



#402: Silent killer: Coming to grips with an emerging epidemic of viral hepatitis

VOICEOVER

This is Up Close, the research talk show from the University of Melbourne Australia.

[Music]

ANDI HORVATH

I'm Andi Horvath. Thanks for joining us.

Cancer of the liver is becoming the fastest-growing cancer type in many parts of the world, overtaking even lung cancer. Why? The hepatitis type B and C viruses and their link to liver cancer. To give you a sense of scale, hepatitis, which simply means inflammation of the liver, was responsible for 1.34 million cancer or cirrhosis deaths in 2015 alone. Two-hundred-and-fifty-seven million people live with chronic hep B infection and another 71 million live with hep C. In fact, while the number of people with tuberculosis and HIV are falling, the numbers of those with hepatitis are going up.

There has been a growing awareness and a move to concerted action to taken on what has become in some parts of the world an epidemic. The World Health Assembly, which governs the World Health Organisation, is targeting the elimination of viral hepatitis as a health threat by 2030. So how is that meant to happen and what are its chances of success?

Our guest on Up Close is physician and epidemiologist [Associate] Professor Ben Cowie, who has been involved in public health policy around viral hepatitis in Australia and internationally. He works in communicable disease epidemiology and surveillance at the Victorian Department of Health and Human Services in Australia. Since 2015 Ben has been inaugural director of the WHO Collaborating Center for Viral Hepatitis, headquartered at the Peter Doherty Institute for Infection and Immunity.

Ben, welcome.

BEN COWIE

Thank you very much, and well done with that introduction, I must say [laughs].

ANDI HORVATH

There are five different strains of hepatitis, the A, B, C, D and E, and as my producer put it, an alphabet soup of virus strains.

BEN COWIE

Indeed.

ANDI HORVATH

Now, how do people with hepatitis typically present at the doctor's office? How would I know if I might have hepatitis?

BEN COWIE

Yeah. That's part of the trap of hepatitis, that is that there are a particular set of symptoms and signs that might lead someone to present to a doctor, particularly if they've got acute or newly-acquired hepatitis. It's very hard to distinguish based on those symptoms and signs which type of hepatitis someone may have. The things we think about are fever, abdominal pain, nausea and vomiting, and particularly jaundice, which is the signs in the skin and in the eyes of an elevated level of a protein that's produced in the liver called bilirubin.

The trap that I referred to however is that the vast majority of people living with chronic or long-term hepatitis B and hepatitis C have no specific symptoms or signs whatsoever. This is why it's been referred to as a silent disease that can be actually causing substantial illness and damage to the liver with no symptoms or signs to lead someone to present to their doctor.

ANDI HORVATH

Right. So then how do clinicians confirm the diagnosis of hepatitis? Is it as easy as a blood test?

BEN COWIE

It is as easy as a blood test. So for hepatitis B and C, which are the chronic or long-term forms of hepatitis, it is as simple as having a blood test which any GP, general practitioner I mean or a family medicine doctor, can order, and it's a simple blood test. In fact, overseas outside of Australia there are also rapid diagnostic tests that

can be used to detect hepatitis B or hepatitis C. They're not available here as yet outside research settings. But if someone goes to their doctor and expresses the desire to have a hepatitis test - we can talk about what might lead someone to do that in a moment - it is a simple blood test to tell you whether you've got the infection or, indeed, for the hepatitis B whether you're immune.

ANDI HORVATH

So what's going on in the body's liver cells with hep B and C? Is it like an HIV attack on the immune system?

BEN COWIE

It's a good analogy in that it's a chronic infection that has a particular cellular target for that infection where it causes the problems. You've pointed out HIV; that infects the lymphocytes particularly, that strain of lymphocytes, the T-helper cells, and therefore causes immune problems by knocking out those cells. Hepatitis is different from HIV in that the primary target of these infections is the liver, which is where we get the term hepatitis from, it's Latin for inflammation of the liver.

In both hepatitis B and hepatitis C it's the infection of those liver cells that results in the long-term illnesses, cirrhosis which is severe scarring of the liver and can lead to liver failure, and also liver cancer. An important part of how this happens is the immune system's action against the affected liver cells. So a lot of the damage that's occurring, a lot of that scarring and inflammation is caused by the immune system seeking to eradicate the virus from infected liver cells.

ANDI HORVATH

Most of us have heard of hep B and C as the longer-term, even lifetime infections.

BEN COWIE

Yes.

ANDI HORVATH

Now, they're the most serious ones, aren't they? So let's talk about hep B. How many people does it affect and how does it affect them?

BEN COWIE

On a global basis it's estimated that around 250 million human beings are living with chronic hepatitis B, so this is an incredibly prevalent condition. That distribution across the world is quite uneven. Some areas more than 10 percent of the population will be living with chronic hepatitis B whereas in other parts of the world less than one percent of the population have hepatitis B, so it's quite diverse.

ANDI HORVATH

This is a bloodborne disease, so how is it transmitted?

BEN COWIE

Yeah. The majority of people living with chronic or long-term hepatitis B acquired it at birth from transmission from their mother or in early life, and that's quite important, because in many contexts hepatitis B is construed or described as a bloodborne virus. Most people will think about unsafe injections, about sexually-transmitted infections. Whilst they're important sources of transmission, the vast majority of people living with chronic or long-term hep B acquired it very early in life.

ANDI HORVATH

Now, hep B has a vaccine and an antiviral treatment, doesn't it? But we'll come back to that.

BEN COWIE

Okay.

ANDI HORVATH

Now, let's also talk about hep C, which is the other well-known one.

BEN COWIE

Hepatitis C, the prevalence on a global basis is around 70 million people living with hepatitis C, so again a very, very common viral infection. Hepatitis C is similar to hep B in that these chronic infections are responsible for the vast majority of the burden of adverse outcomes, including cirrhosis or scarring of the liver and liver cancer. However, unlike hepatitis B it's uncommonly spread from mother to child at the time of birth. Far more important as sources of transmission, unsafe exposure to blood. So needles, whether that's in health care settings or through injecting drug use.

ANDI HORVATH

Okay. Now, there's no vaccine for hep C is there, but there is some?

BEN COWIE

No. A lot of work going on in that space but nothing available as yet.

ANDI HORVATH

Right. What about antivirals to help treat it, has that been developed?

BEN COWIE

They certainly have, and in fact a whole new array of antivirals have become available in recent years which make hepatitis C an eminently curable condition.

ANDI HORVATH

All right. Now let's talk about the rest of the soup. There's also hepatitis D?

BEN COWIE

Yes.

ANDI HORVATH

Where does that happen?

BEN COWIE

Hepatitis D, I guess on a biological basis is quite interesting in that it can only infect someone who's already living with hepatitis B. It can't actually establish infection in people unless they've already got hepatitis B. That's why we term it a satellite virus. In some areas where there's lots of hep B, there's also lots of hepatitis D, but in other areas very, very little. It's quite diverse, even within those populations where hepatitis B is prevalent.

ANDI HORVATH

Okay. Now, when I travel I get an injection for hepatitis. Which hepatitis am I getting an injection for?

BEN COWIE

Most likely that's hepatitis A. Now, hepatitis A is spread through contaminated food and water, and that's the one we commonly associate with a travel-related infection, but on a global basis clearly hepatitis A affects a very significant proportion of the human population. Different from B and C, however, there is no chronic or long-term infection, and once you've had hepatitis A you're immune for the rest of your life.

ANDI HORVATH

Right. Now, there's one more left, hep E. What's that one?

BEN COWIE

Yes, indeed. Similar to hepatitis A, it's spread through contaminated food and water. It tends to be more so an infection of adults rather than for children. In many endemic

areas, although this is changing under the influence of increased access to safe water and sanitation, and in some regards, vaccination, hep A was always a condition in endemic areas that mainly infected children, and by the time someone was 10 years old the vast majority of those children had been exposed, often asymptotically in childhood, and were immune.

Hep E, there have been some very notable large outbreaks of hepatitis E in history and they've often been associated with contamination of water sources on a large scale. One of the other notable things about hep E is that although in most cases it's a relatively self-limiting infection, it doesn't cause any serious illness for the majority of people, if someone is affected during pregnancy, particularly a woman infected during the third trimester of pregnancy, it can be very serious both for the woman and for her unborn child, and so that's a particular public health issue with hepatitis E.

ANDI HORVATH

Right. Is there a vaccine for that one?

BEN COWIE

A vaccine has been developed but it's only licensed in China and so it's only routinely available in China.

ANDI HORVATH

I'm Andi Horvath. In this episode of Up Close we're joined by infectious diseases expert Professor Ben Cowie, and we're talking about the impact of viral hepatitis and plans to eliminate it as a public health risk.

Ben, what's it like to live with chronic or lifetime hepatitis?

BEN COWIE

I obviously can't speak on behalf of people living with chronic viral hepatitis but there's obviously the medical and the health side but perhaps even more prominently is the stigma and discrimination that can be associated for living with a chronic viral infection such as hepatitis B or hepatitis C.

Some of those stories of stigma also included in health care settings, which is clearly utterly unacceptable but still occurs today in terms of people feeling stigmatised. Horror stories such as in waiting rooms at medical or dental clinics having a member of staff such as a receptionist calling out to someone across the way saying oh, be careful of this one, they've got hep C in front of other patients which is clearly not only unethical and immoral but illegal.

So from that right through to intrafamilial discrimination. What I mean by that is that

someone who's been given a diagnosis of hepatitis B either of their own accord or by their family members being ostracised from things such as family meals, from even living in the same house. Now, that's devastating. Hepatitis B in particular has been described as family business because it does tend to pass from mother to child, it tends to be within the family and also causes illness within the family.

Often when I talk to patients living with hepatitis B, they'll talk about parents or aunts, uncles, grandparents who have died of liver cancer, almost certainly from hep B, and the idea that that family unit can be disrupted by that diagnosis is devastating. Similarly, women who are diagnosed antenatally, so while they're pregnant, often have incredible and understandable degree of concern about okay, what does this mean for my baby, what does this mean for my relationship. So it's quite fraught and I think we are not doing patients or people living with viral hepatitis any favours if we purely view this from a technical or virological perspective; it's a whole-person issue.

ANDI HORVATH

That would surely thwart efforts for hep health care. So how do primary care doctors manage these people?

BEN COWIE

There's a very wide spectrum in how primary care family medicine doctors approach viral hepatitis. There are some clear champions, to the point where in the state where we're currently, Victoria in Australia, there are GPs who are setting up standalone hepatitis B or hepatitis C clinics within their practices to try and serve the needs of their patients affected by viral hepatitis. There's a whole range of general practitioners, family medicine doctors who do a great job in terms of screening their patients at risk and linking them to care.

There are unfortunately stories on the other side of the coin where people feel that the diagnostic experience left them with no information, no linkage to ongoing care and often a sense of futility about the diagnosis that there's nothing we can do about it, which for both hep B and hep C is completely inaccurate today.

The other concerning issue is when, particularly for something like hepatitis B where someone is likely to have been living with it since the time they were born, if it's a person from a high prevalence area, say 10 percent chance of having chronic hepatitis B, they've been seeing the same doctor for 10, 15, 20 years and no one's done the test and then the test is only done when someone presents with liver cancer, that's a gross failure of the health care system in delivering services to that person.

ANDI HORVATH

Let's turn our attention globally. Are there patterns where there are large clusters of people with hepatitis around the globe?

BEN COWIE

There are, and that's particularly the case for hepatitis b. There are populations in the world, there are areas where more than 10 percent of the adult population are living with chronic hepatitis B and our own region, the Western Pacific region of the World Health Organisation, has the world's greatest burden of hepatitis B and in many of those populations, such as in East and Southeast Asia, prior to the vaccination becoming available, roughly 10 percent of the population were living with chronic hepatitis B. It's also in the Pacific Islands, parts of sub-Saharan Africa and South America.

ANDI HORVATH

So these various hot spots or zones on the planet that have hepatitis, what do these places have in common that make them vulnerable? Are there patterns that are similar?

BEN COWIE

There are, and that's different for hepatitis B and hepatitis C. The greatest diversity in prevalence occurs for hepatitis B, and some people assume that that's got to do with access to vaccination, for instance, or to other aspects of the health care system and in fact it's got nothing to do with that whatsoever. Certainly, vaccination is eliminating that disparity but the reason why someone born in East Asia prior to vaccination had a 10 percent chance of having hepatitis B and someone born in Northern Europe had a less than one percent chance of having hepatitis B, all comes down to the genotype or strain of hepatitis B that is prevalent in that population.

Let me explain. There is a range of different genotypes of hepatitis B which have basically differentiated in the human population as we've migrated around the world. There's good evidence to suggest that hepatitis B actually migrated out of Africa with human beings and as we've differentiated and diversified around the world over those tens of thousands of years, so too has hepatitis B. In the areas where there's a high prevalence of hepatitis B, of the order of 10 percent of the adult population, the reason for that is that those particular genotypes are associated with there being a high viral load, so a high viral count in the blood of individuals through to their twenties and thirties.

That in turn means that pregnant women when they're giving birth are much more likely to have a lot of hepatitis B virus around when they deliver their baby and therefore for that baby to be infected. This sets up a feedback loop where in a high prevalence setting you're more likely to be infected at birth, have chronic long-term infection as a consequence, and then for women, you're then more likely when you're giving birth to pass on the infection to your children.

In contrast, in low prevalence areas where the genotypes don't have a high viral load during that peak childbearing years, you have no such feedback loop and so

therefore the prevalence doesn't amplify. This is why in some areas you have 10 percent of the population and in some areas less than one percent. It's got very, very little to do with things like health system access or relative resources in the community. What vaccination is doing is wiping out that inequity in hepatitis B prevalence on a global basis and why we need to invest more and more in birth dose inclusive infant vaccination programs on a global basis.

ANDI HORVATH

Now, you and your colleagues have been doing some work on hepatitis in Mongolia. Tell us about the situation there and your activities there.

BEN COWIE

We were fortunate enough to be invited by the Mongolian government in partnership with the World Health Organisation Western Pacific regional office and colleagues from both the Korean and the United States Centres for Disease control to go to a workshop and to run a workshop in Ulaanbaatar around viral hepatitis, specifically around laboratory capacity, so testing, access to testing and the surveillance systems, so how does the results of those tests get up to the government level to be able to plan around things such as health care access, treatment and cure.

Now, those workshops. The reason the first of those was in Mongolia was twofold. Firstly, the burden of viral hepatitis is very significant. Liver cancer is the leading cause of cancer death in Mongolia and the prevalence or the proportion of the adult population living with hepatitis B and/or hepatitis C approaches 20 percent. So it's a huge health issue for Mongolia.

The second reason was that the government is really trying to do something about it, and so the Mongolian Government has been investing their resources in what's called a healthy liver program where they're seeking to screen a significant proportion of the population in an attempt to get a handle on the viral hepatitis epidemic. In partnership with very significant uptake of vaccination for infants, the prevalence amongst young children now in Mongolia is less than one percent as a testament to that effort. They're trying to scale up treatment and care for both hepatitis B and hepatitis C in partnership with clinicians and private foundations in the country.

ANDI HORVATH

Can vaccination actually take it down to zero?

BEN COWIE

It is doing that. Let me give an example of China. Over the last 20 years or so China has scaled up their domestic vaccination program hugely, and between 1992 and 2006 when there were two large serosurveys or surveys of testing the blood of

particularly five-year-olds across China, that prevalence or the proportion of those children living with hepatitis B fell from around 10 percent in '92 to less than one percent in 2006.

The infant vaccination program in China alone, which incorporates birth dose of vaccination, so within 24 hours of birth getting a dose of hep B vaccine into the baby and then followed up with routine immunisation through the course of infancy, that has prevented in excess of 20 million chronic hep B infections just in the last 15 years and will have saved millions of future lives that would otherwise have been lost to liver cancer or cirrhosis. The scale-up of hepatitis B vaccine in our region, the Western Pacific region, is ahead of all other regions in the world and will rightly be viewed as one of the great public health achievements of the 21st century.

ANDI HORVATH

I want to go to the Australian setting. Tell us about the situation there.

BEN COWIE

Here in Australia, around two-thirds of people living with hepatitis B were either born overseas in countries in which hepatitis B is endemic or very prevalent, or are Aboriginal and Torres Strait Islander people. Just by asking those two questions, or considering those two factors, you capture about two-thirds of the risk of having hepatitis B. We've got guidelines in place for many years suggesting that everyone born overseas in those areas and all Aboriginal and Torres Strait Islander people should be offered testing for hepatitis B along with some other priority populations such as people who inject drugs or who have a history of injecting drugs, men who have sex with men and others.

For hepatitis C it's different and here in Australia the majority of people, around 80 percent or so, acquired it through injecting drug use, unsafe injecting drugs, sharing needles or kit etcetera. From a hep B perspective we estimate that a third of Australians living with chronic hepatitis B still don't know they've got it, haven't been diagnosed, and when we look at the hepatitis B cascade of care, which is a way we look at how is the health system functioning to meet the needs of people living with a chronic viral infection. These are well established for HIV, they're starting to be used for hep B and hep C as well. But when we look at that for the Australian setting, only 15 percent of the roughly 240,000 Australians living with hep B are actually receiving ongoing monitoring or care. That means 85 percent of Australians living with hep B are not receiving guideline-based care, and in a rich country with a well-functioning universal health care system, that's an unacceptable finding.

When we get to the pointy end, the proportion actually on treatment, we believe that around six-and-a-half percent of Australians living with hep B are currently receiving antiviral treatment, and we estimate that at least 15 percent need to be to prevent progression to liver cirrhosis and liver cancer. The combined impact of undertreatment of hep B and hep C, along with some other conditions, is why liver

cancer is the fastest-increasing cause of cancer death in this country and is now number six in terms of causes of cancer death. It's a substantial burden.

Unfortunately, similar results are the case when we look at other countries. We certainly know that similar lack of access to diagnosis is occurring in the United States, for instance, and the same cascade of care is a real problem there. There's been recent evidence coming out that for even people living with severe scarring of the liver who are insured, the proportion who are having surveillance for liver cancer is unacceptably low. So Australia unfortunately is not unique on either a global basis or even amongst high-income countries in terms of the lack of appropriate responses to hepatitis B.

ANDI HORVATH

Okay, lessons from the hep C approaches so far?

BEN COWIE

There's fortunately a much happier story in hepatitis C that we can relate. I think one of the real strengths in Australia is early adoption of a harm reduction approach, trying to ensure access to needle and syringe exchanges etcetera has been one of the reasons why our hepatitis C prevalence is not as great as it is in some other countries.

From a therapy or treatment point of view, on 1 March of 2016 the Australian Government funded the inclusion of a range of these new hep C drugs, the direct-acting antivirals, for universal access. Some of the critical points to this were that firstly, there were no restrictions on the basis of how much scarring, so it wasn't just for people with cirrhosis. There were minimal restrictions and those have since been further loosened around which types of doctor could prescribe these drugs. In many countries it's only infectious diseases specialists such as myself, or gastroenterologists, hepatologists who are allowed to prescribe these drugs.

In Australia, any medical practitioner is allowed to prescribe these drugs, and with the capacity to call up for some assistance should they need it from a specialist, we have seen the number of prescriptions written by doctors, more than half of those are now written by general practitioners, family medicine doctors in primary care. This is probably the one message that you've got to make it low cost, or zero cost ideally, to the patient. You've got to make accessible where they live, not just in tertiary centres that have a one-year waiting list. And thirdly, every doctor needs to be able to prescribe these drugs.

What we've seen in Australia as a result is that approximately 15 percent of the people living with hepatitis C as of 1 March of 2016 have been issued these drugs now. It's a huge upswing; more people treated than have in the history of hep C treatment prior to that. As a consequence, there are less people living with hepatitis C in this country every day. That's a fantastic outcome, with clear messages for other

countries. You can negotiate to access these drugs much more cheaply than what some countries are paying currently, you need to have it accessible to all people living with hepatitis C and able to be prescribed by any doctor or ideally, any health care worker. That's the way to get rid of hepatitis C.

ANDI HORVATH

Is public awareness part of that picture? In 2017 we lost a famous Indigenous Australian musician, Dr G. Yunupingu, and he was only aged 46, due to kidney failure. Now, hepatitis was implicated in that. Do these sorts of awareness stories help in bringing people to the clinics?

BEN COWIE

I think there's no question about that.

One of the concerns about hepatitis, both here in Australia but also on a global basis is that there has not been the same degree of partnership with affected communities as has characterised the HIV response. There has been nowhere near the same sort of investment globally in awareness raising and engagement with populations generally. A lot of people when you talk to them about hepatitis, as you mentioned at the start of this podcast, have no idea what we're really talking about or the different strains or what's going on with it. So absolutely yes, that applies not only to Aboriginal and Torres Strait Islander people here in Australia, although it's a big issue, and there is work being done in the Northern Territory, including in Dr G. Yunupingu's home communities of Galiwin'ku in the Top End of the Northern Territory.

There's been work done on developing app-based communications in local languages and engaging with local communities, particularly through the use of trained Aboriginal health workers who are extremely qualified in taking health messages to their communities and supporting their communities to access health care, right through to recent Australian government initiatives to fund community organisations to develop messages in a range of community settings with an objective of linking those people into care.

Similar stuff is happening overseas, similar programs. I know that in China, as we mentioned previously, there's been a lot of work done reducing stigma and discrimination around hepatitis B in a condition which has previously seen people lose their jobs and people take their lives because of the stigma and discrimination associated with a diagnosis of hep B. That is just unacceptable in the current day.

ANDI HORVATH

In some ways you've answered my next question, which was how does that shed light on some of the challenges in hepatitis health care. Do you want to add anything more to that?

BEN COWIE

I think one of the really major challenges is that on a global basis, the vast majority of people living with chronic viral hepatitis have not been tested and they've got no idea. At least 80 percent of people living with hep C and more than 90 percent living with hepatitis B in the world today have never been tested and don't know they've got it. Now, that's a big problem for them in terms of their ability to access health care and to make decisions around their own health, but it also means such things as vaccination of household or sexual partners or household contacts can't occur and so it facilitates ongoing transmission. That is clearly something that is in the WHO global health sector strategy for viral hepatitis with elimination objective, as you've mentioned, by 2030. People can't get access to treatment if they don't know they've got the condition in the first place, so a critical point of access is access to appropriate diagnosis and then linkage to care.

ANDI HORVATH

Infectious diseases physician and epidemiologist Ben Cowie is our guest here on Up Close and we're talking about the global burden of viral hepatitis and steps towards its elimination. I'm Andi Horvath.

Ben, can we really eliminate a virus that causes hepatitis? Won't new strains just evolve and emerge like other viruses?

BEN COWIE

That's a really excellent question and that's enough for a series of podcasts in itself. I think partly it's important to be clear about the terminology we're using here. Elimination as a public health concern is distinct from eradication. Eradication is where there are no more cases of a condition. We have so far eradicated two viruses, one was smallpox which has been eradicated from the human population, and the other one is actually an animal virus called Rinderpest which has been eliminated from animal populations. They're the only two. We're tantalisingly close to doing it for polio as well, have been for some time. There's been a huge amount of energy and resources poured into that effort by the World Health Organisation and partner organisations and member states so hopefully we're able to talk about that in the past tense in coming years as well.

The definition of elimination in this context, elimination as a public health concern, is essentially to say that what we want to see is that viral hepatitis is a manageable concern by 2030 and that is something that has had a substantial reduction in I guess the human health impact of those conditions. To get there, the definitions in the Global Health Sector Strategy is a 90 percent reduction from the 2015 baseline in new cases of hepatitis B and hepatitis C and a 65 percent reduction in the number of people dying attributable to those conditions, so that's clearly a waypoint. What we all want to see is these things gone from the human population, and that is feasible, but in the timeframe of this strategy a very aspirational but achievable waypoint is to

eliminate it as an emerging, urgent public health concern, and that's what the WHO is aiming for.

ANDI HORVATH

Now, there are still some scientific challenges though, aren't there?

BEN COWIE

That's for sure. We need a hepatitis B cure as well, clearly. We need a hepatitis C vaccine. We need potentially hepatitis B vaccines which don't require the same number of doses to achieve the same effect or there's some evidence that some strains of hep B are less well covered by the vaccine. It's still very effective but it is possible that refinements to the hepatitis B vaccine could improve its control of hepatitis B amongst infants.

ANDI HORVATH

What about coinfections with HIV? Does this complicate things in the management of hepatitis?

BEN COWIE

It does, but less than it used to. For both hepatitis B and hepatitis C there are some complicating factors. I think one of the things that makes it relatively easier in hepatitis B is some of the very drugs we used to treat HIV are very effective against hepatitis B. If someone is put on a regimen for their HIV management that includes a couple of drugs such as tenofovir or emtricitabine, they're very effective treatments against hepatitis B also. So you can simultaneously treat someone with no additional pill burden.

For hepatitis C it was particularly complicated up until recently by the fact that the predominant treatment we had available for hepatitis C was a drug called interferon. Now, interferon was a drug that stimulated the immune system to eradicate the virus. You can understand that someone living with advanced HIV-AIDS particularly, stimulating the immune system using a drug like interferon is not going to have the same sort of ability to eradicate the virus because the immune system is so impaired to start with.

Furthermore, in someone with advanced liver disease, certainly cirrhosis or severe scarring, there was the danger that by stimulating the immune system to eradicate the virus you could actually tip someone's liver over into liver failure, so it was a real danger. The new drugs we have available, the direct-acting antivirals, or DAAs, for hepatitis C act in a completely different manner by working on a variety of targets within the virus itself, and as a consequence have simplified very substantially our ability to cure hepatitis C in people who are also living with HIV.

ANDI HORVATH

Ben, is there a way of minimising harm attributed to drug use?

BEN COWIE

There is, and there's very, very good evidence that appropriately funded harm reduction programs, including access to needle and syringe exchanges, to opiate replacement therapy, and importantly, to peer-led models to encourage the safe use of injected drugs and to minimise harm, including bloodborne virus transmission such as hepatitis B and C and HIV, they're very cost effective ways of protecting the health of people who inject and doing so in a way that respects their human rights.

ANDI HORVATH

So then the bigger social and political challenges in tackling hepatitis, what are they?

BEN COWIE

In a way I think viral hepatitis, hepatitis B in particular has been a failure of the fact that we've had a vaccine for so long and the assumption was the vaccine's going to take care of it, we don't have to worry about hepatitis B, it's something that we're sorting out with vaccination. While scaling up vaccination is very important, that ignores the needs of the 250 million people already living with chronic hepatitis B. The same applies to hepatitis C.

I think there's been a real neglect relative to its importance for human health and that's something that the root causes of which can be tied to the affected communities not having a voice in many countries. So people inject drugs, we've talked about criminalisation as being a fundamental reason why people who inject drugs don't have access to political process in the same way that other groups living for instance with HIV, which has also been stigmatised and in many countries such as Australia, being predominantly amongst men who have sex with men, that again in many countries is a very stigmatised situation as well. So I don't think the battle is by any means over for HIV. I'm not trying to say that, but we have definitely lagged behind HIV in that building of a consensus between affected communities, public health authorities and clinicians around what needs to happen, and as a consequence there has been nowhere near the same investment in viral hepatitis.

We have a Global Fund for HIV, TB and malaria. In the Western Pacific region of the World Health Organisation, hepatitis B alone results in more people losing their lives every year than HIV, TB and malaria combined, but we don't have a Global Fund for hepatitis or even for hepatitis B. Those funding mechanisms, and I should say investment, really, mechanisms, investment in people's health, have excluded viral hepatitis for too long and that's something that really needs to change if we're going to be serious about addressing viral hepatitis as a public health concern.

ANDI HORVATH

Ben, I look forward to the day of interviewing you about how we overcame and eliminated hepatitis by 2030. Thank you.

BEN COWIE

I really look forward to that day as well.

ANDI HORVATH

Thank you, Ben.

BEN COWIE

No worries.

ANDI HORVATH

We've been speaking with infectious diseases physician and epidemiologist Ben Cowie about the prevention and management of hepatitis with a view to its elimination as a public health risk. Professor Cowie is Director of the WHO Collaborating Center for Viral Hepatitis, headquartered at the Peter Doherty Institute for Infection and Immunity. You'll find a full transcript and more info on this and all our episodes on the Up Close website. Up Close is a production of the University of Melbourne Australia. This episode was recorded on 17 August 2017, produced by Eric van Bommel with audio engineering by Gavin Nebauer. By the way, you might want to check out another of our podcasts, Eavesdrop on Experts, which features stories of inspiration and insight in conversation with researchers. I'm Andi Horvath. Thanks for joining us. Cheers.

[Music]

VOICEOVER

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