusing on that highest risk population. And to date, we're the only state that, at a state level, has fully integrated opioid

treatment into its jail prison system. So I think there's a huge potential for scaling that intervention and really providing appropriate treatment and support to, again, folks that are among the highest risk.

We can also think about harm reduction interventions. These are interventions that try to reduce the risk of overdose, particularly for people who, for many reasons, might not be ready to engage in treatment. And this is where we see programs like fentanyl testing. So as I mentioned, fentanyl now broadly contaminates especially the heroin supply in the Northeast and in Rhode Island. And there are strips available-- basically, they look like pregnancy tests-- that allow people to test their drugs prior to consumption to identify whether fentanyl is contaminating them.

And we've just started to understand the potential merits of this program. In a pilot study we just conducted and completed last year, we found that young adults who are at risk for overdose and using the strips reduced their overdose risk on average by more than 60%. People know about the dangers of fentanyl, and by far they would like to avoid it. So people in our study found these fentanyl test strips as a very effective way to reduce the risk of being exposed to fentanyl and subsequently overdosing.

SUSAN MOFFITT: What do you see as some of the primary political or policy or other kinds of barriers to taking what works to scale, either in the United States or here in Rhode Island?

BRANDON MARSHALL: What we deal with all the time in public health and folks that are fighting every day to address this crisis are overwhelming negative public attitudes towards people who are suffering from addiction, and even immense stigma around the treatments themselves. So we have a lot of work to do to educate the public on the fact that addiction is a disease and recovery is possible. I think that's the second piece that's often missed, as well, is that, again, we have the tools to treat this problem, and that people, when they have access to the best treatments, can do very well and go on to lead long and healthy and happy lives.

So giving people the hope that we can overcome this, that we can work together as communities to engage in these programs and interventions that work and make sure people receive them, and then can come out on the other side and go on and be very happy. And so that's, I think, where we need to go, are reducing those public attitudes and, in replacement of those negative attitudes, providing a lot more hope.

SUSAN MOFFITT: And as you think about where we go from here, where do you fit into that equation? Where will

you go from here in terms of your research, in terms of your community engagement, in terms of the depth of the work that you're doing here in Rhode Island?

BRANDON MARSHALL: We're always trying to stay ahead of this epidemic, but unfortunately, it feels like we're often two steps behind. It evolves so quickly. Fentanyl emerged so rapidly that it really took us by surprise. And so for me, focusing on this every day, it's trying to understand what might be the next problem. You know, where might we see overdose rates continue to increase? How could we respond more effectively to either new populations that become at risk or new drugs that enter the market that we maybe, right now, don't even know exist? So it's constantly a game of catch-up to try to understand what's actually going on out there on the streets.

Some work that I'm engaged in right now with the health department is using our surveillance data to understand where overdose outbreaks may be most likely to occur, and then trying to use that information to target our resources most efficiently to try to understand the communities, the neighborhoods, and the individuals who are most at risk, and really focus our efforts in those places. So I think there's a lot of potential to become sort of more refined and efficient in our response as we build more robust, you know, state and national treatment systems and prevention programs.

SUSAN MOFFITT: And in addition to the surveillance work, are you seeing other ways in which we can do a better job of learning and adapting and becoming more nimble in our responses?

BRANDON MARSHALL: Surveillance and data are key. You know, we need to be looking at the data as frequently as possible and understanding how we might change our approaches based on the new data that's coming in, and trying to speed up the, often, you know, month or year-long delay before that data actually becomes available for policymakers to look at. So I feel like, in Rhode Island, we've done that quite well. We're a small state, and so we're able to bring together people that provide the data people that might use it, and work very effectively and very quickly.

I think the other thing we need to focus on is avoiding knee-jerk reactions and avoiding the mistakes that we've made in the past. As the crisis continues to balloon, people are looking for someone to blame. And often, that falls on the people who are most affected themselves. So we need to avoid falling back on punitive approaches that really focus on mandating or forcing individuals to treatment. That is becoming popular in some states, and I do not believe ultimately will be effective.

But it really is a knee-jerk reaction, trying to understand what can we do, we're sort of at a

loss, so let's turn back to sort of criminalized and punitive approaches. I don't think that will work. So that's one way in which I think we need to stay on top of this, is avoiding falling into some of those traps and reaching for the policy levers that we know from our recent history aren't very effective.

SUSAN MOFFITT: So thinking about trying to stay two steps ahead of this epidemic, do you see any particular new challenges on the horizon? New variants, new ways in which the epidemic has been evolving that will call for different kinds of responses?

BRANDON MARSHALL: What worries me is now that we see predominantly an illicit drug problem, or we are quickly moving to the point where illicit drug deaths eclipse by far and away deaths from prescribed medications, we're really going to have to come to terms with how we deal with both the supply and demand of illicit drugs in this country. Much of our effort in the 20th century was on trying to reduce the supply through interdiction efforts focused on reducing trafficking of illicit substances into this country. And that is certainly where we may see some benefit, because most of these illicit drugs do enter from outside the United States and come in.

The problem is a lot of these tools can have very challenging and severe negative consequences. In this kind of illicit market, where you put incredible pressure on the supply, there is immense desire to create products that are easier to traffic, so smaller quantities and ever more potent, so you can make higher profits over smaller amounts. And that is why we believe we've seen such a shift to fentanyl. It's much more potent than heroin, so you need a lot less of it, and can be therefore trafficked across the border in much smaller quantities, even in the regular US mail.

So we have to struggle with the fact that many of our interventions focused on trying to interdict these substances and focused on supply reduction may have these unintended consequences of continuing to result in ever more toxic and potent substances on the illicit drug market. And that, I think, is a major challenge. Do we do something differently? Do we change our approach to try to avoid continuing to expose people at risk for overdose to ever more potent and toxic substances?

SUSAN MOFFITT: And as someone who is deeply embedded in the numbers as an epidemiologist, do you see hope in those numbers and hope in the narratives as we move forward?

BRANDON I do. In Rhode Island, we are seeing our overdose deaths down now by almost 15% from our

MARSHALL: peak in 2016. So it's certainly not a lot to go out there and celebrate. We have a lot more work to do. But the fact that we've been able to bend this curve in the era of fentanyl I think speaks to all of the hard work that goes on at policymakers' tables and in the community and the folks that are tasked with actually implementing all of these programs on the ground.

We're also seeing some declines in other states, like Massachusetts, for example, and Vermont, which has been a state really leading efforts to expand access to treatment. So there are places around the country where we are starting to see progress. And I think the rest of us need to look at those places and understand what's working, and how we can adapt them to other states which, unfortunately, continue to see increasing rates of overdose in their jurisdictions.

SUSAN MOFFITT: Well, Professor Brandon Marshall, thank you very much for speaking with us today. Thank you for the important work that you're doing nationally and here in Rhode Island.

BRANDON MARSHALL: Thank you.

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SARAH BALDWIN: This episode of *Trending Globally* was produced by Dan Richards and John Mazza. Our theme music is by Henry Bloomfield. I'm Sarah Baldwin. You can find us on iTunes, Stitcher, or your favorite podcast app. If you like what you hear, leave us a rating and review on iTunes. It really helps others find the show. For more information about this and other shows, go to Watson.Brown.edu. Thanks for listening, and tune in next week for another episode of *Trending Globally.*