Just the Intersection of Opioids and Illicit Stimulants-Part 2.mp3

Introduction [00:00:05] Now, this is recording, RTI International Center for Forensic Science presents Just Science.

Voiceover [00:00:19] Welcome to Just Science, a podcast for justice professionals and anyone interested in learning more about forensic science, innovative technology, current research, and actionable strategies to improve the criminal justice system. Last week, Just Science sat down with Dr. Jon Zibbell, a Senior Public Health Analyst from RTI International, to discuss how stimulants are intersecting with the opioid epidemic and its impact on communities. Researchers and epidemiologists like Dr. Zibbell are working tirelessly to develop methods for predicting trends in opioid and illicit stimulant use. As drug overdose rates continue to rise, experts are looking for smarter, more efficient ways to predict, combat, and eventually overcome this disastrous public health crisis. This week, we continue the conversation with Dr. Zibbell as he discusses the American history of drug epidemics, what we can learn from past stimulant crises, and the importance of tailoring interventions in this episode of Just Science. This season is funded by the National Institute of Justice's Forensic Technology Center of Excellence. Here is your host, Paige Presler-Jur.

Paige Presler-Jur [00:01:30] Welcome back to our listeners. We still have so much ground to cover, so let's get back to our discussion. Jon, how can data available to communities and researchers, illustrating trends in substance use and its relationship to morbidity and mortality, be strengthened?

Jon Zibbell [00:01:49] So I think the data is really important. The biggest barrier that we have right now is with time. A lot of data is collected by federal agencies and some states, but it usually takes a year to collect. It usually takes a bunch of time to clean and a bunch of time to post and analyze. And by the time it's up, it's already two, two and a half years old. So it's not data that you can act on. It's not actionable intelligence, if you will. It's retrospective data. So the most important thing we could do, both with law enforcement - both their testing of drug, and they're entering that in the database - but also the toxicology related to an overdose decedent. It takes some time, right, to even get cause of death - the toxicology goes out. It has to come back. Then you have to redo the file and update it. And so speeding up the system so we can get more of a quick, timely understanding of what drugs are in the community now and how is that related to overdose. Let me just give you one example. So we're working with the state of Ohio and we're working with some of the state crime labs to get their drug exhibit, drug seizure data really quickly. And then we're working with the Department of Health to get their overdose data. And we got both at the county level for all 88 counties in Ohio. And we did some fancy modeling and regression using that supply and the outcome being overdose, and what we found is that supply can actually predict overdose. We found that for every one increase in one supply exhibit, we could predict a half of overdose deaths, 0.5 overdose deaths, and we could do it really pinpointing geographically. And so the ability to see where seized drugs are, what they are, what zip code they are, and then understanding those areas' already existing risk environment, we can really start to triangulate these data and pinpoint risk areas before they happen. And that really is sentinel surveillance, if you will. How can we use drug supply data as sentinel surveillance, just like we would, let's say, for food borne illnesses, if you will? Let's say there's E. coli outbreak in the lettuce. How do we do testing in real time? How do we identify where the outbreak is, where the pathogen is, and how do we respond to protect those people in that area where it is? We have models for doing this. In order to do that for the drug epidemic, we just need to increase the timeliness of it and

maybe some specificity here and there with new and emerging drugs that just aren't on people's radar yet for that. But those would be the main things -, timeliness, more specificity, being able to respond in real time with applied intelligence at the local level.

Paige Presler-Jur [00:04:30] And as we wait for hopefully more timely data, what can we learn from the past stimulant crises in the United States? And in what ways are they similar or different from what we are witnessing at present?

Jon Zibbell [00:04:43] If you go back in the historical record, most drug epidemics last about a generation, and then they disappear. They might come back in different forms. So, for example, we had in the mid to late 60s into the early 70s, we had a heroin epidemic, a heroin crisis, mostly in cities, and that lasted up until about the 80s, and then it went away. The crack epidemic of the 80s went into the 90s - that had about a 15-year shelf life - and then we saw use and morbidity and mortality decrease related to crack cocaine. And so most epidemics last a generation. Where we're seeing them continue is in areas that have social and economic problems. And in that sense, you can see multigenerational problems with drugs. The current opioid epidemic is different than a lot of the other opioid epidemics because it's been so long that we're seeing multigenerational patterns evolve. And so you can have someone that was exposed to prescription opioids and that transitioned to heroin, and they're using and they've been using for quite a period of time, that their next generation or their kids are growing up in an area where the problem is there and exposure is really easy. And then their kids grow up in those same problems that they are. So, you know, structural entrenched poverty in areas like the Deep South in Appalachia has made drug epidemics kind of be way more longitudinal than they usually are. That said, when it comes to stimulants, people usually don't wrestle with stimulants as an addiction their entire lives. If you look at kind of the historical record from thirty thousand feet in the air, most people age out of stimulant use. They'll use at a certain point in time and then they'll stop or they might relapse and they might come back to it, but it doesn't have that kind of deep 20-year, 30-year lifespan. With opioids, we see that a little different - people end up having a longer struggle with opioids that they do, and the relapse rates are also- happen a lot, lot more with opioids. But generally, if we're looking at the population or we're looking at the historical record, they last a generation and then they go away. And so what's different about the current stimulant crisis is that it's occurring within a fentanyl crisis. And this is probably the most important, I think, aspect of the current problem. So when the crack epidemic appeared in the 80s and the 90s, it happened in places that had a lot of poverty. They were already dealing with employment issues and other things. But for the most part, the heroin epidemic of the 60s and 70s was on the wane. And so crack cocaine came in and it had its lifespan till about the 90s, and then it kind of fizzled out. The supply fizzled out, use fizzled out. People either stopped using or they died or they just aged out. Then that was it. What we're seeing now, though, is stimulant use in response to something, and that something is fentanyl. And so my research, my ethnographic research as of late has been about asking people that are using fentanyl and report using stimulants - why are you using the stimulants? Do you like the stimulants on their own, do the stimulants give you something? Are they in the context of your fentanyl use? And what I hear, and this is not in just my research sites, but all across the country, is that fentanyl is way different than heroin. And so you've got to remember a lot of the people that were using heroin in 2008, when the fentanyl crisis came, they started using fentanyl. So the people that were using heroin in 2008 through 11 and are still using are now using fentanyl. And what they tell me is that fentanyl is qualitatively different - that it's way more sedative, almost like it knocks them out like a benzodiazepine or a tranquilizer. You know, with heroin, consumers will tell you that one of the things they really liked about heroin was not only the rush you get when you inject it,

but the bodily euphoria, the bodily high, the feeling you get, the warmth, the glow, what it gave you. People that drink alcohol will probably understand that warm glow after that first drink. That's what people were after. They liked what's called catching a nod, right. You know, relaxation for a little bit where they might look like they're asleep, but they're really not. They're in a kind of relaxation mode. That's what people really like about heroin. With fentanyl, those same people are reporting you can't get that with fentanyl. Fentanyl will give you a bigger rush, they say, and different than heroin, but the high goes away pretty quickly - that there's not a big high with it. In place of the high, what they say, is sleep - that fentanyl knocks you out. They almost describe it like falling asleep instantaneously, like you're just talking to somebody and boop, they fall asleep. That would be different than the nod where you're talking with someone, their eyes close and they're kind of, you know, on a relaxation nod, but they're still there. They're still present. They're listening to you. If you talk behind their back, they'll know it, right. But with what's happening with fentanyl is it's literally knocking people out. It's putting them asleep. It's making them have sleep in punctuated ways, and what they're saying is that they cannot control this. And so how do you use and do life if you can't control when you're going to sleep or when you're going to fall out or when you're just going to nod off to somebody, and so what people are saying is they're using stimulants as a response to prevent them from just falling asleep at a moment's notice. And I'm hearing this really all over the eastern part of the country, all over Appalachia and the south, I'm hearing the same thing - that I'm using methamphetamine so I can stay awake from the fentanyl. I'm using cocaine because I couldn't stay awake from the fentanyl. What's important to note, though, is that the combination of stimulants and opioids have been around for a long time. They've been a combination of desire for people that use both drugs since they were both invented. There's reports of speedballs in the late 19th century of people using cocaine powder and morphine. Later on, people used cocaine powder and heroin. So the combination has been used for a long time. What's different about the current crisis and about the current stimulant crisis is that we cannot disentangle it from the fentanyl crisis - that the majority of people that are using stimulants are also using fentanyl. And where this shows out is in our Ohio data. If you look at the death data, if you look at the people that died from a drug overdose that had stimulants on board and you take away all the fentanyl, you hardly see a blip on the radar in terms of the increase in deaths. And so it appears that people are using fentanyl and the fentanyl is the thing that's killing them, and they're using stimulants for a whole host of reasons. The most unique and different from other epidemics and other drug related patterns is they're using it specifically to counter the sedative effects of fentanyl. And there hasn't been a lot of talk about this, not a lot of this in the literature. We're just coming to get this material ethnographically and qualitatively by asking people in the field, and I've been observing this as well and just watching how people are are using the drugs together in response. And I think understanding this can really shed a lot of light on the motivations and what's the driving force behind the increase in stimulant use within the context of the fentanyl overdose crisis.

Paige Presler-Jur [00:12:30] It's so interesting to me and our listeners to understand how our current epidemic is different to past crises that have impacted the nation. Can you tell us more about the variation in factors that characterize increases in methamphetamine vs. cocaine or crack that communities might be experiencing?

Jon Zibbell [00:12:50] We tend to think of drugs in the same way we think of other commodities as the interaction between supply and demand, right. So a framework of neoclassical economics from the 18th and 19th centuries describing the kind of capitalism was that the supply and demand have a dialectical relationship to one another. In a lot of ways, demand is the thing that creates supply. So you're a small business owner, you're

going to make a commodity, you're going to make something, you're not going to make anything that people don't need or want. So it's like Henry Ford built the Model T knowing that people wanted a car, that the workers needed a car, and so he built the car knowing people were going to buy them. If you build something that people aren't going to buy, then you're going to have a lot of products sitting in your warehouse, right, and what's called overproduction. And all your capital is going to be in product and you're going to go broke because you can't sell any. So demand has a big component in relationship to supply, which is why a lot of economists these days during times of recession that we're in now focused on giving money to consumers. Why? Because demand is going to increase supply, right? Business owners are going to do better when people have money to spend. Right. So that's really been our model thinking about economy in the contemporary age. What most people don't realize is that when it comes to the illicit market and drugs specifically, so illicit drugs, it's actually the opposite. Demand does not create supply. Supply creates demand. What I mean by that is you could be a heroin consumer in Appalachia and want the best dope that you can get - the best in the country, the most pure, the strongest, right - but that doesn't mean you're going to get it. In fact, you have no say in what you get at all, right. You're just going to get what's there available to you. And so supply, when it comes to drugs, has influenced and impacted demand. So what does that mean? It means the drugs that are in your local market are going to be the drugs that you're exposed to. The drugs that are in your local market, that your local communities are using and your friends are using, are going to be the things that you're exposed to. And so this is where the anthropology really kind of comes to the fore, because how does structural conditions like supply coalesce with people's individual beliefs and their behaviors, and all that together, how is all that wrapped up in the choice to use certain substances? And what's interesting is that methamphetamine and cocaine have been trafficked on all separate supply chains for a long time. Cocaine, the majority of it has always gone to the city. It's been an urban drug, whether it was the 80s in New York City in the disco era. It's also more expensive and so you have to be a little more bourgeois, you have to have a little bit more money to use it. And so supply has been really an urban phenomena and the people exposed to it have lived in urban areas. For example, crack cocaine is a cheaper version of powdered cocaine. Crack cocaine was distributed in urban areas in the beginning of the 1980s all the way through the 90s. It wasn't available in rural areas. Cocaine wasn't available that many in rural areas either. It was a more expensive drug. People didn't have a lot of money in rural areas and they weren't using cocaine. So cocaine supply was urban and therefore exposure was urban and consumption was urban. Methamphetamine historically has been made domestically with diverted ephedrine and other kind of nasal decongestant medications. That marketing for those and that production and manufacturing disproportionately happen in more rural areas, right - in the south, in Appalachia, in the southwest, in the mountains of the northwest. And so over time, you had markets evolving and developing where certain drugs became the norm. And this is really important. As a little aside, it's also important because a lot of places in the 90s and early 2000s never saw heroin before. They never experienced in heroin - little towns in West Virginia, right, places in the south, in Alabama, they just weren't used to seeing heroin because the heroin supplies did not go into their specific locales. And so they were kind of absolved from that. And so where supply is and where the supply chains are have a really big incentive factor in terms of consumption and what people are using.

Paige Presler-Jur [00:17:27] Wow. It's really great to hear how geography works into this conversation. I'd be really interested to hear how race and ethnicity also impact this question.

Jon Zibbell [00:17:38] Yes. So, you know, so the supply chains, like I said, are really geographically specific. And what's interesting about the United States, at least since World War II, our geography has really been organized along racial and ethnic lines, right. So if you look at the birth of the suburbs at the end of World War II, with all the veterans coming back and needing places to live and not having enough places in the city, that the suburbs became that enclave. The Highway Act of the 1950s under Eisenhower carved roads into all these areas that there weren't before. And so we opened up areas of the country that people can move to. However, in the late 50s, 60s, early 70s, a lot of policies occurred that made some people able to move and others that couldn't. And so in the 50s and 60s, there was a big movement of people leaving the inner cities and moving to the suburbs - that's historically been called white flight, because as more people of color from the south started moving to the north and more European immigrants started moving into the United States, people, mostly historically white people who lived in the inner city, wanted to take advantage of the suburbs and move out to the suburbs. And so they moved enmasse to the suburbs. Unfortunately, people of color were not allowed to move into the suburbs through a whole host of things - the Federal Housing Authority, access to low interest mortgages. And so what ended up happening is we had neighborhoods that were being built on residential segregation. And so the suburbs, as the listeners will know, even to this day, is historically majority white, right - phenotypically white. And the inner cities and the urban areas have been historically black and brown because of these policies. And so you have certain groups based on race and ethnicity, living in certain areas. And so that explains really a lot of the exposure. So when we say crack cocaine really penetrated the urban environment and supply was urban, what we mean by that is people of color that were living there were most susceptible and the crack epidemic did hit people of color disproportionately because it was an inner city market and the drug was sold there. Methamphetamine, being produced and manufactured in more rural settings, historically, those places have been more white, and white communities have been disproportionately affected. And so if you really look at use patterns based on race and ethnicity, what you'll find is, of course, people use all different drugs, but you're going to use the drugs that you have exposure to, and so methamphetamine historically, up until about this year and things are changing a little bit now, has been a more rural, small community drug used by white people. Crack cocaine historically has been mostly in urban areas and used disproportionately by people of color. Now, along the same rate, we know that whites and people of color use drugs at the same rate, right. It's not that one person prefers this and one person prefers that. But you're going to live in an area where you only have access to certain drugs. Cocaine and crack are urban supplied and they're urban drugs. Methamphetamine historically has been rural and has been disproportionately white. And this bears out in the morbidity and mortality data - that we see disproportionately cocaine and crack as an urban health problem, disproportionately affecting people of color, and methamphetamine, disproportionately affecting rural communities and white people. Now, this is important because in order to tailor interventions in terms of culturally specific interventions, it's really important to know what drugs are where, who's using them disproportionately, and how are they using them rather than lumping everybody together. So the geographical patterns of supply have an effect on geographical patterns of consumption. And that's why we're seeing differences based on race and ethnicity from cocaine and methamphetamine and from urban to non-urban. One more thing with race and ethnicity is one commonality between the two is both communities that are affected, methamphetamine on the one hand and coke and crack on the other, are both low, low social economic status. And this is really important. And in their general communities, they're disproportionately affected by policing. And that's really important to understand that the low income areas in the inner city that are disproportionately minority residents, they're getting affected by intensifying tailored

policing to their neighborhoods, just like people living in rural areas as well can also identify those areas that the police always go to, right - that are seen as the troubled areas. So although they're not the same, one of the commonalities between the two is both communities are mostly struggling social economic status, and they're both being disproportionately policed by law enforcement.

Paige Presler-Jur [00:22:42] It's been great to hear from you about the timely and impactful research that you are leading. Do you have any upcoming publications that we can look forward to?

Jon Zibbell [00:22:51] You know, I mentioned the Ohio data that we've been using with and we're in a partnership with the Ohio Department of Health and their Board of Pharmacy and some of the state crime labs. And so what we're doing, we published a paper on JAMA's network open platform, looking at law enforcement seizures of fentanyl and trying to see how they can predict overdose deaths. And so that paper was on fentanyl specifically. We have a second paper coming out where we're looking just specifically at methamphetamine and cocaine. And what we're trying to do is control for fentanyl and its role in overdose deaths and try to kind of see the patterns related to methamphetamine and cocaine specifically because, as I said earlier, the stimulant crisis is so wrapped up with fentanyl, it's really hard to parse the two apart. Right. If you look just at toxicology, it looks like people are, you know, taking the two at the same time, but they might not be. And so how do we control for fentanyl and understand the stimulant crisis for what it is outside of the fentanyl crisis? And that's our forthcoming publication. We're really trying to kind of see what is the actual stimulant crisis with morbidity and mortality rather than just relying on toxicology.

Paige Presler-Jur [00:23:59] How would you like to see the conversation around stimulants progress?

Jon Zibbell [00:24:03] I think the most important thing to do is just not jump to conclusions. And I think this is really problematic for public health where we have a little bit of information or a little bit of the story and we're jumping to big conclusions. And let me give you an example. You know, we've seen an increase in people that have overdosed on opioids with stimulants on their toxicology, right, specifically meth and cocaine. People have been reading this and seeing this and saying, Oh, we have a stimulant crisis. Right? We have a fourth wave. There's been a- stimulants are increasingly involved in overdose deaths. So this is the fourth wave of the crisis. We have a mortality problem happening. And what I would say is we can't prove that from the toxicology by itself. And so I always have a fear that when it comes to drugs, we're easy to go and embrace the kind of moral panic around potential harms. And I think we have so much PTSD around the opioid crisis and the three waves of the crisis. I mean, I think close to a million people by the end of 2020, early 2021 will have died from a drug overdose. And so there really is cause of concern and new drugs on the market and new use patterns are also a cause for concern. But we don't know that cocaine and methamphetamine, i.e. illicit stimulants, are contributing to mortality on the level that really demands a panic. If you look at the toxicology, it appears that way. But we don't know if stimulants are the cause of that death. I fear that we're in a moral panic and we're ramping up that we have a stimulant crisis when we really might be seeing increased use, increased maybe addiction, increased other things, but not increased mortality. And so it's really important as a scientist, I want to get it right. I want to give people, communities, states the right information so they can use it, but also not jump to conclusions that we have a history of doing in this country. And I would rather just err on the side of caution when it comes to stimulants. So let's

understand what's going on first before we jump and create a moral panic around that stimulants is our next wave of deaths.

Paige Presler-Jur [00:26:12] What would you recommend to our listeners in how to respond to the growing stimulant crisis in their communities?

Jon Zibbell [00:26:19] Yeah, you know, I think when we're thinking of interventions and response, it's really important to understand a couple of things. And again, this is where anthropology can really help. A) what drugs are people using? We need to know that, right. So we need to tailor our interventions, our outreach, our treatment. Also, you know, where are people using, you know, what communities are they in? And then what are the demographics of the people using? Right. And so we have the demographics, we have the community end, we have kind of local belief structures. We have, you know, what drugs people are using. And so why I think it's important for that, for illicit stimulants, is our two big drugs that fall into that category, cocaine and crack on the one hand and methamphetamine on the other, they have their own unique use patterns. As I said before, cocaine and crack has been more of an urban drug because of the supply is there, not because just people there like it more. But if you're exposed to certain things, you're going to use certain things. As opposed to in rural and more small town communities being exposed to methamphetamine, and methamphetamine use really being endemic in those communities. So one thing we have to do as a state is we have to realize, OK, what's going on in our cities, in our metropolitan areas, right - and that's the small, large, and medium metro areas. But what about the suburbs? What about the exurbs? What about the non core and the metropolitan counties, if you will - what are they using? We want to tailor our interventions. The interventions for cocaine and crack are going to be somewhat different, especially how to keep yourself safe, how to avoid harm, than methamphetamine. So understanding what drugs people are using, where they're located, are we going to tailor our interventions more culturally rural or do we want to tailor them more urban depending? But also the treatment modalities - unfortunately, right now we have no medicated assisted treatment for stimulant use disorder. The standard of care for stimulant use disorder is CBT, cognitive behavioral therapy. That's it for the most time - it's an abstinence only model. We don't have any medications like buprenorphine or methadone. And so the treatment modalities are somewhat the same, but the drugs are different and the high is different and people are different. And so as a state, understanding that difference and understanding demography and use patterns are really step one. Understand your epidemic, then respond. The problem is, a lot of the data that we use to understand the epidemic is either not available in some states or it's too slow to get. A lot of states are struggling economically. They don't have the human power or the money to get data sets timely or to reconfigure them or to get people to go out in communities. So those are some challenges. But I would behoove states to really work with their agencies and figure out ways of how they can get really important data related to the community, related to what type of drugs people are doing, how they're doing it, rates of morbidity and mortality in the most timely, geographically pinpointed way - county level data. Right. And then that way you'll know where your problems are, where you can put resources. You don't have to blanket the state with resources. You can tailor your interventions, target resources, be culturally specific, maybe giving notes about infectious disease and how to stay healthy - maybe they'll be written differently if it's a rural area, let's say, in West Virginia, as opposed to it's a more urban area in a city in North Carolina. Are they different strategies? And so that's really it - kind of know your epidemic, but also getting real timely geographic data that you can really look at the problem and be able to pinpoint in real time what's needed, where you need to put resources, who's affected.

Paige Presler-Jur [00:30:10] We're running near the end of our time together. Are there any final thoughts you'd like to share with our listeners?

Jon Zibbell [00:30:17] Yeah, you know, one of the things that we didn't talk about is that we want to also understand the burgeoning stimulant problem in the context of what people have been calling polydrug use. And polydrug use is really just the tendency for individuals to use more than two drugs over the course of a day. You know, so if you think of the person who uses heroin and they're only using heroin, they're using it four times a day so they don't get sick, and that's all they're using - they're not engaged in polydrug use. They're not a polydrug user. But what we're finding is, and this really separates the current epidemic from, let's say, epidemics of times past, is that the vast majority of people are using more than two drugs. And this is important. And so, as I said before, you know, we have a large cohort of people using fentanyl and dying from fentanyl. Of that cohort, there's an increasing number that are using stimulants, mostly cocaine, crack, and methamphetamine. However, there are other drugs that people are also using. Some of those are gabapentin, which is a neuropathic, which has a kind of potentiator effect that benzos do - a contraindication with opioids that people are taking to get some type of effect. To a lesser extent, people are taking prescription opioids - much harder to get now, but people are still taking them. The other drug class are benzodiazepines, specifically alprazolam, clonazepam, Valium, Xanax, and people are using these as well. So you can have someone who is using heroin or fentanyl and they're using that regularly so they don't get sick. But they're taking gabapentin either to maybe get rid of their withdrawal symptoms when they are sick or maybe to potentiate the high or they're using benzos to do that as well. And then they're using stimulants, right - they're using cocaine in order to stay awake from the fentanyl. And so what really is an issue that's happening now is polydrug use. I think in a way that's almost a better way to see stimulant use within the polydrug use component, because, as I said, my own research has showed that the increase is stimulants is related to the fentanyl crisis and the high fentanyl is producing making people very sleepy. People can't stay awake. How do you hold down a job? How do you take care of kids? How do you do anything if you have a habit and you can't control when you're going to fall asleep? How dangerous is it driving a car if you're just going to fall asleep out of nowhere? How do you hide it from your loved ones if you are doing that when you can't control that? We have reports of people that are homeless doing methamphetamine at night so they don't have to sleep because there's no place to sleep. And they were getting in trouble with the law. So they would do meth and they would stay up all night, walking all night, and then they would sleep during the day when they can sleep or vice versa. Right. So this is using drugs to control an outcome. And one of the things we know about people that consume drugs is they have intents behind what they're doing. People aren't garbage heads, just doing anything they can get their hands on. They really are trying to get a certain level of feeling. And so if that feeling is an opioid feeling, but it's way too much, I can't get my head out of my lap, then I'm going to take this stimulant in order to manage my use. Oh, the fentanyl is not that strong. I'm going to take a benzodiazepine, so I get a little bit of that nod or it lasts a little longer. But I also don't want to fall asleep. So I'll do a benzo with the fentanyl and I'll do some stimulants, right? Oh, and I'll do this. And I took gabapentin when I wasn't feeling well. And so understanding polydrug use as really a trend on its own, I think is a way better way to understand the role of stimulants with the opioid overdose crisis, because I think it's within that pattern that people are using it with other drugs in order to manage their use, and understanding that as public health departments of states and localities is going to be key for tailoring interventions. Because if you just put someone in MAT but they have a stimulant use disorder but you don't deal with their stimulant use disorder, then maybe they're going to be doing meth with their methadone or meth with their buprenorphine. And so how do you

treat multiple disorders at once? I think that is the 21st century problem if we're talking about all the drugs people are using in the current situation that we have today.

Paige Presler-Jur [00:34:39] I'd like to thank our guest today for sitting down with Just Science to discuss the intersection of the stimulant crisis, polydrug use, and the opioid epidemic. We hope that improving our understanding of both current trends and the importance of timely data will assist communities in the design and implementation of programs to respond to any drug crisis. Thank you, Jon.

Jon Zibbell [00:35:02] Thank you.

Paige Presler-Jur [00:35:03] If you enjoyed today's conversation, be sure to like and follow Just Science on your podcast platform of choice. For more information on today's topic and resources in the forensic field, visit ForensicCOE.org. I'm Paige Presler-Jur, and this has been another episode of Just Science.

Voiceover [00:35:24] Next week, Just Science interviews Dr. Alex Krotulski and Mandi Mohr from the Center for Forensic Science Research and Education to discuss Novel Psychoactive Substance Discovery, a program designed to rapidly identify novel emerging drug threats. Opinions or points of views expressed in this podcast represent a consensus of the authors and do not necessarily represent the official position or policies of its funding.