Clinical Education Initiative
Support@ceitraining.org

# ECHO: HEPATITIS C AND INJECTION DRUG USE

Benjamin J. Eckhardt, MD

6/28/2023

**ECHO: Hepatitis C and Injection Drug Use**

**[video transcript]**

00:08
Dr. Benjamin Eckert who received his medical degree from the Albert Einstein College of Medicine and completed his residency in internal medicine at NYU. After finishing residency, he worked in Rwanda for partners. With a clinical appointment at Brigham Women's Hospital. He returned to New York to complete his fellowship training in infectious diseases at Weill Cornell Medical College. Welcome currently receiving an MS and clinical epidemiology and health services research. He joined the faculty at NYU Bellevue in 2016 with a clinical focus in HIV and Hepatitis management. Ben's research focuses on models of care to improve health outcomes among people who inject drugs. And his current work includes evaluating low threshold Hepatitis C treatment models, specifically geared towards marginalized people who inject drugs, and understanding the injection risk behaviors associated with severe bacterial infections and improving their long term, long term clinical, including infection and substance use disorder and other injection behavior outcomes. Over to you, Ben.

01:14
Great, thank you, Lauren. So I'm going to definitely keep us on track. And just upfront, I may skip through some of the sort of research studies slides quickly without delving too much into the methods on purpose just to kind of keep us on time. But just a bit of a disclosure, I have in the past received research grant support from Gilead I don't currently but just in case that comes up in terms of our learning objective. So we're gonna spend a little time reviewing the epidemiology and Hepatitis C, among people who inject drugs, sort of discuss the importance of treating this population, in particular, touch a little bit on some strategies and models of care. And then sort of new, I guess, this time around giving the presentation, some sort of caveats, or some sort of personal sort of practice stylistic things that I think are important when dealing specifically with with this patient population. So without dwelling further, so Hepatitis C, obviously, disproportionately infects people like that drugs. injection drug use is obviously a major risk factor for Hepatitis C. And of, you know, at least 72% of newly diagnosed cases of Hepatitis C in New York State, have are in people that have a history of injection drug use, and that number is actually even higher. For those that are diagnosed at the age of under 87. You can see here, sort of historically, when, at least when I was in medical school, we were always taught that that Hepatitis C was sort of concentrated in the baby baby boomer population. So that sort of the figure on the left 2011 was the age distribution of Hepatitis, some cases in New York City. Again, the birth cohort being 1945 to 1965. That sort of dramatically changed over the last 10 years. Some of that has to do with the fact that we're treating a good number of individuals for Hepatitis C, so we're lowering the prevalence in the baby boomer population. But it's also a result of the growing incidence and subsequent prevalence of Hepatitis C in younger individuals, specifically younger people who have who inject drugs. And that obviously, mirrors a lot of the numbers that we're seeing in terms of just the opioid use. When we, you know, look a little bit closer at age distribution, you can see that case rates were highest in both males and females aged 25 to 30. And it is important to sort of note and I think Mount Sinai generals really

focused on it's been 60% of female cases occurred in women of childbearing age. So I think treatment of women screening of pregnant women as well. Hepatitis C, there's been a real push to try and eliminate it as a public health threat. So I believe it's 2016 or 2017. The World Health Organization, basically set a target to eliminate Hepatitis C by 2030. There are about 10 to 15 countries that are on track to eliminate Hepatitis C, to sort of eliminate it as a public health threat. The goal was to not necessarily it's different than eradication, obviously. But the target was basically to diagnose 90% of cases and treat 80% of those cases, where we would see a small reduction in March. halted by about 60%. United States and other jurisdictions including New York State and New York City have set similar targets, we're unlikely to reach those targets, for various reasons that I'm not going to delve totally into in this presentation. But you know, sort of mirroring the World Health Organization's full of prevention treatment patients, by 2030. But really have played to see elimination, if we think about it is not feasible without engaging and treating people who inject drugs. 30% of all Hepatitis C infections in North America are among people, not who has had a history of injection drug use, but are actually recent injection drug users. So really this patient if we want to eliminate if we want to reach those targets, needs to be treated. And this is sort of a figure from 2017. Data is a little bit better now. But this gives you an idea that people who inject drugs are not getting, or we're not getting cured of their Hepatitis C. So this is, you know, typical graph that we look at in the Hepatitis C world in terms of the care cascade. So of those that are sort of Hepatitis C antibody, can we confirm, you know, what percentage or how many 1000s are confirmed or a positive, and then going down to the fraction, they're actually cured of their infection, we need to basically really increase this puree we're going to see in this population, we have a lot of the tools. Alright, so why talk about nibble elimination, we, we have the prevention strategies. We could do better in the diagnostics, which I'm not going to touch much on, but we have, most importantly, effective care and treatment. So we start talking about prevention strategies. I think it's, you know, important, a lot of you, I think, on the call historically are in the addiction medicine realm. But obviously, harm reduction, which includes needle syringe programs, and also opioid agonist therapy, they play a key role in the prevention of Hepatitis C, we look at sort of some of the studies. This is basically a relative risk reduction study on the left sort of meta analysis that shows that opioid agonist therapy reduces the risk of Hepatitis C by about half. But it's not equal. So if we do a subgroup analysis in the same study, opioid agonist therapy in locations with high coverage of syringe service programs resulted actually in a 71% reduction. So the combination of these two services, obviously, appears to be much more important. If you have just low syringe service program coverage, the risk reduction from opioid agonist therapy is much, much less robust. Again, not going to die, delve into this, but we do have testing, right. So there's been a movement for expansion of screening for reflex testing. There is a need for point of care RNA testing, it exists in much of the rest of the world, but the company that manufactures it doesn't want to get FDA approval. But the Biden administration has actually put a lot of funding to get other companies to try and get the point of care RNA testing. And that really has to do with this drop off here. Right. So we have, you know, a lot of people that get antibody testing, but we still need to get them confirmed. And, you know, not everyone with positive antibody is going to have infections. But we also have a big drop off of those that actually jump contested. But really, the main reason why we're even talking about elimination is treatment. Right? So now we have basically cure of greater than 95% with one pill or three pills a day for two to three months, very few or no side effects. Where we've come in terms of

curates, this is just sort of putting things on a timeline. And it really all started in 2014 when sofosbuvir, vier came onto the market, and we sort of continued in that trajectory since but you can see in the pegylated interferon era, our cure rates were were much worse. And side effects were much worse. Elimination really was not possible. But there's significant significant barriers to treating people who inject drugs. Some of them are at the patient level. I think a lot of Have you know Hepatitis C is oftentimes asymptomatic. A lot of these individuals have competing priorities, unstable housing, chaotic lifestyles, potentially difficulty, if you're into regular appointments, things like that. But some of the barriers are on the provider level reluctance to engage these patients fear of free infection or, you know, feeling that the cost is of this medication is too much for for the for the investment. And then on the system level as well. You know, I think a lot of our health care is still based in hospital, hospitals, clinics, hospital clinics are not places that a lot of people who inject drugs like too frequently, especially for outpatient care, and insurance restrictions sort of fall into this category. We've been dealing with them over the last decade or so to try and overcome some of those restrictions. However, now, a lot of those insurance restrictions, at least for patients with Medicaid, in New York State are gone, which makes it so much easier to treat.

11:05
When we start looking at about curates, so, you know, I think the initial concern in this patient population is that cure rates in people who inject drugs, were not going to be as high as cure rates that we're seeing in the general population. And that's just not true. This is a meta analysis, looking at multiple studies in people who inject drugs. And the cure rates we can see are similar to the 90% that we see in the general population, proving that they're really not that much different. One of the other concerns is okay, we're going to cure them, but they're going to get reinfected. Now, reinfection does occur. But is it really a justification to not treat them individual? And I think my argument is, I can't think of another infectious disease, that treatment is available that we've decided that it's not worth treating people for. And if we actually look at reinfection rates, I think this is an important concept to think about, yes, reinfection is going to occur. But this is a modeling study that basically looks at reinfection rates or reinfection numbers depending on how much you're actually treating. So if you treat 10% of the population a year, you're actually going to have a much higher initial B infection rate in the first couple of years. And then it almost goes to zero, because you are eventually going to eliminate Hepatitis C, if we go slow, like a lot of places in the United States have done treat one to maybe 4% of the population. You can see we're nowhere near apex of this infection rates and in fact, treating 4% You're approaching reinfection rates that mimic those much more aggressive treatment strategies. And that's because treatment works as prevention. You know, a lot of this concept is we steal from HIV or at least I steal from HIV, you know, HIV, the big messaging now it's you equals you. undetectable means you can't err on transmittable Well, the same concept holds true for Hepatitis C, if we can get these people undetectable from their Hepatitis C or otherwise known as cured, they're not going to transmit it to other people. So when when it comes to this sort of concept, one thing that I really focus on when I'm treating people who inject drugs is knowing that treatment works as prevention. Another way to prevent infection is to treat people who they are injecting with, so I really encourage people to bring in their injection partners through injection networks, and get treated together. Because even if they share deals in the future, if they share with someone who's not HCV infected, they're not going to get UCB and the

other thing I spent a lot of time doing is disgusting re infection prevention, understanding of why they got infected in the first place that focusing on on strategies to prevent that, which include, you know, participating in syringe exchange and things like that. I think a lot of people in typical healthcare settings are not forthcoming about their injection behavior. So I've started to integrate a discussion of re infection prevention pretty much with anybody, regardless of how they likely acquire their Hepatitis. Sort of I'm going to dance around a few New York City based studies because I know this is a New York State lecture. But one of the questions early on, it's the 2013 2017 study was how best to administer Hepatitis C medication. So is it better to just Um, do directly observed therapy, is there an advantage to group treatment. And so this study looked at that, you can see there's three arms in the study, individual treatment sort of left on their own group treatment, or directly observed therapy. These patients were patients that were recruited from the methadone clinic. So directly observed therapy was relatively easy to facilitate. In patients who were already kind of oftentimes getting direct lifts, or methadone therapy. And the endpoints of this study was that basically, although there was a trend for higher cure rates in the directly observed therapy group, it was not statistically significant. And in fact, all groups had cure rates that were high. And this study, although this was one of the earlier studies, another study that I'll talk about in a second, should the same fact which is basically, as much as I'm not going to tell my patients this, but I think it's important for providers to understand that HCV cure can be achieved at high rates, despite variable adherence. And if we actually want to look at some numbers, there's a larger, multi site international study called the simplify study. It was published in one of the lancet gastroenterology journals, but this particular adherence data was published in the International Journal of drug policy, basically, multi site study of people who had injected in the last six months given sofosbuvir, velpatasvir, or Epclusa. And they had an electronic event monitoring system. So basically a blister pack that would trigger if you actually listed the medication, our overall adherence was relatively high they took everyone in the state took about 94% of their prescribed medication. But interestingly, SVR rate did not vary based on adherence. So they broke it up with those less than or greater than 90% adherence, the SVR rate or the cure rate was 94%, for those with less than 90% adherence, and for those that had greater than 90% adherence to the SVR rate or the training was also 94%. Sort of highlighting the fact that, you know, we obviously are not going to tell our patients don't take the medications, but fear that our patients are going to miss doses fear that they're just too forgetful to do, it shouldn't really be a deciding factor, if they say they're ready, I think, in my mind there. So one of the other concepts of shifting gears that I think is important is is engagement of this population. And there's really a movement to to decrease the barriers to engagement, I think some of you who have treated Hepatitis C, in the past will recognize that sort of cascade. But know that to get people on Hepatitis C treatment, you would need to confirm the diagnosis, you would need to see a Hepatitis C provider you would need to do maybe genotype testing, fibrosis scoring, wait for those results to come as submit for a prior authorization. And, you know, that whole process often takes weeks, two weeks, sort of in the early period. And that's a delayed for getting people on treatment. So this study was a small sort of pilot study to evaluate the effectiveness of basically same day treatment, initiation or trying to model the concept of early treatment initiation for people with Hepatitis C and specifically for young people. So what happened is people who screened positive with an antibody test were enrolled in the study and randomized to a rapid treatment arm or usual care, and everyone had an RNA test, the rapid treatment arm. While we're still waiting for this RNA test on day zero saw

the doctor had all of their blood tests and were actually sent home with medication. They were told not to take the medication until they receive the call with the RNA results. And once they got that call, basically, they could start their medication. So decreasing the number of visits, decreasing the number of steps versus what we sort of described earlier, which was standard of care. Again, this is young people, many of whom don't see doctors regularly. 18 to 29 year olds were recruited about 39 of them. And the primary endpoint was the percentage of people who achieved SVR 12. Then secondary endpoint was stepped across the care continuum. And the rapid treatment arm isn't blue.

19:52

And the usual care is in the yellow. And you can see, we confirmed cure One in nine, out of the 14 of those who completed therapy, there's actually three people that are pending RNA values. This study ended during the peak of the COVID. outbreak in 2020. I'm pretty confident that at least two of those three actually short as well. So we have one patient we had who had confirm treatment failure, and the rapid treatment arm, we were only able to cure one person out of 11, and the usual care arm, and we actually had two treatment failures in that period as well. So the concept is sort of test and treat, don't wait. And I think that's actually possible. Now, you know, the prior authorization process used to be burdensome. But my experience now especially in patients with Medicaid, going through, sort of cover my meds through Medicaid, I'm getting same day approval of my medications. And there are certain patient populations, I would argue that benefit from starting in that single point of contact. So that's potentially young people, like in this study. We are doing a lot you're at Bellevue Hospital of treating patients who are going to have prolonged hospitalization. So people admitted with endocarditis, we're getting them started on treatment, while they're admitted to the hospital, or while they're admitted for a prolonged period in our psychiatric ward. There's been a big movement of treating those in incarcerated settings or community supervision. I don't think there's been enough, done in long term drug treatment programs. But I think that's a missed opportunity. And obviously, as I spoke before, about treatment is prevention populations that are at higher survival transmission, you know, the sooner we can get them on treatment, the sooner we can sort of reach that u equals u target. This concept sort of was further expanded upon on this sort of major study that happened, called the Minmatar study. Basically, how much do we actually need to know before we start somebody on treatment? And how much do we actually need to follow them? Again, these medications are not interferon, they're not early protease inhibitors, they are so well tolerated. Do we need to do all of this testing. So this was a study that was conducted 38 sites, I think, enroll about 400 participants, over 18 confirmed Hepatitis C positive, treatment naive, and it excluded just HIV coinfection. And also those would be compensated cirrhosis. Basically, everyone was given 12 weeks of sofosbuvir velpatasvir, without or Epclusa, rather. So the interesting aspects, no pretreatment genotype testing, they were given their entire course at four tablets at entry, no scheduled visits, Post Entry, no lab monitoring, they had to remote contacts at week four, just to check on their adherence to the medication. And then in week 22. And the primary outcome was sustained virologic response at least 22 weeks post treatment initiation. Oops, that didn't work. Sorry. Basically, I made a an error when making these slides, this was not supposed to be put up, but basically reading the first line 278 out of 299, who initiated treatment achieved up to 95%. Basically, 14% had some sort of adverse effect, none of which was felt to be related to the treatment is what's hidden underneath here, none of which led to

treatment, discontinuation or death. So very well tolerated. A few patients had unplanned visits during the study, period, none were related to treatment. So basically, this concept that we really don't need to follow these patients once we get them on treatment. It's not entirely true, I think it's I think we sort of still manage our patients on a case by case basis. But if it makes sense to just let them be treated, sort of without coming into visits, I think that's an acceptable strategy. And in fact, the IDSA and the AAA SLD. The current guidelines are talk about using what's called the simplify treatment strategy. And so for those Eichert looking for it, I encourage you to go to HCD guidelines.org. You can download this page, it's going to be this slide. Next slide, but it has a lot more on it than it actually is involved but basically, who's eligible for simplified treatment, it ends up being the vast majority of our cases, but you can't have cirrhosis. You can't be treatment experienced. Hepatitis, HIV and Hepatitis B, maybe we should not do that, although I could argue with that a little bit. Pregnancy, liver cancer liver transplant. Again, the majority of our patients don't fall into this category. On treatment assessment, I would argue that this actually doesn't need to happen in pre treatment, it just has to happen at the initial visit. But basically, you want to make sure they don't have cirrhosis. decompensated. Cirrhosis is oftentimes a clinical diagnosis, you don't have to wait for your cirrhosis assessment to go back. The service. This assessment, in my opinion, tells me whether they need to be followed with ultrasounds after their treatment, it doesn't change what we treat them with. Obviously, we need to do a medical medication reconciliation, we need to make sure there's no drug drug interactions. But that's about it. You know, we get some lab tests that come back, but you can start people on treatment before any of that lab tests actually come back. On treatment monitoring, well, basically, no laboratory monitoring is required for most patients, the exception being those on warfarin. And just making sure your diabetics are aware of hypoglycemia. Now, I find it beneficial sometimes in certain patients to have them come back and show that the treatment is working as motivation to keep them engaged in care. But if it's someone that doesn't come in and misses their appointment, it's not going to make it or break it. I've never stopped anyone's medication because of lab abnormalities that we see. And so we basically go treat them with Maverick, treat them with a palooza and then test for cure. And basically, we jump right to 12 weeks after treatment, we can repeat our hepatic function panel, and we can check for cure with it Hepatitis C RNA, and in many people, it can be later following the completion of therapy. So sort of two takeaways from this. I personally, regarding that last point, I really think in people who inject drugs, the ser 12, is of significant importance. So testing and document of cure is arguably more important in those at risk for reinfection. And I think it's really important for me to know if somebody's shored and got reinfected versus their treatment failed, because if they treatment failure, you go to second line therapy and if they fail, second line therapy, third line therapy is a bit of a bear. But if it's a cure, and then a reinfection, you just retreat them again with first line therapy, and you go right through, honestly, you could go right through the simplified treatment strategy. And I think the other thing to really keep in mind when treating people who inject drugs, is that we do need to screen for the infections people are obviously at risk for infection. I think a lot of our clinical practice at least infectious disease clinic practice is not set up to follow these patients necessarily indefinitely. So as we move to primary care, treaters or addiction medicine providers treating screening for reinfection is still a very important component. And as I mentioned before, we don't have great point of care, screening for reinfection. At the moment, I would love to have better testing and syringe service programs and event locations like that. So to wrap up over the next five minutes here, DEA therapy is safe

and effective cure rates are about 90%, which is similar to the general population. I think there's a growing acceptance, in fact that Hepatitis C reinfection will occur and many including myself will argue that if you don't see reinfection, you're not treating Hepatitis C enough, and you're not treating the right population, because to really make a public health impact, to make it to achieve that sort of treatment as prevention, you're going to end up seeing cases of Hepatitis C infection. Testing diagnosis, and Linkage to Care remains significant barriers. I think that's part of why we keep coming back to a lot of these Lecture Series is because we really want to expand the treating provider pool because it's super easy as they've sort of hopefully demonstrated and it's becoming easier.

29:53
In terms of sort of strategies, I think, one size does not fit all, I think the goal from He is, you know, think about your local treatment environment and just make treatment as accessible as possible. I think many people have demonstrated really low threshold models. Van based treatment is becoming more and more popular in various jurisdictions, I think you could do it through a street medicine approach. Again, I don't think there's a significant amount of infrastructure needed, especially in the context of simplified simplification, models of care. Really, we don't need a whole lot of upfront lab testing, we don't need treatment monitoring, just get them the medication, the likelihood the temperature is 90%. Additional concepts that I think are somewhat unique for people who inject drugs, I sort of just pulling these out of the orange highlights but treatment as prevention. So again, I encourage anyone who comes in who has a relatively recent or a presumed recent history of injection drug use, to bring in other people for screening and treatment, at the same time. acknowledgement that variable adherence cures HCV, at high rates, and I think, to me, treatment readiness is was extremely important in the interferon era. For first line therapy, if the patient says they're ready to take treatment, in my mind, they're ready to shake treatment. And the likelihood is that they're going to get short because even if they miss a few doses, they're still likely to be insured. Figuring out how we can get people on treatment fast, using those limited points of contacts is going to result in better outcomes because delays really do result in loss to follow up and opportunities, harping that we really don't need to monitor these people while they're on treatment. But again, I think it is important to make sure we try and get these people into a test of cure so that they can differentiate reinfection from treatment failure. And then finally, screening for reinfection and discussions about re infection prevention. concepts that I think we need to sort of keep in mind as we follow these people post.

32:20
Perfect thanks so much again.

[End Transcript]