RYAN P. WESTERGAARD: Thanks very much. I'm glad to be back to give the second part of this two-part webinar. The title which we decided on initially was "What Infectious Disease Providers Need to Know About Addiction Treatment." As it turns out, I don't think that there are probably many, if any, infectious disease providers in the audience. So despite the title, we're going to proceed with some more clinically-oriented topics. But it's not going to be going to be directed at people who provide infectious disease care, it's going to be a more general topic.

How it relates to our previous session is that we previously looked at a more global and public health-oriented view and reviewed some epidemiologic data about syndemics of HIV, hepatitis, and addiction. Today we're going to look more about what happens in the clinic and some barriers to effective treatment. To review from last time, I defined the term syndemic. And I'll show that slide again, what I mean when I use that term. We previously showed some data in the Great Lakes region specifically. And wherever possible, if I'm going to use data I'll use data from this region.

And we talked about some specific roles that health care providers can play in addressing syndemics, including screening, linkage to care, co-location of treatment, and care coordination. And we'll revisit several of these topics this week as well. This is what I mean by the term syndemic, which I know is new for some people. It's defined as two or more afflictions interacting synergistically, contributing to the excess burden of disease in a population. Symdemic theory, individual epidemics are sustained because of harmful social conditions and injurious social connections.

I think that the current opioid epidemic, which has driven a dramatic increase in the rate of hepatitis C nationally and the rate of HIV in certain communities, is a perfect example of this because of the underlying injurious social conditions and the risk behaviors that people who have untreated opiate use disorder tend to engage in. But to illustrate how the syndemic phenomenon can manifest in an individual patient, I thought I would present a case. So I'll present it sort of as a standard clinical format and you'll understand that really, what I'm interested in is sort of the course of the management of this person's illness.

So this is a patient who I saw in our HIV clinic in Madison, Wisconsin. He was a 41-year-old man originally from Milwaukee. And I was evaluating him for management of an HIV infection while he was incarcerated in Dodge Correctional Institution, which is the central intake facility

for people who are in the state prison system. Past history was that he had tested positive for HIV several years earlier but was never linked to care and never received antiretroviral therapy. He also had a hepatitis C infection, he had a past history of injection cocaine and heroin use, he'd been in and out of the criminal justice system and through that process had been labeled or diagnosed with various mental health conditions ranging from bipolar disorder to stimulant-induced psychosis. He also had hypertension and chronic kidney disease.

This slide actually doesn't project well, but I'm just going to move on to the next one, which shows the same data graphically. So the figure on the bottom is the HIV viral load. And assuming many in the audience are not familiar with clinical management of HIV, I'll just give the background that the HIV viral load, which is also called the quantitative HIV RNA measurement, is when we take a patient's blood and measure how many copies of the virus are present. Someone who has untreated HIV will have a high viral load in the thousands to millions of copies per milliliter.

The expectation and the standard definition of success in the antiretroviral therapy for people with HIV is that there is no detectable virus in the blood. And the graph with the blue dots shows what this patient's viral load numbers have done over the course of time that I've known him. So closest to the left, in 2011, he had an elevated viral load somewhere in the range of 20,000 to 30,000. And then shortly after starting antiretroviral therapy when we saw him in the prison setting, the viral load came down to undetectable levels. And it stayed there, which is what we expected, what we see in 90% of our patients who remain adherent to medication.

So fortunately for Mr. P, he was released from prison in mid 2012 and he followed up and saw me. He moved from Madison to Milwaukee and saw me in clinic. And I saw him within a few weeks after he was released, which is what we tend to try to do, and he said things were going well. He was trying to find a place to stay. He was still in a temporary living facility or halfway house and was optimistic for the future. And then after that visit, we didn't see him for about another few years. And he no-showed for his next several visits and then I didn't see him until he was reincarnated about a year and a half later.

And what he filled me in on, what I had missed when I didn't see him, is that he had become homeless, he had relapsed with cocaine use, he had ended his relationship with his partner and therefore had no place to stay. He had a clinic-based case manager who was helping him navigate some of the social services available in our county, and he fell out of contact and was back and forth between Milwaukee and Chicago and out of care for HIV. When we saw him

back in prison, we checked his HIV viral load and it was back up with several thousand copies.

And this time, unfortunately, when we checked his blood, he had developed resistance to the drugs we were using previously, which can happen if people have intermittent therapy and the virus rebounds from time to time. We started him on a different regimen. He became undetectable viral load again. And then unfortunately, again the same thing happened. He was released from prison, was not consistent with follow-up, and the last two times he showed up to get his blood drawn, his viral load was elevated. But I haven't seen him for going on two years now.

So this is an unfortunate case. Mr. P has a challenging life with a lot of chaos. And I work with him in sort of a very narrow section of his life and his medical care trying to manage his HIV. But clearly, any way you slice it, my goals for him in care and management of disease, we've not been successful. And so he's a good case to think about, well, what are the causes of treatment failure?

Medications for HIV are so effective that if someone who comes and gets services at our clinic does not have an undetectable viral load, there's usually something pretty major going on that explains what that is. And he had numerous of these barriers. So the bottom line was he didn't take his medications consistently. The medicines are so effective that if you do, the virus is reliably suppressed. As a consequence of that, he had a resistance and thus, he was not on a first line regimen.

Underlying this, I believe he had an untreated mood disorder, he had an untreated substance use disorder, he didn't have social support, he didn't have stable housing. So all of these things contributed for being a real challenge for him to stay engaged in HIV care. And I think this really illustrates well the idea of syndemic theory, which is how behavioral factors, which are exemplified in substance use disorders; structural factors, meaning that he was released to an environment where he had no place to stay and didn't have good access to addiction treatment; and social factors, meaning that he had strained relationships, he also had no income and was in and out of the criminal justice system, all these things sort of contributed to the fact that this person's HIV was not well controlled.

And on a large scale, if there are multiple people like Mr. P in the community, this actually has public health implications. Because the thing that contributes to the spread of HIV in communities is people whose virus is not suppressed, which is a key feature of our global

response to HIV. When we get people on treatment and the virus is suppressed, people don't transmit virus. So theoretically, if we got everyone diagnosed and treated, there would be no transmission of HIV. So this is why on a public health level, making sure that patients who have challenges like Mr. P get linked to care and get supported in the ways that they need so we can treat the virus is really important.

So everyone who is older than a certain age implicitly knows this, even if they don't think about it, but in the past 20 years, the HIV epidemic in this country has transformed dramatically. When I say implicitly, what I mean is that in the '80s and '90s, HIV/AIDS was front page news. Celebrities were getting sick and dying from AIDS. It was the leading cause of death among people aged 25 to 45 at a point in the early '90s. And that is quite different than the role of HIV in our public consciousness now.

And that is really because of effective antiretroviral treatment and the whole systems of care which have been developed to make sure that people get linked to care and on treatment. People just don't get sick with HIV/AIDS and deaths from AIDS are quite rare in this country at this time. But I show this slide to illustrate one thing, and these data are somewhat old. But it shows how life expectancy increased over the past few decades that I've been talking about. In panel C here, where it talks about what have been the gains in life expectancy for people by transmission group, you see that for men who have sex with men, or MSM, they've had the greatest gains in life expectancy and it's approaching that of the HIV uninfected population.

But between 2000 and 2007, there haven't' been any gains among people whose risk of HIV transmission was injection drug use. So the reason for this, I argue, is all the things that we just talked about that are exemplified in our case and can fall under this model of syndemic conditions and injurious social patterns. So with that background, I wanted to go into a few main teaching points for today. I have fewer slides than I did in the previous talk, and part of that was because we had some interesting questions come in through the chat function at the end of the conversation that we didn't have time to get to.

So since I know that many of you are not engaged in HIV treatment, this may be an opportunity to get some questions answered and have some more of a dialogue. Even if we can't hear your voice asking the questions, I can see all the questions in the chat and we can address anything that people have questions about. Anyway, these are the take-home points that I wanted to get to today. There is a number of important things that I think all clinicians, if you either treat people for HIV directly or have them in your patient panel, about drug

interactions. And these are the so-called pharmacokinetics boosters.

Second, I want to revisit the topic that when we manage substance use disorders and HIV at the same time, they do better for both. And I have some research-oriented data to illustrate that. And then finally, I wanted to revisit the topic of care coordination strategies and the important role that they play. So first to talk about the drug interactions. So fortunately, for this context, specifically talking about opioid use disorder-- although there are medications used for other substance use disorders as well-- for the drugs that are our first line weapons for treating HIV, there are no major drug interactions. Integrase inhibitors and protease inhibitors, or PIs, are the main first line drugs and there are no major drug interactions between methadone and buprenorphine.

One of the protease inhibitors, which we use without the boosting, which I'll explain again in a moment, Atazanavir ATV, can result in lower levels of the HIV drug but has no effect on the level of buprenorphine. And then finally, some of the older drugs that we have reduce the levels of methadone, resulting in withdrawal symptoms. So it is important for people who are managing patients on methadone realize that some patients on certain HIV regimens might require higher doses of methadone. Although since the time that these things were published, the drugs that do reduce methadone levels have been supplanted and are not really considered our first line regiments, although you will still find patients who take these.

So I think if I was going to teach people one thing about what to do about people who are treated for HIV, it is this, that about half of our first line antiretroviral regimens contain one of two drugs that are considered a pharmakinetic enhancer. And there aren't many other examples in medicine of how we do this. But in HIV, many of the effective antiretroviral drugs are metabolized by the hepatic enzyme cytokine P450, and we use this feature to our advantage.

We serendipitously realized that one of the older drugs, Ritonavir, is a very potent inhibitor of this enzyme, which results in elevated levels of drugs that are metabolized by this pathway. In other words, if you block the way the body breaks down these medicines, you'll have much higher levels of medications in your blood, which can potentially be related with toxicity. However, we can also use that to our advantage.

And it allows us to use lower doses of the medications, which might have side effects, and get high levels of active drug in the bloodstream, which is where the action of HIV happens, it's a

blood-borne virus. So we've used Ritonavir, which is an HIV drug, for that purpose. We've used it in combination with other medications, and we call it boosting. So someone could be on a Ritonavir-boosted protease inhibitor-based regimen. That would be what that means.

In 2002, the FDA approved Cobicistat, which was developed specifically to block cytochrome P450 when used in conjunction with antiretroviral drugs. This drug has no HIV activity by itself, unlike Ritonavir, but is specifically used to boost the effect of these other drugs. So why is this important for people to know? Well, there's a lot of other drugs that are metabolized by these enzymes. And I think particularly as the population of people living with AIDS gets older and they accumulate more medical co-morbidities, this is going to be something for people for providers to be aware of.

The most common example of this causing problems in my experience as a provider is with synthetic glucocorticoids. Fluticazone particularly, which is the inhaled corticosteroid that's used in things like Advair or Flonase, is metabolized through this pathway and co-administration of Cobicistat or Ritonavir can result in excessive levels of these synthetic steroids and actually caused Cushing's syndrome. Where this really gets to be a problem is if someone gets an intraarticular or other type of long-acting injectable form, someone gets an injection for a rotator cuff.

Just having the drug injected into the joint space in the presence of these medicines can result in really high levels of steroids and can cause adrenal insufficiency and all sorts of problems. We've had people with osteoporosis and shock, and it's really problematic. So the simple, I think, my strategy for making sure that this doesn't happen, number one, is to make sure that patients know that you're on medications that everybody should know have drug interactions. So don't let anyone give you a shot of anything without making sure they know you're on this medication.

Also, our electronic medical records have flags built in. But I think even primary care providers should know that if you have a patient on HIV, this is something you should think about. Warfarin is another one. Warfarin needs to be titrated closely for a lot of reasons because Cobicistat or Ritonavir can really interfere with people's anti-coagulation. Statins need to be dosed at a lower dose because the effect gets boosted. And several others as well, including erectile dysfunction agents and hypnotics, which may need to have doses adjusted quite substantially.

So what we've learned from patients who have coexisting HIV and opiate use disorder, back to our case, for example, his relapse of drug abuse-- and he used both cocaine or stimulants and opioids-- was a real impediment for him being adherent and consistently on his antiretrovirals. There are numerous studies that show if we address both of these things concurrently with opiate agonist therapy or MAT medication-assisted treatment that it improves outcomes for HIV. And that includes reduced opioid use, improvement mental health, reduced criminal behavior and incarceration, decreased hospitalizations. And specifically, it leads to better adherence and better viral suppression among people with HIV.

And there is a study called the BHIVES study which looked in 10 settings. And they intentionally implemented a strategy to co-administer buprenorphine naloxone within the same clinical settings where people received treatment for their HIV. And in this study, which was relatively small, it seemed to work pretty well. The lessons they learned was that it succeeded best if there was a coordinator, which they said sort of the glue, and in many cases this was a nurse or a counselor or a health educator or a peer or a pharmacist.

The data from this study kind of illustrates how there were substantial differences. So the gray bars are people that were maintained on buprenorphine naloxone for three or more quarters out of the study, so the people who were highly adherent or maintained adherence to the buprenorphine naloxone. And then the orange are people who did not stay on it for the majority of the study. And on the left, this is the percentage of people who are on antiretroviral therapy. Very low levels in the orange means it was the people who did not get their opioid use disorder managed to concurrently. And the gray bars were the people who were-- the responsive is not great in either setting.

On the right, you see the bars of the number who had an undetectable viral load. What I said at the beginning is that we expect all of our patients to have an undetectable viral load. And when you look at our clinic, for example, at any time, upwards of 90% of our patients have an undetectable viral load. So the fact that in this study, the best they got was 50%, 60% when they treated with opioid treatment, clearly better than the 15% to 20% of people who did not have their opioid use disorder treated but still not as good as what we consider to be the standard measure of success in HIV care.

So the challenges were that they learned that this colocation of services works better when there's multiple prescribers. This is something I've learned firsthand as well. Here in Madison, I work at a larger university-based clinic and then one day a week I work at a small community-

based clinic where I see patients with HIV. And we've started treating patients with buprenorphine naloxone who have opioid use disorder in that clinic, and it's been a challenge to implement. First of all, I am new to this. I just became a naloxone prescriber in the past year, so this was the first time I had started this.

But at the same time, we also had to make sure our nurse was on board, our pharmacist, make sure we have the appropriate protocols. And for a small clinic with one prescriber who has a buprenorphine waiver, it was a bit of a challenge. So you can see when there's some institutional knowledge and people who can cross cover and fill prescriptions and other people know about it, it can be easier to scale up. There were challenges of culture between addiction and HIV practices. And I have to ask Rick Baltes exactly what he meant by this because this was his study, but I think but I think the sense was just that the two angles are sort of accustomed to doing things a different way.

In HIV clinic practice, we don't tend to check urine drug toxicology screens for any other reason so this was a new piece that we had to bring in. And then poly substance use and mental illness co-morbidities create additional challenges. So we've found that in the example that I presented in the case who had a cocaine use disorder and untreated mood disorder. He was not doing well in care. Other patients anecdotally who have stimulant use disorder or are otherwise disorganized, not highly motivated, don't do as well and people in this audience are aware of this.

So this is a good service to have to be able to provide, MAT in HIV care settings, but I don't think it's a fix for everything. I think there's patients that have challenges. And the idea that some very flexible, very patient-centered care coordination through case management or patient navigators makes a big difference. And to highlight that fact, I wanted to-- I mentioned this during our last webinar so I want to highlight it again or introduce it again for people who are new.

But here in Wisconsin, we were part of a consortium of six other states to really try to implement this on a larger scale. The Wisconsin project embedded patient navigators in HIV clinics for the purpose of supporting and preventing disengagement for care for people who had high risk for whatever reason, not just substance abuse, not just criminal justice disorder. But the idea that if 80% to 90% of people find HIV care relatively easy and have an undetectable viral load without a lot of extra support, what do we need to do to fill the gap for the remaining 10%, 20% of people? What are the services that they need to help them be

successful and have the virus suppressed?

The solution that was fostered and developed and scaled up by this initiative was that of patient navigators, which can also be called intensive case managers, or a peer coaches as I've heard it described. So we implemented this as coordinated at the state health department for a number of clinics across the state. And specifically, and this was some data I wanted to share, we offered this to patients in our HIV clinic who were in the Wisconsin prison system and then planned to move in Madison or Milwaukee after release, so just like Mr. P from our case.

We've learned this lesson overview and over again that getting released from prison or going in and out of jail is one of the biggest signals or the biggest red flags that someone is going to have trouble adhering to their HIV medications. So we specifically tried to direct an intervention against again that for that group. We've been evaluating this qualitatively and quantitatively. That's been a couple of publications that really show from the qualitative analysis the value that patients have felt. And these are some of the quotes is that this patient navigator makes me feel like I'm not alone.

And the purpose of this analysis was to really highlight the social support that people get and the benefit of that. Other it was described as fostering a feeling of worth through the linkage to care specialists, which was the other name for the patient navigators. And through the evaluation, there were a few main barriers to care which were specifically targeted by this intensive case management, that being social isolation, low health literacy, lower motivation, failed linkages to needed services like addiction treatment, and then a lack of a personal relationship with providers. This quote I shared last time, but I think it sums up so well so I was going to repeat it, and that was that the patient said, when I first got out of prison, I was so institutionalized I wasn't ready for the world.

And to try to put it into words, I was almost shell-shocked, like the world was too busy and too fast for me to keep up. I couldn't even navigate the city buses. That's how crazy incarceration is, what it does to the mind. So the Linkage to Care specialist being there to help me and tell me a little things like that meant a lot. I really needed that. I think it's an overlooked risk factor for people getting out of prison that life goes on while they're not there. And some people who have been in for four or five years, especially with technology and communications and internet and things, I think we can neglect to pay attention to how much things have changed while people have been incarcerated.

Nothing to say of the sort of mental health effects of being isolated from people's family has by itself in incarcerated populations. So this is a new figure I didn't share last time, which shows our analysis. And we just we just submitted this for publication. And this is showing of people that participated in the Linkage to Care program when they were released from prison compared to people who did not participate in the Linkage to Care program in red. And this is called a survival curve, but it essentially shows how long is the delay before people get linked to care, meeting they show up and get evaluated and see a provider for HIV?

And the blue line are people who were not served by the program. They stayed unlinked to care for a much longer period of time, where the red bar shows that people got linked to care quickly and overall, the majority of them-- maybe 80%-- were linked to care within the six months for prison. So a significant difference, which is gives us a clue that this is fulfilling an unmet need. So that's one example of what is called care coordination.

And here in Wisconsin and I know elsewhere, we realize that this is not specific to HIV. People living with HIV tend to have a lot of psychosocial challenges that benefit from this type of care coordination, but so, really, do many-- if not most-- people who have substance use disorders. And so in addiction treatment itself, there's a movement in many areas to use recovery coaches or patient navigators to make sure that people access services and just check in on people. And that the available data say that they worked pretty well for meeting treatment goals.

They're not cheap, though. And we're finding that wanting to start a program and sustain a program is not easy. It really takes a lot of resources for training. These are usually full-time staff that have a limited number of caseload because you can't provide really intensive case management to a large number of people. And so my interest as a researcher is to really try to measure the impact of the benefit that this can have and make the case that this is cost-effectiveness or cost savings. If we get people in care, we keep people out of prison, we keep people from relapsing and overdosing. There's a lot of great health gains to be made for the investment.

And so that's sort of an area that we're working on trying to build the database for that. OK. So during the question and answer last time, there was one thing that I was challenged by because I didn't know the answer. So I did a little research and just wanted to get back to it. But someone asked, because I shared some recommendations from SAMHSA that screening

for transmission risk behaviors for HIV and HIV itself is recommended in opiate treatment setting. And I think the question was something to the effect of, well, is there are easy to use tool that we could or should use?

And I'm familiar with a lot of questionnaire items that are used for research purposes, but had to admit that I really wasn't familiar with things that are easy to deploy in practice. So I did a little digging and the federal guidelines opiate treatment programs were not very helpful. They say that consistent with resources, opiate treatment programs should screen and test for hepatitis C and hepatitis B directly and they should receive education and teach patients and so on and so forth. It gives you a few little teaching points, that hep C is four times as prevalent as HIV and that you don't have to look sick, but it doesn't really tell you how to do it. It doesn't really answer the question.

This was the guideline statement that we reviewed last time. And that's translated to not a lot of treatment facilities actually doing It. So this was a survey that showed only low 20% in terms of substance abuse treatment programs, mental health services, or mental health and substance abuse treatment services were doing any kind of screening for hepatitis C and that in general health care settings it was better. But I think the ideal that people who are engaged in addiction treatment who may not receive general preventive health care, this might be an underutilized venue for screening, I agree with that.

I think it is useful, but it seems to not be easy. And the evidence here is that it's not done routinely in most settings. So I looked into the scientific literature and said, well, what is there? And I did find an example of some researchers who used survey data about risk behaviors and created a score. And it doesn't project well, the printing is long. But I wanted to share this just to make the point that this has been done.

These are the questions, how old are you; are you in methadone maintenance; how often did you inject; did you inject cocaine; did you share a cooker; did you share needles; did you visit a shooting gallery-- and that was the term that was used in this study in Baltimore for usually an abandoned house where there's multiple people shooting or injecting drugs together. And then they used somewhat complicated statistical models to create a priority score. And you have, for example, if they're are less than 30, you give them 38 and then you add 31. So there's some math involved here, and that's probably not the most usable checklist. And you have to do a total score.

It's nice to do these sort of exercises because it's numeric and it's rigorous and it gives you some insight into what are the factors that contribute the most, but when you're having to do math and add things across it, I don't think it's quite as usable. So the other thing I found is this is done in Minnesota. Wisconsin has something similar that it tags on to its hepatitis C rapid testing form is just asking the questions-- and this is what I think is sort of the bare bones of what people need to know-- have you ever injected drugs; when was the last time you were tested for HIV, hepatitis C, and hepatitis B?

And if you haven't been or haven't been in the past year, then that's all you need to know. Someone should get screened if the risk reduction question, if they are actively injecting, or if they're infected, you ask them if they share needles or other injection equipment. And these are really the core things you need to know. They're a great way to start the conversation and are not that complicated. And you need to know it's really a qualitative measure, yes this person's at risk. And then the question is, has this person been screened appropriately? And if not, what do we do about this?

So this is my last slide, which just summarizes this. And I think that the takeaway for how do we address this HIV and hepatitis C risk in addiction treatment settings is that doing something compared to nothing is going to be a huge step. Just having that conversation with somebody about their risk reduction and meeting people where they're at about how at risk they are and whether they've been screened shows that you care about clients as a person. And that conversation can translate into a referral to some treatment if we can't do treatment on site, or it might not.

And if it doesn't, we know from other areas of medicine like smoking cessation that hearing the same prevention message over and over and over has a cumulative effect, that even if someone doesn't act on it today you're planting a seed and you're putting it on their radar screen and giving them information. The other thing is that there's been a movement away toward doing formalized and sort of highly protocolized pre and post test counseling. It's not to say that counseling in the setting of HIV and hepatitis C testing is not invaluable or important.

But if we worry too much about doing it and doing it the right way, it might actually result in fewer people getting tested. So the CDC has recommended, and I agree with this, that the most important thing is that we just get the test. Get people to know their sero status, get them linked to services if needed, don't worry about written consent or counseling insofar that it might make people less likely to get tested. So that's the stuff I wanted to cover today.

We have more time to have any discussion. I see some comments on the end. I guess do you want me to go through these, or does Maureen or Cindy want to kind of moderate this?

PRESENTER: Hi, Dr. Westergaard. Thank you. I've been pulling questions as they've come through while you were talking and I can toss them your way right now if you're ready.

RYAN P. WESTERGAARD: Sure.

PRESENTER: Well, the first question that came up is, what is the population where you see the greatest increase in HIV recently and why?

RYAN P. WESTERGAARD: Sure. Among the population that I think we're more reaching through ATTC, so through that the population with substance use disorders, there has been an increase in HIV in certain communities. And that's not clear whether the certain communities are unique or we're just detecting it there more quickly. But in communities where there are few prevention resources, which tend to be rural communities, there have been a number of isolated HIV outbreaks.

The most notable of these which we presented kind of as a case study in part one of the webinar was in Scott County, Indiana. And what we learned from that is that it was people who are injecting multiple times a day, who were injecting together with a lot of different people, and were in an area where testing resources and needle exchange were not available, that was sort of the perfect storm for HIV to become introduced and spread in a community of people who are injecting drugs. We've seen similar signals in New England and possibly in West Virginia as well, which are both areas that are somewhat more remote, don't have the same access to harm reduction, by which I mean syringe service programs and testing service so people can get linked to care properly.

So those are the areas among people who inject drugs where HIV is on the rise. Overall, however, across the US, the HIV epidemic is still predominantly driven by people who are acquiring it through sexual contact. And it tends to be highest in young men who have sex with men, particularly non-white men who have sex with men. So Hispanic, Latino, and African-American men who have sex with men still have the highest risk of HIV in the country. And unfortunately, for the past five to 10 years, those rates have remained elevated. Even though the overall incidence of HIV has gone down, transmission is still happening in those smaller communities.

PRESENTER: Thanks, Dr. Westergaard. Our next question is from someone who asks, how worried are you with the combination of statins and [INAUDIBLE] statins, I think, with the potential for rhabdomyolysis and metabolic syndrome? And I may not have pronounced those correctly.

RYAN P. WESTERGAARD: Yeah. So rhabdomyolysis is a potential consequence of being on statins strictly at high doses. And I mentioned that there is an interaction with Cobicistat, which is this pharmacokinetic enhancer, and statins is one of the medications. So we're not too concerned because we know there are some statins which are worse. So Lovastatin tends to be the worst. That one is not used that much. Some of the newer generation ones, Atorvastatin and Rosuvastatin have less of an interaction and the interaction is somewhat more predictable.

So we can reduce the dose by half and feel like we give it relatively safely. So we monitor a little bit more closely. But I think the take home or the answer is that it's not an absolute contraindication. And because the interaction is predictable, we can adjust the dose and get her and get around it.

PRESENTER: Thank you. Oh, here's a question about screening for sexual behaviors that are correlated with HIV, HDC infection, and opioid addiction. I think they're asking about your research projects, Dr. Westergaard, do you screen for those behaviors?

RYAN P. WESTERGAARD: Yeah. In our research, yes. It's sort of a standard piece of our risk behavior inventory that we do. And like I said, there's a hierarchy of risky sexual behavior. Unprotected anal intercourse is certainly the highest. So to accurately gauge someone's risk, you have to ask the details in somewhat detailed and it takes some practice to feel comfortable doing it in a way-- it's uncomfortable for everybody, but I've learned that the more you do it, the easier it gets.

And doing it in a structured way, like through a questionnaire, is helpful as well. But I think particularly potentially unique, or at least particularly important in the addiction treatment population, is that one of the biggest risk factors for HIV in the Scott County outbreak-- and we're picking some of this up in our Wisconsin rural community study as well-- is exchange sex, so particularly among women who have traded sex for drugs. That was the mechanism by which a lot of HIV transmission happened in Indiana.

And we're seeing that as an identified risk factor in our Wisconsin study, although we have not detected a large number of HIV cases to date. But it's a concern. So I think sexual risk screening among injection drug users is still very important. I wouldn't just focus on the clean

needle use and needle sharing. In fact, in the cases where people who inject drugs are diagnosed with HIV, very frequently upon closer investigation it's probably a sexual behavior that was the ultimate transmission risk. So that's an important question and I'm glad you asked it.

PRESENTER: Thank you. Let's see. Our next question-- or some information. In California, we have to provide communicable diseases hep C and B screening, especially in residential treatment. I've not run across any positive VRO low risk. My question is, if a positive HIV appears, do they qualify for higher level of care or do we use parallel treatment?

RYAN P. WESTERGAARD: So I guess to clarify it-- I know we can't have back and forth quite easily, but for a higher level of care, meaning for addiction care I guess is what I'm not certain about. So HIV, if someone is positive, they certainly qualify for prompt linkage to specialized care, which that would be considered a higher level, I would think. The goal is the time that someone has a positive to get them to see an HIV care specialist, ideally a medical provider, but at least a case manager or nurse to kind of help them process and understand what needs to be done as soon as possible.

And the same day is the gold standard in a lot of areas if there was testing, if it's an agency that does both testing and treatment. But I think if the question is getting to do, does their addiction treatment need to change, I think it's very dependent on the patient. Patients who are stable on methadone or in outpatient treatment can continue to be successful when they have HIV and need different kinds of care for that. And we've seen all models.

We have some patients who get their addiction treatment services right at our clinic and others that are active at a community-based provider. And I think either can work. But I guess the take-home I would say in response to that is if HIV testing is going to be done in an addiction treatment setting, before getting started with this we just need to make sure that we have a referral network and a way to promptly link people to care. Because that's something that in the HIV community we've worked really hard to emphasize is that testing is important, linkage to care for people who are positive is critical.

Because a lot of people when they're tested, if we don't actively facilitate them getting into care will disappear and just sort of fly under the radar for a few years and hopefully come back before they get sick. But that's what we want to try to avoid. We want to get people started on treatment as soon as possible to prevent further transmission and protect their immune

system.

PRESENTER: Thanks. Thanks, Dr. Westergaard. And a question related that maybe you already answered fully is, what protocols should be followed in regard to HIV positive clients engaged in treatment services?

RYAN P. WESTERGAARD: Yeah. That's what I was just trying to address. I think an idealized version of what it could look like or try to implement here, actually I mentioned the HRSA grant, with the linkage to care specialists or patient navigators. So after the HRSA grant was over, our organization found funds to continue to have that person on staff because we found it so valuable. So around UW Health, which is our health care organization, whether it be in a primary care setting or emergency department, if someone tests positive, we're trying to get the word out that we have somebody whose job it is to meet people where they're at and help them get linked to care.

So our Linkage to Care specialist is sort of on call. This works because we have funding for this position and because in Wisconsin, we're a relatively low incidence area so it doesn't happen that often. So we when people show up needing linkage to care, we can get them in promptly and we have someone who's sort of specifically trained in meeting people and getting them linked to care. So that kind of resource might not be available everywhere.

But I think most jurisdictions and most health departments if you engage with them and ask what are the resources to help people get linked to care, there should be some analogous option, even if it's not as quick. But in larger cities, there's-- in Wisconsin, they call them disease intervention specialists, so people who do contact tracing and linkage to care. Any Ryan White Care Act funded program should have case managers who can reach out. So I think that linkage a care piece I'll just emphasize is really important.

If it's a rapid test, a rapid point of care test like gets done in a lot of community-based settings, the other part of the protocol is that most people need confirmatory testing. So we don't have time to go into all the mechanics of what HIV testing is, but usually there's some part of the protocol where if they didn't get a blood draw for multiple reasons, they sometimes to get another specimen obtained for confirmatory testing. Because the rapid tests that get done in community basements or non-clinical settings need to be confirmed with a secondary method before saying with certainty that someone has HIV. So those are all aspects that are very important considerations.

PRESENTER: Thanks, Dr. Westergaard. Now we have a question about working with young people. What suggestions do you have for our youth to young adult population from the age 16 to 25 who have been infected with multiple STDs or have HIV virus who choose to not remain consistent with taking their medication, not to mention not practicing safe sex? My Kansas City, Missouri jurisdiction suffers deeply with our young population being infected with HIV, not to mention AIDS. Extremely devastating to witness.

RYAN P. WESTERGAARD: Yeah. I agree. That is sort of the hardest, most challenging frontier in the fight against HIV is I think adolescents and young adults who aren't engaged in prevention the way that we hope that they would be. And it is an area of active research. There a lot of innovative things trying to engage populations in social media campaigns and online communities that use youth-targeted messages.

I don't know how successful they are. The fact that the leading edge of the HIV epidemic in terms of new infections is in this community that you just described is really, I think, evidence to the fact that this is really challenging. An interesting area of research that people can know about is PREP, or pre-exposure prophylaxis, which is daily medication that people who are at high risk for HIV can take on a daily basis. And it blocks the virus if someone is exposed to it.

Highly effective when taken as directed. But the adolescent mindset that's sort of not very future-focused and not adherent I think contributes to some of this increased risk. May not be the most likely to want to adhere to the early medications to prevent HIV as well. There is some interesting research in the future about using long-term injectable medications for PREP, for pre-exposure prophylaxis, which I think will be coming in the next year or two. This is interesting because this would be similar to depo preparations for contraception that you can use. We'll have depo concentrations of antiretrovirals that can block against HIV infection.

Ad for people that are not adherent, that could be one way to protect those at least against HIV. But treating people who are at high behavior risk and not interested in risk reduction is definitely a challenge. But I think the paradigm for working with people who inject drugs and take risks that I think is most valuable and could have some lessons for teaching people who are engaged in high sexual risk taking behaviors is just engaging with services that are nonjudgmental and meeting people where they're at and sort of earnestly having conversations that we are not telling you what to do, but this is how to keep yourself safe and being consistent in those messages I think is the best way to engage that population.

You can't make people do something they don't want to do. But when we are sort of judgmental and people fear that they're being judged or stigmatized, then we have no access to the population at all because they don't want to have to do with us. So I think the organizations that have success in delivering prevention services are ones that kind of acknowledge that people are going to make their decisions and our role is to support them and help them keep safe to the extent that they want our help and have an opening and non-stigmatizing environment. That tends to be the best way to have services available and used is to have a trusting relationship with the community and the service organization. But definitely, it's not easy.

PRESENTER: Thanks, Dr. Westergaard. We'll see if we have any other questions coming in. While we're waiting, would you like to comment on World Hepatitis Day coming up on July 28? And is there anything you'd like to add about the theme of this year's event, "Find the Missions Millions?"

RYAN P. WESTERGAARD: It's very timely and it's very nice that this is coming up this month. I think it's a good opportunity to have conversations saying, by the way, it's world hepatitis day. What does that mean for us? The missing millions refers to the fact that I still think that of the millions of people who are infected with hepatitis C in this country, about 50% still don't know that they're infected. So that's really why the push toward testing for hepatitis C in all types of non- conventional settings outside of health care is so important.

The other reason that goes along with that, or I think it really resonates with the addiction treatment community, is that the individuals that are at highest risk for hepatitis C are young people who are injecting drugs and not injecting in a safe way. What we've learned in our research is they are not likely to be using routine preventive care and are not likely to get tested by a primary care provider. So other reasons to think about the role of addiction treatment providers is that the population which is otherwise young and healthy but engaged in transmission risk behaviors need to get reached some other way because they're not just showing up and have a family doctor who's going to take care of all this stuff.

So I think it's great. World Hepatitis Day is useful because it's an excuse to get the word out and put up signs. And it's definitely needed because we're at a point in history that's kind of unfortunate because right now we have better treatment for hepatitis C than we ever have. We can cure 99% of people relatively easily with a several-month course of treatment. But unfortunately, at the same time, transmission is going up in. And it's driven to a large degree by how much the opioid injection epidemic has gotten higher.

So we're losing the battle, unfortunately. And I think to turn the tide to win the battle, we need to really focus on that whole cascade of getting people tested, linked to care, and in treatment. And there's a lot of challenges to get there, but we sort of know the recipe because we've made such progress with HIV. So we kind of need to adopt that model. Otherwise, we're going to have the majority of people who inject drugs in this country infected and it's going to be very expensive to treat down the road.

PRESENTER: Thanks, Dr. Westergaard. And thanks for the information about World Hepatitis Day. We've got a link to the World Hepatitis Alliance up on the screen. And they've got great resources not just for World Hepatitis Day, but for us to use all year round. The ATTC network also has a project dedicated to viral hepatitis called HCC currently encourage everyone to go to the ATTC page and look at that. It's got resources for professionals to use.

Looking for more questions coming in, as we have a few more minutes. I see some of our participants are typing. We've had a lot of people asking about the recording of your first webinar, Dr. Westergaard. I want to let everyone know that that has been posted on the Great Lakes ATTC website under our recorded webinars page. So it's available for viewing at any time.

Your PowerPoints are also posted there for people to access and we'll do the same from this webinar. We're getting a lot of thank you's as we're approaching the top of the hour. So we'll be signing off now and we want to thank everyone for joining us today. Thank you, Dr. Westergaard.

RYAN P. WESTERGAARD: You're very welcome.

PRESENTER: Ditto. Thank you very much, Dr.