

SCRIPT: [LISTEN] Most people with mpox in SA have HIV, but are not on treatment

0:02 Intro

This is a Bhekisisa podcast.

0:06 Mia Malan

Welcome to this Bhekisisa podcast. My name is Mia Malan. And in this episode, we're going to look at mpox, which we heard a lot about during May and June 2024. So by June 13, we had six mpox cases in South Africa. And two of those cases had died. So I spoke to Dr Jacqueline Weyer, who is the principal medical scientist at the Centre for Emerging Zoonotic Diseases at the National Institute for Communicable Diseases. She does a lot of research around mpox and I asked her how many other people on average does one person who has mpox, infect?

0:49 Jacqueline Weyer

The rate of transmission for the monkeypox virus is quite low. The R_0 that we often speak about — that is the rate of infection — for one person, will infect one other person with the virus, but that's theoretically speaking.

1:04 Mia Malan

So does that mean in South Africa with the six cases we currently have, that there needs to be at least six other cases?

1:11 Jacqueline Weyer

Well, it's really difficult to say. What we do think is that there was a recent introduction into the country earlier this year. And that the cases we are seeing are the results of the chain of transmission which started a little bit earlier this year, but it's difficult to say, or give an exact number of cases.

1:32 Mia Malan

But it is theoretically possible that each of them would have infected another person?

1:37 Jacqueline Weyer

Yes.

1:39 Mia Malan

So can you explain to us Jackie, what does the virus do to you? How does it kill you?

1:43 Jacqueline Weyer

That's also a complicated question because by far, most cases of mpox are mild and self limiting. But what we see in people that are living with immunosuppression, or people living with other comorbidities, is that they are not tolerating the infection as well as would be the instance with any other infection. It's not that mpox is a fatal infection usually. It's because of other conditions that a negative outcome is precipitated.

2:19 Mia Malan

Now the health department has mentioned that all the cases in South Africa had immunocompromised systems. But even if you have that system, and then the virus results in death,

can you just explain what goes wrong, you know? How does it attack your cells? And is it your organs failing? Or what happens to your body? How does the virus break it?

2:40 Jacqueline Weyer

It's really different in different cases. In one of the cases, the patient also had pneumonia. So it's actually quite difficult to say that this or that caused death. It's the culmination of different factors [and is] quite complicated. So mpox, by itself, is not a lethal infection, [it's] the presence of immunosuppression and other conditions that work together to have a negative outcome.

3:09 Mia Malan

Let's put death out of the picture, Jackie. If the virus gets into your body, what happens?

3:14 Jacqueline Weyer

So it's a skin infection. The most pronounced features of the illness is the skin lesions or the rash. The disease part is a mild febrile illness, but it's really only at the point where you have the lesions, that you would consider mpox as a possible diagnosis for your disease. The lesions can be few lesions or they can be, like in our immunocompromised patients, many lesions but the lesions are usually firm and rubbery to the touch. They have a round shape and when more than one lesion is present, the lesions appear similar in size and shape.

3:54 Mia Malan

And the infection, does it happen because there's liquid in the lesions and when they open, there's a lot of virus in that liquid? Or how does the — when it's skin-to-skin contact — how does the virus get into the other person?

4:09 Jacqueline Weyer

So those blisters or lesions are filled with fluid that contains a lot of virus. The virus is also present just on the surface of the lesion. So skin-to-skin contact — in fact, for intact lesions, and skin, can also lead to transmission of the virus. If the fluid is transmitted or there's contact with like a burst blister, that can also lead to transmission. And then, when the lesions are resolving, they will develop scabs. These scabs are also filled with virus so if the scabs fall off, or you have direct contact with scabs on the person's body, that can also lead to transmission of the virus.

4:55 Mia Malan

So does that mean the period during which someone who's infected can transmit the virus to someone else, is only the period during which they have lesions? Whether those are lesions like blisters or whether they are scabs when they start healing? Or are there other periods during which they can infect people as well?

5:14 Jacqueline Weyer

So the indications are that the most infectious period is definitely when the lesions are present, and [it's not] until the lesions have completely healed — that means the scabs have fallen off and the skin is intact, [it] might be scarred but the skin is intact where the lesions were — that the risk of transmission is over. There's some indication that there might be transmission also through bodily fluids like semen, although the evidence for that is definitely not definitive yet. The virus can be detected in the respiratory tract, but at a much lower viral load than what it would be found in the skin lesions. So transmission by those routes are not really thought to be important.

6:02 Mia Malan

Jackie, can you get these lesions on your genitals as well? Or how does it work?

6:07 Jacqueline Weyer

So, in mild cases, the lesions can be very localised if the transmission event was due to sexual exposure. We often find that those lesions are limited to the genitalia, yes.

6:24 Mia Malan

And a very common mode of transmission is during sex of the monkeypox virus. But I see there's also a lot of debate on it that some scientists feel you shouldn't label it as a sexually transmitted infection as such. Can you just explain how does transmission during sex work? And is it a sexually transmitted infection or not?

6:46 Jacqueline Weyer

Yes, so that's a tricky discussion based on definitions and which definitions you accept. By convention, a sexually transmitted disease would be a disease that's transmitted through the exchange of bodily fluids. So with mpox, it's actually the skin-to-skin contact during the sexual encounter which is mostly associated with transmission of the virus. So, some purists will debate that it's not a sexually transmitted disease, but let's call it a virus that can be transmitted during sexual interaction.

7:23 Mia Malan

So it's not the [same as] for instance, in the case of HIV, it's not that it's contained in, say, semen. It is more of a case that, because when you have sex, there is a lot of skin-on-skin contact that it's then just easier to get it.

7:36 Jacqueline Weyer

That's our current understanding. The virus has been detected in semen. Live virus has not been detected in semen yet. So, the evidence is not there to indicate that the virus is actually transmitted through semen, or, for example, through vaginal fluids but through skin-to-skin contact, which has been implied during person-to-person sexual encounters.

8:01 Mia Malan

In South Africa so far, all six of our cases are men between the ages of 30 and 39. Let's start with the age. Why would it be all people in their 30s?

8:13 Jacqueline Weyer

So, there's different explanations for that. Number one, this is probably the age group. Again, that's up for debate, but probably the age group that's more sexually active. And secondly, it's also an issue of immunity. And with that, we are referring to the history of smallpox vaccination, which was done roughly up until the 1980s, depending on which country you were [in]. A smallpox vaccination was very widely applied during this smallpox eradication campaign. But smallpox virus is very closely related to mpox and also provides protection against mpox. So individuals that were vaccinated prior to 1980, so people older than 40, 45 I guess by now, have a lower risk of contracting mpox, or if they are affected by mpox, should have a milder cause of disease. So we're looking at a population group

that is likely more sexually active, and we are also looking at the population group which was never vaccinated for smallpox.

9:31 Mia Malan

All the six cases in South Africa are also males and they identify as men who have sex with men. Why is it confined to that group when it comes to mpox?

9:44 Jacqueline Weyer

The virus can infect any person. It's just, in the context of the multi-country outbreak, we have seen an onward transmission within this group in our population. Globally, more than 80% of the cases reported during the multi-country outbreak of mpox have been reported in males in this age group that we are also seeing in South Africa, and have self-disclosed in more than two-thirds of the cases that they are indeed men having sex with men. So, if we are saying that the virus is transmitted through skin-to-skin contact- and this is very efficiently achieved through sexual encounters, then the disease is transmitted onwards in men having sex with men, where they would be primarily having sex with men, although some may also have sex with females and those females may also be at risk of transmission.

10:44 Mia Malan

If we just look at men who have sex with men, what helps the spread of the virus? Is it because they have strong social networks? Does that make it more efficient for the virus to spread? Or what are the mechanisms or social behaviours that help?

10:58 Jacqueline Weyer

What we have seen — and this is not understood yet in the context of South Africa but in reports from the US, for example — we do see that some of the affected individuals had multiple sexual partners within a short period of time. Here I am referring to 10 or 20 sexual partners, so certainly that will also then contribute to a larger scale of onward transmission of the virus.

11:28 Mia Malan

Let's look at the broader situation in South Africa; we have an outbreak of mpox. What constitutes an outbreak and how bad is our outbreak?

11:37 Jacqueline Weyer

By definition, one case of mpox in South Africa would constitute an outbreak. This is not a disease that one expects to report in South Africa, given that we are not an endemic country. So just by technical definition, one case would be an outbreak. What we're seeing at the moment is severe cases, which is usually the exception when it comes to mpox. So we do anticipate a quite sizable outbreak of mpox in the country currently.

12:08 Mia Malan

When you say severe cases, what does that mean? Is it people who were hospitalised, for instance?

12:14 Jacqueline Weyer

So severe mpox would include any individual that's hospitalised for mpox. Typically, mpox would be a very mild, self-limiting disease so hospitalisation is actually exceptional and defined as severe. So

here, we've dealt with hospitalised cases and also two fatal cases. All of these cases are classified as severe cases of mpox.

12:41 Mia Malan

And is the reason why we see severe cases because we've got, for instance, high HIV infection rates in South Africa, and we've got a sizable part of the population who's not on treatment, for instance?

12:54 Jacqueline Weyer

Unfortunately, the answer is yes. So, despite the fact that we live in a country where HIV testing is accessible, where antiretroviral treatment is accessible, unfortunately people do still not know their status or choose not to enter into treatment programmes for whatever reason.

13:17 Mia Malan

You've mentioned earlier that one of the mpox cases who died had pneumonia and that weakened their immune system. I know the health department has also said some of the cases had HIV. What was the occurrence among the six cases of HIV? Did all of them have HIV? Or were there other comorbidities?

13:38 Jacqueline Weyer

To my knowledge, all of the cases have been HIV positive. Most of them unmanaged HIV, and some of the cases also had other comorbidities, such as diabetes and other conditions. And in this particular case that we referred to before, the individual also contracted pneumonia at the time or concurrently with the mpox diagnosis.

14:05 Mia Malan

Just for clarification, when you say unmanaged HIV, do you mean people who are HIV positive who are not on treatment?

14:15 Jacqueline Weyer

Correct.

14:15 Mia Malan

Now, we've heard that the clade of the virus, called clade two in South Africa, is the same clade that caused outbreaks in more than 100 other countries. And that's the same clade, right? That we also saw in 2022 in South Africa, correct?

14:31 Jacqueline Weyer

Yes.

14:32 Mia Malan

Now how does it work? In 2023, we saw no cases and now we have this again. How did the virus pop up again?

14:39 Jacqueline Weyer

So, given that the multi-country outbreak is continuing. Cases are still reported in nearly 30 countries. [There were] more than 500 cases reported during the month of April alone. We are always at risk of the introduction of mpox from elsewhere around the globe, where mpox is

circulating. So, during 2022, we reported five cases. This was during the peak of the multi-country outbreak. And most of these cases had travel history, or contact with people that did have a travel history, that could explain the mpox exposure. What we see now in South Africa is that there's likely been an introductory event into South Africa earlier this year. Presumably, that there is now onward transmission locally within South Africa from person to person.

15:39 Mia Malan

And does introductory event, does that mean someone from another country was infected who came here and who had contact with [an infected] party? And you mentioned earlier that we expect quite a sizable outbreak in South Africa. What does that mean? How many cases are we talking about?

15:58 Jacqueline Weyer

It's impossible to say the number of cases. But if you consider that mpox is generally a mild and well-tolerated infection, which does not require any specific medical treatment or hospitalisation, and that we have, since May to date, the cases that have been reported have been in hospitalised patients, and this is supposed to be the exception when it comes to mpox.

16:22 Mia Malan

Let's get to treatment. So, there's an antiviral drug that was used or offered to three of the cases in South Africa, the health department said in a press release. What's the name of the drug? How does it work? And is it only for severe cases? Or how do you use it?

16:40 Jacqueline Weyer

The drug is called Tecovirimat, or another name for it is TPOXX. So this is an antiviral drug, which inhibits a specific protein of the virus. So, it interrupts the replication of the virus, and has been shown to be effective in assisting with the treatment of mpox cases. Currently, the drug is not registered in South Africa. It is not registered for use in most countries, given that it's a fairly newly available drug. But we have had access to the drug for the treatment of our severe cases through special measures, which is called a Section 21 approval through our regulatory body, namely Sahpra. And through donations from the World Health Organisation. So steps are underway to secure access to additional doses of the treatment for any additional cases of severe mpox that might be recognised in South Africa in the coming weeks. And yes, this treatment is only indicated for severe cases of mpox, or individuals that have been diagnosed with mpox and have a risk of developing severe mpox.

18:02 Mia Malan

But we've had two people who have died. So, if the treatment was here, why did they die? Did they get it too late? Or why did that happen?

18:09 Jacqueline Weyer

So, the one individual has multiple problems including pneumonia, which would not be treated by the antiviral treatment. So, it's just like counting against that individual patient and similar for the other one as well.

18:28 Mia Malan

You've mentioned now that the drug is to treat severe cases. So, I assume those are cases who are hospitalised, right?

18:35 Jacqueline Weyer

Yes. So they would look at hospitalised cases, they would look at specific criteria, like the CD4 count of the patient, and some other risk factors that could also predispose the person for a negative outcome.

18:47 Mia Malan

So what is a CD4 count and how bad does it need to be for you to get treatment?

18:53 Jacqueline Weyer

So CD4 count; it's particularly what we look at if we want to classify immunosuppression. So typically, people with CD4 counts — a white blood cell type — below 400, then usually, this is some indication of immunosuppression. For severe mpox; [it's] typically in patients with a CD4 count of less than 350 and a very poor prognosis in individuals with a CD4 100 or less.

19:25 Mia Malan

And what about the people who are infected who are not severe enough? Is there anything that can be done for them, or do they just recover by themselves?

19:34 Jacqueline Weyer

Typically, people with mild mpox do not require any medical intervention. On a case-by-case basis, patients might need pain treatment, which can be done empirically, or treatments of specific symptoms based on a case-by-case basis, but this can be done through general practitioners or over-the-counter medication.

19:57 Mia Malan

If we look at vaccinations; is there a special mpox vaccine? We've heard we're going to get vaccines? Or is it the same vaccine that was used to vaccinate against smallpox?

20:08 Jacqueline Weyer

Globally, they are different vaccines that are being used against mpox. Some of these vaccines were vaccines that were developed specifically for smallpox. But there are also vaccines that are specifically developed for mpox. So, we will see in the coming days and weeks, what we will have access to in South Africa. Several avenues for access are being explored. And we will still see exactly which of the vaccines would be the best applied in South Africa.

20:43 Mia Malan

We've heard that we'll either get some vaccines from Gavi, or from Western European countries who have stockpiled vaccines. So does the type that we get depend on what's left in which country, and in which ones Gavi has?

20:56 Jacqueline Weyer

No, not at all. The first consideration would be the vaccine that would be best used in our setting. So, some of the vaccines are live attenuated vaccines, which should not be used in people with immunosuppression. So, those vaccines are immediately not considered for use in South Africa. So,

the first consideration is safety within our population setting, and then what is available to us in different [routes].

21:28 Mia Malan

What is a live attenuated vaccine and why can't people with weak immune systems get it?

21:34 Jacqueline Weyer

So, it's a vaccine that consists of a live, weakened virus. It's a virus that is not supposed to make you sick, but supposed to expose your immune system so that you can develop specific immunity to the infection. The vaccines work very well in people that are otherwise healthy and immunocompetent, but should not be used in people with immunosuppression as they can develop vaccine-related disease as well.

22:06 Mia Malan

So people in South Africa who are 45 years or older, who had smallpox vaccinations, are they protected for life? Or is it only for a certain number of years?

22:19 Jacqueline Weyer

If we look at what's been happening in the multi-country context, certainly the number of cases of mpox in the 45-year-and-older age group is much lower than the younger age group. So, one would say overall that the indication is that there is protection given.

22:39 Mia Malan

The vaccine that we used for smallpox vaccinations until the 1980s in South Africa; are they figures available [about] how effective that vaccine is against mpox? So, I'm trying to figure out how much protection do people who had that smallpox vaccination, how much protection do they have against mpox today?

22:58 Jacqueline Weyer

Not a straightforward answer, but there is indication of up to 85% cross-protection for mpox with smallpox vaccine.

23:07 Mia Malan

Jackie, the health department has said that for vaccinations, we're not going to do mass vaccination like with COVID, for instance. We are going to look at specific groups who might be at a higher risk of infection. And they mentioned men who have sex with men, sex workers, lab workers and health workers. So, does that mean we want to vaccinate all the sex workers in the country, all the men who have sex with men, all the health workers, or only specific groups among them?

23:37 Jacqueline Weyer

What has been happening within the multi-country outbreak context as well — and I think that's the approach that will be adopted in South Africa, although we will still see what strategy will finally be employed — is a targeted vaccination approach of these high-risk groups. The vaccines will be offered to individuals in those high-risk groups, and people will then have the option of being vaccinated or not.

24:06 Mia Malan

So, when you say offered, is it like an announcement and say, people in those groups can go to certain clinics and then get vaccinated? Or how will it work?

24:15 Jacqueline Weyer

So, the vaccine will be offered via different clinics, NGOs, or similar structures and people can then decide to be vaccinated or not.

24:26 Mia Malan

So, if we calculate or add together all the health workers, all the men who have sex with men, all the sex workers, it comes to a lot of thousands of people. So are we expecting a large donation or how does it work?

24:39 Jacqueline Weyer

So, it's a little bit difficult to answer that question, but yes, it would be a sizable number of people that could have access to mpox vaccination. What the uptake of the mpox vaccination will be among those groups is also still a question that cannot be answered.

25:00 Mia Malan

Last question, if you think you've got symptoms of mpox, like a headache or a sore throat and skin lesions, what do you do?

25:08 Jacqueline Weyer

It's important that you seek medical advice. It's really difficult to diagnose rashes. So, it's best to have a trained medical professional consider your case. It might be something that's easily treatable via an antibiotic or an antihistamine, whatever the situation might be. Or, if it's needed to consider mpox, a test can be done to determine the diagnosis to either confirm or discount mpox in the particular case. And then very importantly, if this is an individual that is at risk of severe mpox, steps can be taken to manage the patient for a better outcome.

25:52 Mia Malan

Dr Jackie Weyer, thanks very much from the National Institute for Communicable Diseases for joining us for this episode of the Bhekisisa podcast. Until next time, goodbye.

Outro:

This was a Bhekisisa podcast.