WEBINAR VIDEO TRANSCRIPT

Partnership for Care HIV TAC

Epidemiology of Pathogenesis of HCV, a Focus on HIV

Speaker: Dr. Camilla Graham

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STEVE LUCKABAUGH: Good morning. My name is Steve Luckabaugh, and I'd like to welcome you to the epidemiology of pathogenesis of HCV, a focus on HIV webinar. This webinar is brought to you by the Partnerships for Care, HIV Training, Technical Assistance and Collaboration Center, HIC TAC. The Partnerships for Care project is a three year multi-agency project funded by the secretary's Minority AIDS Initiative Fund and the Affordable Care Act. The goals of the project are to expand provision of HIV testing, prevention, care, and treatment in health centers serving communities highly impacted by HIV, to build sustainable partnerships between health centers and their state health department, and to improve health outcomes among people living with HIV, especially among racial and ethnic minorities.

The project is supported by the HIV Training Technical Assistance and Collaboration Center, HIV TAC. Our speaker today as Dr. Camilla Graham. Dr. Graham an infectious disease clinician and has over 20 years of infectious disease medical training and editorial experience. Dr. Graham currently serves as the co-director at the Viral Hepatitis Center and Infectious Disease Division and assistant professor in medicine at Beth Israel Deaconess Medical Center. She works with advocates and state officials to improve awareness and care of people with HCV.

Her current projects include building out the viral hepatitis program in the ID Division, training ID fellows in the management of HCV and HBB, and developing patient education and provider support materials for HCV. She also supports the Echo HCV Telemedicine Program to increase the number of clinicians able to provide care to patients with HCV and allow patients to remain in their medical homes.

Dr. Graham develops primary care education and support to increase HCV testing rate in the care group system which has over 1.5 million patients, including over 800,000 people born between the years 1945 and 1965, with more than 7,000 with diagnosed HCV. Dr. Graham's program has added an electronic medical prompt to encourage one time HCV testing everyone born between years 1945 and 1965, according to CDC guidelines.

Dr. Graham works with the Infectious Disease Society of America, IDSA, to increase ID physician's knowledge about HCV and HBV. She serves as the associate editor, viral hepatitis, Clinical Infectious Disease and IDSA knowledge faculty for HCV education. She also serves on the committee to develop an HCV module for ID certification. Dr. Graham received her MPH

from the Harvard School of Public Health and her M.D. From the medical college of Pennsylvania. Please join me in welcoming Dr. Graham.

CAMILLA GRAHAM: OK, Steve, thanks so much for that introduction. So I'm going to be talking to you today about people who are living both with HIV and hepatitis C. And one thing I want to note right off the bat is that often these patients can fall through the cracks. And so I see you all as really helping identify people who may not be receiving optimal care for one of these two important viral infections and who may need either help with a safety net or with advocacy or with just the recognition that they may deserve something that they're not currently getting. And this is because, although it's much better now than it was 20 years ago when I first started taking care of people with coinfection, there are HIV or infectious disease providers who are not as comfortable with hepatitis C and the liver disease that comes with it, and there are gastroenterologists and hepatologists who may not be as comfortable with HIV, the complicated medication regimens, et cetera. So these patients need really comprehensive care and understanding of both infections simultaneously.

So we're going to start talking about who's at risk, both of infection and re-infection, talk some about those things that can accelerate liver disease in people living with HIV, and then I'm going to not go deeply into the hepatitis C treatment. I think that's a different module. We'll talk about some of the special considerations people with HIV have when they are being considered for treatment for the hepatitis C.

I talk about hepatitis C much more differently than I did even five years ago. And that's because a couple of things have happened. We as a nation have recognized that hepatitis C is actually a really important epidemic and that a lot of people are dying of it. We've had a transformation in the kind of treatment available to patients, and we are now able to cure most people with hepatitis C. And we are creating more and more of a ground swell that hepatitis C is a disease that can be eliminated. And I think this nicely parallels a similar effort to control HIV.

And so a lot of the things that you're seeing in HIV around improving the care continuum in terms of maximizing the number of people who are appropriately placed into care, started on antiviral treatment, and achieve viral suppression, and the people who are at risk for infection are provided harm reduction counseling, PrEP, other interventions.

There is a somewhat similar movement, although it's a smaller movement, in hepatitis C. And these things go hand in hand in folks that are in coinfected. As I said, people are becoming more aware of the burden of hepatitis C. We now actually have far more people dying every year of hepatitis C than HIV. And many patients living with hepatitis C have similar challenges-- psycho-social challenges, mental health issues, addiction issues-- as some patients with HIV. So they have similar challenges. Today we're going to be talking about patients who are living with both. But keep in mind that this is a broader problem of the hep-C infection in general in the United States.

An important milestone in hepatitis C was the release of a report from the National Academy of Sciences Engineering and Medicine that discussed how we could eliminate hepatitis C as a public health problem by 2030. And you all will be on the front lines of making that happen here in the United States. And this is a challenge we all have with people, whether or not they also have HIV coinfection, which is that we have a low diagnosis rate. We have a lack of screening initiatives. And as you heard from Steve in the intro, I do a lot around trying to improve medical decision support around screening.

We have problems with linkage to care and retaining patients in care. So the challenges are similar to what you learned about or perhaps optimized in your own care practice for HIV. There is a lot of stigma, especially against people who inject drugs. And you will know the barriers that stem from this stigma and judgment and that ongoing challenge. And we also have a lack of care in correction facilities. We have a particular concern in the US with a high price of hepatitis C regimen, and that can impact access to care in our patients living with HIV coinfection.

So who do you need to screen for HIV? I put in red-- for hepatitis C. I put in red people with HIV. Every single person with HIV must be tested for hepatitis C. I think one challenge we have is, when you look at surveys of clinics that provide HIV care, they typically do a very good job of testing people when they come into care in a particular clinic. What's not done often appropriately is retesting people who have ongoing risks for hepatitis C acquisition. And we can talk a little bit more about that. And that's the main thing I want to emphasize here.

There's a high overlap between HIV and hepatitis C risk factors, which is why, depending on the demographics of a particular practice, somewhere between 15% to 30% or more of patients with HIV also have hepatitis C co-infection. And this is because they are common with the transmission, although there are some differences. So HIV is more transmissible through sexual activity than hepatitis-C. Where we see sexual transmission of hepatitis C are in men who have sex with other men.

Rarely you will see it in young women who have male partners who have hepatitis C infection. So it can happen. You can have sexual transmission of hepatitis C. It's mostly of concern in patients who are men who have sex with other men. Hepatitis C is more transmissible through blood than HIV. We recognized that a long time ago when we started looking at needle stick injuries in occupational health, where if you had a needle stick, you had about a 3% chance of transmission of hepatitis C or you had a 0.3% chance of transmission of HIV-- about a ten-fold difference.

And you also can see it in data around needle exchange programs. Needle exchange programs have dramatically decrease the risk of HIV transmission, but it has not made as much impact on hepatitis C transmission. And part of that is hepatitis C can live on an environmental surface, such as inside a syringe, for a much longer time than HIV can. And so what you need to do to actually get rid of the hepatitis C is probably more difficult than what's needed for HIV.

And it's not just making sure that people use clean needles and syringes, but every single thing else used in injecting drugs, such as cookers, cottons, ties, anything, could potentially contribute to sharing of hepatitis C, and each person needs their own works, needs to not share any of that. And that requires both having access to it. So he can't just do a needle exchange. You need you need access to all paraphernalia-- and a cultural change because often people will share in these settings. And so when you're thinking about counseling around reducing hepatitis C transmission, these are other things to take into account.

So why do we care about hepatitis C? Most patients with hepatitis C will have some degree of liver scarring over time. This can progress to what we call cirrhosis. This is when you get a change in the structure of the liver. So you get these nodules. And that liver doesn't work as well. That can then progress to liver failure, and a cirrhotic liver is also a risk for developing liver cancer-- hepatocellular carcinoma. And these are the big things that we're worried about in hepatitis C.

But taking care of a lot of patients over the years, what struck me is that there are more subtle things that many patients with hepatitis C live with. And these can be a little bit difficult to put your finger on, but they just don't feel well. And this is true for our patients with HIV coinfection, as well as hep-C mono infection-- maybe some difficulty concentrating, increased risk of depression, fatigue, muscle aches-- all things that if they are treated insured of their hepatitis C will become a lot better or even go away.

When people have HIV coinfection, the entire cascade of what can happen to them is greatly accelerated. I've had patients who had HIV and then developed hepatitis C coinfection, who went from infected with hepatitis C to cirrhotic as little as three years. You never see that in hepatitis C mono infection. Many people will go on to advanced liver disease within 10 to 20 years.

And so you have to imagine that that usual progression we see that slowly progresses liver disease in hepatitis C is greatly accelerated when you have HIV. And this is why we can't have this same sort of restrictions on who has access to treatment in people with HIV because there's less time that you can afford to wait to get people engaged in care. And people with HIV and hepatitis C-- just that that causes an accelerated liver disease, but if they also have some of these other factors, then that this increases this risk even more.

Alcohol is probably the biggest cofactor for accelerating liver disease in people living with both HIV and hepatitis C. But we're becoming more aware of the importance of nonalcoholic steatosis, or NASH, also known as fatty liver disease. It's not just fatty liver disease. It's fatty liver disease with inflammation and scarring-- fibrosis. And these are more common in people who are also living with diabetes, with obesity, with hyperlipidemia. And as you know, at least diabetes and hyperlipidemia are more common in people with HIV often because of the viral infection itself and the medications that are used.

Occasionally, people can get triply infected with hepatitis-B as well. And those people have a dramatically increased risk of developing severe liver disease. Everybody who has HIV and hepatitis C who hasn't been exposed to hepatitis-B must be vaccinated. There is drug effects and liver toxicity and then other causes that can happen to any one, like autoimmune disease, genetic diseases, et cetera. Probably the most important thing is to evaluate people's use of alcohol and provide appropriate counseling.

I run into a lot of people who have a lot of myths about hepatitis C and what it means to get into care with hepatitis C. And one of the most common ones is the fear of liver biopsy-- the folks who will refuse to see a hepatitis C specialist because they're scared that somebody is going to make them get a liver biopsy, and they know someone who had a bad complication from it. Or they just don't want to endure the pain and discomfort of a liver biopsy.

It is very unusual for us to do liver biopsies anymore. I don't want to tell you we never do them because sometimes we'll have somebody who has a mixed picture. Maybe they might have two or three different things going on in their liver and we need to sort out what exactly is happening. But I would say that happens less than 5% of the time. For most people, we can use other tests.

And so I'm showing you a picture here of something called a fiber scan. It feels like an ultrasound. It's a probe that uses sound waves to tell how stiff a liver is and how stiff a liver is allows you to calculate how much scar tissue or fibrosis the liver has, which allows you to see how close they are to cirrhosis. It just takes a few minutes. It doesn't hurt at all. The main thing is you can't have eaten within two hours of getting one. And then there's also a blood tests that I'm not going to get into that can give us a pretty good indication of how much scarring someone has. We rarely really need to use liver biopsies anymore.

This is an example of the kinds of numbers that we get from the fibroscan. They give us a sense of how much scarring. And what's really interesting about the fiber scan is, even after someone has a level of liver stiffness-- and this is with kPA. It's called kilopascal. It's just a measurement unit. Even after they've been diagnosed with cirrhosis, they can have increasing amounts of liver stiffness that are associated with an increased risk of other complications of liver failure, like liver cancer or ascites or other things. So this is a good test.

Now, people who have HIV and hepatitis C, we tend to focus on the treatment of the hepatitis C. But I want to remind you that, if they have cirrhosis, there's a whole bunch of other things that need to happen. So this is not just an infection that needs to be diagnosed and cured. There's also a liver disease component that needs to be separately managed. And so if somebody has cirrhosis, they need screening for liver cancer every six months for the rest of their lives.

And if they're not getting it, they're not getting appropriate care. They need screening for those big veins, the varices that can emerge in someone's esophagus, the tube leading to their stomach. Those things can break open and bleed as a medical emergency. People can die of

these complications. If you need to make sure that you know who has varices or not, they need to be counseled on the confusion that can happen when people have more severe liver disease. The patient needs to counseled. Their family members or other people they live with need to be counseled to recognize it in time.

There's vaccines that we give people, like the pneumococcus vaccine. Counseling can make sure that they don't accidentally take too much Tylenol or they don't take nonsteroidals like ibuprofen at all. And so I always want to remind people it's really important to find folks and figure out whether or not they have cirrhosis. If they have cirrhosis, there's a whole bunch of other things that need to happen to help keep them safe. And this is just a study that showed how poorly we do providing appropriate care to people with cirrhosis.

And so this is a co-infection clinic. And of people who had documented cirrhosis, 36% of them never had an ultrasound to screen for liver cancer. These people should have had two ultrasounds a year. The median number of ultrasound was 0.4, was a quarter of the amount that they should have been getting. And there were people that developed liver cancer-- hepatocellular carcinoma, or HCC, and two of those were people who never had any appropriate screening for liver cancer. So this is just a study to remind us that, when you think about comprehensive care and tracking patients and making sure that they don't fall through the cracks, that this is one area where we need to do a better job.

Now, why do we want to find people? Why do we want to treat them? Why do we want to cure them? Because it absolutely saves people's lives. It is the number one thing we can do that changes the natural history of their disease. So this is an important meta-analysis done to look at SVR, Sustained Virological Response, which is a virological cure of the hepatitis C in the five year risk of bad things happening in people-- deaths from all causes, not just liver disease, and liver cancer.

And you can see in the HIV coinfected patients, that their risk of all cause mortality, of dying of anything, was decreased about 90% when you cured them of their hepatitis C. And similarly, their risk of liver cancer was decreased 90% if you cured them of their hepatitis C. That's why we're so frantic to get people diagnosed, into care, treated and cured. Again, I'm not going to go through a whole bunch of stuff around treatments.

But this is a high level summary of what we have today for patients because they are curious. They want to know. They've seen in the news. They want to know, is this something for me. So we have seven FDA-approved regimens through genotype 1, and we're expecting two more to be approved in the next two months. We have three regiments that can be used for genotype 2 and 3, and we're expecting at least one more in the next couple of months.

A few special groups of patients require ribavirin, which you may know, has a lot of toxicity. People get anemia. They get irritable. There's sun sensitivity. It's not a great drug, but it can significantly increase people's cure rates when they're have more difficult situations like people who have liver failure. In many states, the selection of what treatment you will select or a

patient will be offered is going to be guided by insurance restriction. And that's something that anybody who does hepatitis C care is familiar with and should be able to handle.

Most patients are going to receive 12 weeks of treatment. Patients with HIV, I have only very rarely provided eight weeks. And if somebody wants to ask me a question about that at the end, I'm happy to talk about it. And sometimes they do 24 weeks, but most people get 12 weeks. Most patients only are going to receive one pill once a day, which is a remarkable, given where we've come from.

And all patient groups have a greater than 90% cure rate. Many of them are closer to 95 and higher cure, and that includes people with HIV coinfection, all genotypes, and liver failure. So when you think about treating people for hepatitis C who had HIV coinfection, most people are candidates for hepatitis C treatment with the proper support.

Now I've got somebody coming in to see me today in clinic who for years all over his chart is not a treatment candidate, not a treatment candidate because he just has so many other competing issues. This particular gentlemen, we see once a week. We will see him once a week for the 12 weeks, and we actually have a VNA every day to make sure he takes is Harvoni, along with his other medications.

I've treated lots and lots of people. This is the only person I've had to do that level of support. But it's an example that there is almost nobody who's not a treatment candidate with the proper support. Most of our patients in the United States are going to have genotype 1 infection. So if you want to get any familiarity with the different treatment regimens, focus on the ones for the genotype 1 type of infection.

I've mentioned before. Treatment choices are likely going to depend on insurance coverage. Personally, I find that if somebody has HIV coinfection, I tend to have a little bit more flexibility in terms of appealing some of those restrictions. Interestingly, the vast majority of care people with HIV need when you're treating their hepatitis C is actually the same as what we do with people with hepatitis C mono infections-- just plain hepatitis C alone.

And so if you look at the guidelines, such as hcvguidelines.org, whatever they're recommending for hepatitis C is almost always true for HIV hepatitis C coinifections. The big difference is the drug interactions. I'm giving you a couple of case studies to show you that because it's probably the biggest challenge we have when treating hepatitis C in people living with HIV.

But all of the skills you've honed to help take good care of people living with HIV are going to be important and utilized when you're taking care of the hepatitis C. So the readiness assessment, addressing substance use, and substance use itself does not preclude treatment. You can treat people who have active substance use, but you need to make sure that it doesn't interfere with the adherence, and this, as you know, requires a lot of support and counseling. People may have psychiatric co-morbidity, unstable housing, inadequate insurance, need help applying for different support, obviously adherence support, and case management. Keep in mind, if you

also take care of hep-C mono infected patients, you can't Ryan White funding for those patients.

So when I am thinking about treating hepatitis C in a patient with HIV coinfection, the first thing I do is identify the hepatitis C regiment I want to use. And then I am simultaneously figuring out what their insurance plan will cover and then trying to figure out whether there's a match or whether I need to switch things around or appeal. So that's one bullet that actually has a lot sort of packed into it. But you're identifying what regimen you want to treat them with.

And once you are pretty sure you know what regimen you're going to use, you going to determine any drug interactions with their current HIV regimen. Sometimes you need to switch to a compatible HIV regimen. And the key there is making sure that that patient really understands what that switch is. I've had a few patients get confused, and then they mess up their HIV care while you're trying to start them on the hepatitis C care. So that needs to be done very carefully.

I tend to wait about three or four weeks just to make sure that that new HIV regimen doesn't have any side effects that we didn't expect. Make sure, in somebody who I'm a little bit uncertain about their adherence, that their HIV viral load is still undetectable before I start the hepatitis C treatment. And then, keeping in mind, once you start the hepatitis C treatment, if you did need to switch, you need to monitor that HIV regimen just like you would with anybody else that you started on a new regiment, monitoring both the HIV and hepatitis C safety and viral suppression. And then sometimes, when somebody's completed their hepatitis C treatment, they want to go back to their original HIV regimen. And that's fine. And that's a conversation I'll have with people.

So I'm going to show you a couple of examples from my own clinic. The first one is a gentleman who was coinfected, who had genotype 3 infection. That's about 10% of our total population. Remember I said most people are going to have the genotype 1 type, about 70%? Unfortunately, when you look at the youth epidemic of hepatitis C in many states in this country, for whatever reason, genotype 3 is much more common. When I look at new infections in our young people in Massachusetts, half of them are genotype 3. So we may be seeing more genotype 3 in the future. But the last I saw was about 10%.

And this is somebody who was offered the pegylated interferon, the shots of interferon of ribavirin there in the past. He had heard about the side effects. He's a small business owner. He has to make money or he can't pay his rent. He did not want to take that. He's had HIV for a very long time, and he was on a complicated regimen. He was on a abacavir, lopinavir ritonavir or Kaletra, etravirine, raltegravir.

And for the genotype 3 infection, his insurance company wanted us to use sofosbuvir plus daclatasvir. So since the daclatasvir had drug interactions with many of those particular medicines. So we had to figure out if we could change his HIV regimen. For this particular person who had HIV for about 25 years, we had to dig up-- he went way beyond previous to the

electronic record. So we had to go back into the archives and bring up, probably 10 volumes of paper medical records to go through the reasons for every single medication change to figure out whether he had resistance.

And we finally determined that most of his switches were actually for adverse effects, and we switched him to a regimen of Triumeq and rilpivirine. I just want to note, after all these very complicated twice a day regimens, this is a two pill once a day regimen. Now, he did not like this regimen initially. He had nausea. He felt tired. He was not happy with it. So if you would just try to switch him because you want to simplify his regimen, you would have had a big fight. But he knew he needed to work through the side effects because that regimen, the Triumeq and rilpivirine was compatible with the sofosbuvir daclatasvir, if that makes sense. His HIV remained suppressed the whole time. He took 12 weeks of sofosbuvir daclatasvir. Well, he tolerated that regimen fantastic, and he's now cured.

So this is a gentleman who has genotype type 1, hepatitis C infection with HIV. And he also has liver failure with that confusion, the hepatic encephalopathy. On the scoring system, he was a child B. He was on a regimen that he should not have been on as somebody with liver failure. He was on-- the Tenofovir FTC he was on was fine, but he should not have been on a boosted protease inhibitor regimen.

And so, we needed to switch him both because of the hepatitis C treatment that he was on, but also to get him on a safer regimen with his liver failure. If we switched into to Tenofovir FTC, that should be an F, not a T. And that of course Travatan and raltegravir. And we started him on a sofosbuvir ledipasvir containing regimen, that's Harvino with low doses of ribavirin. I will tell you, the ribarivin was difficult to titrate up He had a lot of side effects. We saw him every week, but we managed to get him through. And we saw him improve clinically. His labs improved. His mental status improved. He was able to stop the medicines he was taking for taking for the hepatatic encephalopathy, and he was cured of his hepatitis C. And I'm wondering if some of the effects that we were seeing were actually from an inappropriate HIV medicine that hadn't been recognized-- and then the other part just curing his hepatitis C.

OK, so this is a woman who has HIV and the common hepatitis C genotype 1a. who had a very high hepatitis C viral load-- 99 million. And she also had chronic kidney disease on haemodialysis. So this is a complicated patient. And then she developed a little bit rare complication of the hepatitis C-- a skin disease called prophyria cutanea tarda, where you get these big blisters it's a terrible, terrible complication. We had to treat her hepatitis C.

Now she was on a complicated HIV regimen and partly this is because of some previous resistance and partly because of her haemodialysis. She was on AZT, 3TC, boosted Darunavir, which is Prezista, and Raltegravir. And she was not suppressed. We did a resistance test that showed that we had some other options for her. And we felt that a lot of the reason she had a high HIV viral load was because she was having adherence problems, especially in the days around haemodialysis, which is like three days a week. But remember I said she had that complication of the hepatitis C, the prophyria, we needed to treat her hepatitis C.

And we needed to use elbasvir/grazoprevir-- that's what we call Zepatier-- because of her kidney disease. So we switched her to AZT/3TC/Dolutegravir, which was a much simpler regimen. And she actually dropped her viral load quickly to 100. Normally, I would wait until somebody was fully suppressed from the HIV before starting hepatitis C treatment. She was a special case. We went ahead and started her on her hepatitis C treatment. And at week 4, both the HIV and the hepatitis C viral loads were undetectable, and she got cured of her hepatitis C.

A common referral we used to give before we just started throwing a fit about this was people sent to our clinic, are IV clinic from a gastroenterology. Oh, and the referral was, we changed the HIV regimen so we could treat her hepatitis C. I want to remind you. If you're good at HIV care, you can do hepatitis C care.

So one of the questions that we need to answer with what seems like a fairly straightforward referral-- what hepatitis C regimen is desired? What's the anti-viral history? You're going to switch the meds just like any other switch. Did they fail to produce regimens? Why? Was there resistance, tolerance? Adverse effects? Co-morbidities? How long should we give the new regimen before starting the hepatitis C regimen? Are we sure that insurance covers that desired hepatitis C regimen and the HIV regimen because don't want to start them switching to a new HIV regimen and then find out that it's not compatible with the hepatitis C regimen the insurance company is willing to pay.

And I had one patient I had to switch the HIV regimen twice because of that problem. And that poor man was utterly confused. You really don't want to do that if possible. If there is an insurance problem, who's going to write the appeal to maintain that compatible combination of regimen? Who's going to monitor for tolerability and maintenance of both HIV suppression and hepatitis C suppression when you're treating hepatitis C? So just a simple question of changing to the HIV meds is a whole, very complicated analysis that anybody who's good at HIV could do. I'm going to argue, once you've done all of that, just going on to hepatitis C treatment is a very easy addition.

Now, another thing we have to talk about with patients when they're being treated is how to decrease the risk of reinfection. This was, again, a meta-analysis looking at various groups of people and their risk of reinfection after being treated for hepatitis C. And you can see in people who inject drugs and prisoners-- and I think that prisoner group also has people who inject drugs-- the reinfection rate in the average follow-up of five years with about 8%. In HIV coinfected patients, in many of these studies for men who have sex with other men, it was almost one out of four patients. And that is a problem.

This is a lot of insurance companies that balk at reallowing retreatment when people get reinfected. So let's think about treating hepatitis C in people who inject drugs. One thing I'd point out is we have to treat folks both for their own health-- it's the right thing to do-- and to reduce hepatitis C transmission. Some people will get reinfected. If you're trying to also reduce transmission, if nobody gets reinfected, then we haven't been treating the right patients to reduce transmission. It's the people who are at the highest risk for transmitting hepatitis C that

are also at the highest risk for getting reinfected. So we do need to tolerate some degree of reinfection. And this is something that you need to talk about maybe with a hospital administration, insurance companies in your state, and other policy people.

And this treatment needs to be in the setting of other harm reduction inventions, like needle change or be it substitution therapy, and other counseling. Where we have a real challenge is we lack data on effective strategies to reduce hepatitis C reinfection in men who have sex with other men who have HIV infection. Again, it's the same principle. You do need to understand that some people will get reinfected.

Interestingly, if you just treat a very small number of people and they then go out into a group of people who have a high rate of infection, you dramatically increase the risk of reinfection. And I'll just talk a little bit about some of the work being done to try to address that problem. The most important thing is to counsel on barrier protection and counsel on specific sexual activities that may involve small amounts of blood. And recently hepatitis C virus has been found in rectal fluid. So we know that unprotected anal sex is a particularly high risk sexual behavior and then also counseling that stimulants increase higher risk sexual behavior and may involve injection practices as well.

So this is the work done by Dr. Shruti Mehta at Johns Hopkins. And there's some other folks that are similar work, but it's a very complicated mathematical model. But it boils down to bring your friend. They do this network analysis that shows that, if you treat clusters of people, you're much more likely to eliminate hepatitis C than if you just treat sporadically one here, one there.

It's a little bit hard to understand how to translate this in clinical practice. But what I do is, if I've got a person who injects drugs, I'll say, you need to at least bring in your partner if it's both a woman, her boyfriend, or vice versa, or maybe there is a particular sharing partner that they are often using with because you know they're going to share again. If it's a man who has sex with other men, their primary sexual partner or partners, have them come in, get tested, have everyone treated simultaneously.

I've had several groups of people who are undergoing treatment right now using this model. I've talked about a bunch of these things, and I see am running out of time. So there's a couple of things that I didn't make clear before that I am going to say, which is, if you have a patient who's antibody positive but they cleared their hepatitis C either spontaneously-- that happens about 50% of time in people with HIV-- or through treatment, which is more common, then if they are at risk for reinfection, either through sexual transmission or injection drug use, you can't use an antibody test to rescreen them because their antibody's always going to be positive. You actually need to do is serial viral load testing. And I counsel patients that that's what they need to make sure is being done.

And we need to continue ongoing harm reduction efforts after we successfully treat people to make sure that they reduce the risk of reinfection. I talk about this increased risk of cirrhosis,

liver cancer, liver failure. Hepatitis-C must be taken seriously in everybody with HIV who's coinfected. There is no reason to diagnose, treat, and cure every patient who's coinfected. It's not a 100%. You'll occasionally have people who will do everything they were supposed to. They did great with their treatment, but then the virus came back. And those people just need to be retreated. And usually insurance companies, if you have good documentation that they did what they were supposed to do, will cover retreatment.

And patients need support in order to successfully start and complete treatment. Those barriers to cure are similar for HIV. But keep in mind, this isn't a life-long thing. Most interventions you're going to be doing with patients are going to last 12 weeks on average. And here are some nice online resources-- the hepatitis C guidelines, like I said. That gives you all sorts of information about current state of the art recommendations. Patient advocates who are actually on the guidelines committee-- and so I think there's a lot there for all sorts of providers that are helping take care of these clients.

The Drug-Drug Interactions-- this is a great website. This is probably the biggest challenge our patients with HIV coinfection have. And then the HCV learning modules by the University of Washington have something for everybody. So that is it. So why don't we open this up for questions? And if there's been any typed in, I can go ahead and take those. Otherwise, Steve, I guess, I'll look for your guidance.

STEVE LUCKABAUGH: OK, we have a few moments here to take some questions. If you have a question, please enter it in the questions pane on go to webinar toolbar. We did not have any that came in during the presentation. But if anyone has any, please enter them now. We covered a lot of material. I'm sure there's got to be some out there.

CAMILLA GRAHAM: Oh, no. There has to be questions. If you don't ask questions, I'm going to ask my own questions.

STEVE LUCKABAUGH: Yeah, I'm not seeing anything.

CAMILLA GRAHAM: Mmkay, so now I'm going to say something else then for those that are still on the line. So remember I said in the beginning, there's a lot of misconceptions out there. And I think this is probably one of the biggest barriers to people getting care is the misconceptions or the belief that they have from just the community. So one is people who have talked to friends and family who have been on interferon-containing regimens and has given them horror stories of how hard it is to be on interferon. And they're like, there is no way I can do that. I'm not even going to talk to a hepatitis C doctor because I don't want that.

And keep in mind, there are a lot of general primary care doctors who don't keep up with the latest on hepatitis C because they've got 50 million other things they're trying to keep up with. And they may not know how transformative hepatitis C treatment is now that it's one pill once a day and, for most patients, it's extremely well tolerated. And so, the first thing to make sure

people know is nobody gets interferon anymore. Those shots are gone. They're history. You're taking pills of medicines.

Another fear is that certain groups don't respond well. So a lot of folks with HIV-- remember the days when patients with HIV coinfection didn't have a very high cure rate with treatment. These days, it's well over 90%. I've only had one patient with HIV hepatitis C coinfection not get cured with their first regimen. They ended up getting re-treated with a stronger regiment, and now they're cured. And so I have a 100% cure rate in my coinfected patients. And that's fairly common when you provide appropriate support.

And this is also true-- a lot of African-Americans remember previous interferon-based regimens where the treatment cure rates were substantially lower. And as you may know, that's because of some genetic differences. But cure rates in African-Americans are basically the exact same as in Caucasians now. And there's no liver biopsy any more. And especially for coinfected patients, many people you can figure out a way to get them medicines, either through appeals to their insurance company or applying for free care patient assistance programs with the drug companies.

It can take a little bit of extra effort. That's why having either a case manager or a pharmacy assistant that can they can help with that is a real big help. But just about everybody, especially with HIV coinfection, you can figure out a way to get them on treatment

STEVE LUCKABAUGH: OK, a question. I'm curious to know what further information you can provide about being infected with HCV from a trip to the barbershop. I had a client say he contracted HCV from his barber, and it freaked everyone out. Does Barbicide kill HCV?

CAMILLA GRAHAM: Yeah, so I'll back up and I'll tell you about Italy. So Italy has a shockingly high rate of hepatitis C. And people were trying to figure out, what is happening in Italy that all these people have hepatitis C. And it was felt that there was a lot of beauty or personal grooming things that people did. People would often go to barber shops where they used the long blade to get a close shave, woman underwent eyebrows plucking treatments, the manicures and pedicures. If you have a procedure like that with inadequately sterilized equipment, you absolutely can transmit hepatitis C, which is why I tell people, if you have hepatitis C, you need to get your own personal grooming kit-- your hair clippers and nail clippers and scissors and toothbrushes and razors that stays in your kit and nobody touches your kit.

Now, a barber should be using solutions that kill viruses. And hepatitis C can be killed by a barber style solution if equipment is completely submerged for a certain amount of time. But if it's just a quick dunk in there and that liquid doesn't get all in between the crevices, yes, hepatitis C could hide in those spaces. And so is it impossible that this person could have gotten hepatitis C from a barber? It's not impossible, but they would have had to really violate a number of accepted universal precautions that every service provider should be following at this point.

So another thing is unregulated tattoos. And so a good tattoo parlor that's licensed is going to have the appropriate mechanisms so there's no risk or either HIV or hepatitis C transmission. But if it's a home tattoo, if it's a tattoo party, or importantly people who get tattoos in correction, that's all bets are off. That's one scenario where you could really have a lot of transmission.

STEVE LUCKABAUGH: OK, and how important is the one-year follow up for clients who have been cured? I'm having a hard time getting clients to return for follow up blood work and check in.

CAMILLA GRAHAM: So it depends on what you mean by the follow up. If the follow up is somebody had a negative viral load 12 weeks after completing their treatment-- that's called that SVR 12 time point-- that's really important. And actually I have trouble getting patients in for that SVR 12 point because they're done with treatment, they're kind of done with me. They want to just move on with the rest of their lives. And you're like, no, no, no. You've got to come back in.

It's important to be able to document in your clinic how successful you are. And if you've got patients that aren't cured, you need to go back to your practices to figure out what you could do differently. But for people who are in groups where the amount of clinical data showing that that 12 week viral load is highly correlated with being cured forever, whether it's less data-- and I think HIV coinfection, there is less data. I do try to get them back at 24 weeks. So they get a viral load at 12 weeks after stopping treatment, and then one more at 24 weeks after stopping treatment.

If they're negative then, then they are not going to have that virus come back unless they get reinfected. So then I try to put them on a once a year viral load check just to make sure they didn't get reinfected, especially if they have ongoing risk factors for reinfection. Now, if there's cirrhotic-- and I find HIV hep-C patients who haven't been evaluated to see if they have cirrhosis. That's not OK. That's a big gap in care. So everybody needs to be evaluated to decide, do you have cirrhosis or not.

And then the cirrhotic patients need their own separate monitoring pathway where they're getting those liver ultrasounds every six months to make sure that they don't have liver cancer, where they're getting the vaccines, and the ongoing counseling on medication use and everything in monitoring for signs of liver failure like you would with any patient with cirrhosis regardless of the cause. And just because somebody has HIV doesn't mean that they don't deserve appropriate ongoing care for their cirrhosis. So hopefully, with those two examples, I covered what you were asking.

STEVE LUCKABAUGH: OK, thank you. And what are some ways that you can encourage patients to allow for HCV screenings, particularly from coinfected populations? Many people are already depressed, saddened by one infection. Learning there's a second is often a hard selling point.

CAMILLA GRAHAM: Well, learning that you've got liver cancer because you didn't get screened is also tough. I think you need to be really clear in your mind that, when you find hepatitis C, you're finding out something really important and you're going to be able to help that person stay healthier, stay alive, better than if they didn't find out that they had hepatitis C until it was too late. And unfortunately, that's the risk that you have.

And so I actually-- I don't think I've ever had someone refuse a hepatitis C test. I say there's a whole panel of tests that I'm going to be running to just see if you have any other things that need to be addressed to keep you as healthy as possible-- so maybe looking for hepatitis-B, for hepatitis C, for hepatitis-A, vaccinate if you don't have these, for syphilis for GC- gonorrhea and chlamydia. What else do I routinely test for? Like cholesterol for heart disease, kidney, liver in general.

And so I put it within the context because there's nothing particularly special about hepatitis C. It's one of many things that can make someone's quality of life and life span shorter who's living with HIV. So I test them for a whole bunch of things, provide appropriate counseling. And especially if you've got systems set up in your clinic to help make sure that everyone who is found to have hepatitis C is evaluated appropriately and gets on treatment for the hepatitis C, then they're happy that it was found and they go and they tell their friends, hey, go get tested for hepatitis C. And if you've got hepatitis C, it's OK. Go to this clinic. They take great care of you.

STEVE LUCKABAUGH: All right, thank you. And that's all the questions I have for now. So did you have any closing thoughts before we wrap it up here?

CAMILLA GRAHAM: Our patients deserve care of their hepatitis C. And I find that this is a group that really, really needs our advocacy. And so if you can advocate for these folks, you can potentially save their lives. It's part of good HIV care. And curing people is actually incredibly satisfying professionally. And I wish you luck.

STEVE LUCKABAUGH: All right. And thank you for participating in today's webinar. We hope you were able to find the information provided useful as continue your P4C project. Take care, everybody. And we'll see you next time.