27.08.2024

Transcript

„Mpox-Update: Virus variants, epidemiology and vaccination“

Panel

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- **Prof. Dimie Ogoina**
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Recording

- You can find the recording here: https://www.sciencemediacenter.de/en/our-offers/press-briefing/details/news/mpox-update-virus-variants-epidemiology-and-vaccination/
- If you need an audio file or a speaker's view of the recording, you can contact redaktion@sciencemediacenter.de.

press briefing

Transcript

Host [00:00:00]
Hello and welcome to this press briefing on Mpox. My name is Annegret Burkert, and I'm an editor for medicine and life sciences at the Science Media Center Germany. Since the WHO declared a public health emergency of international concern two weeks ago, there has been growing international attention on the Mpox situation in the Democratic Republic of Congo and other African countries. This time, the dynamics of the Mpox spread can be traced back to different clades of the virus, and there are still many uncertainties regarding the characteristics and mechanism of the viral variants. Furthermore, there is strong attention on a [...] subvariant called clade Ib, that so far was unknown. To shed some light on the state of research and on these uncertainties, we invited three international Mpox researchers, that are here with us today, and I would like to introduce them. First of all, we have with us Placide Mbala-Kingebeni. He is Head of the Epidemiology and Global Health Division and Director of the Clinical Research Centre at the National Institute on Biomedical Research in the Democratic Republic of the Congo. Secondly, we have Dimie Ogoina. He is Professor for Infectious Diseases at the Niger Delta University in Nigeria. And he is also a member of the International Health Regulations Emergency Committee. And both researchers are members of the Mpox Research Consortium in Africa. And the third expert with us today is Marion Koopmans. She is Head of the Virus Science Department and Director of the Pandemic and Disaster Centre at the Erasmus Medical Centre Rotterdam in the Netherlands, and she is involved in several cooperation projects with the African researchers on investigating the Mpox virus. Before I will start with my first question, I would like to point out to the journalists, that you can ask your questions in the question-and-answer tool of the zoom. My colleagues will forward the questions to me, and I will ask them to the experts. And furthermore, I would like to tell you that we will provide video recording of this briefing and an automatic generated transcript shortly after the briefing. If you wish to have access to that, to the video and the transcript, please write us an email at redaktion@sciencemediacenter.de. My colleague will post this email address here in the chat, so you can write an email and ask us for the video and the transcript. I'm done with my introduction. And I would like to start with my first question to Dimie. I would like to ask you [which] factors are currently causing the increased spread of the Mpox virus in Africa? And how does this outbreak now distinguish from Mpox cases in the previous years?

Dimie Ogoina [00:03:05]
Thank you very much for that question. I think one of the underlying factors that contributed to the upsurge of Mpox in Africa were related to neglect, neglect of the disease for over 50 years, and the lack of investments and also low capacity to respond. These three factors underline most of what we are seeing in the upsurge of Mpox in Africa. But there are other biological reasons that could explain this. One is that the African population is a relatively young population. And to that extent, we do not have the benefit of prior smallpox vaccination. And of course, we know that the monkeypox virus has a ecological niche in the rainforest areas of Africa, mainly Central and West Africa. So the virus has a proclivity to Africans and Africans of the age group, where they do not have the protective benefit of a prior smallpox vaccine. And there had been continuous animal spill-over events to a point, where the virus has evolved to such a level known that there is sustained human-to-human transmission. And we are having new strains of the virus emerging, and it seems these strains are even more transmissible. So a combination of these biological factors and the fact that the African population does not have that background immunity for Mpox and do not have the capacity also to contain outbreaks, and if there's no capacity to contain outbreaks, the outbreaks or infectious pathogens spread. And that's why it's spreading readily in Africa because of lack of capacity. What we are witnessing in Africa now, is a bit different from what happened in the

global outbreak in 2022. The global outbreak was largely due to clade II strain of the Mpox virus. More cases were reported in Europe and America, and it was lightly predominantly amongst gay and bisexual men. And most modes of transmission were via sexual contact. What we are seeing in Africa is a mixed picture. We have seen a rising number of cases, unprecedented rising number of cases, especially in the DRC [Democratic Republic of Congo], affecting children and pregnant women to a point that it has extended this past to many of the districts in the DRC and also extended beyond DRC to countries in eastern Africa, countries that never reported a single case of Mpox for over 50 something years, and these countries include Uganda, Rwanda, Burundi and Kenya. Also very remarkable, making it different from the 2022 outbreak, what is causing the challenge in the DRC is the clade I. Also very remarkable is that clade I has never been associated with sexual transmission. This was reported in the DRC. And a new strain has also emerged which is a clade Ib, which is also spreading and has spread to other parts of Africa. Historically, we have known that clade I is more severe and creates more morbidity and mortality. And so there is a concern that if clade I one spreads to other parts of Africa and other parts of the world, it will result in more challenges to public health. And so those are the basic differences between what happens in 2022 and what is happening now.

Host [00:06:34]
Thank you, Dimie. Placide, I would like to continue with you. Can you tell us a little bit more about the epidemiology of the different clades and the transmission dynamics, and maybe also on the severity and the case fatality rate?

Placide Mbala-Kingebeni [00:06:55]
Thank you. I think Dimie set the frame. The situation, that we are having right now in DRC, is due to the clade I. And, in the past, we used to have only one clade I, which is mainly located to the west part of the country where we have a dense forest. Most of the affected villages are in this area. And now, since 2023, we have this new clade I, which we call Ib, which is mostly at the eastern part of the country, and where we don't have a huge, dense forest, and the consumption of bushmeat is very limited. So, meaning that, we suspect that this clade has adapted to be transmitted from human to human. And this change, the transmission dynamic..., as Dimie says, in the past, we didn't even know that a clade I can be easily transmitted through sexual contact. But now, with the clade Ib, we see more sex workers affected and reporting more sexual activities of [...] men beeing the source of transmission or mode of transmission for this outbreak. And now, the situation that we're having in the country, is a kind of two outbreaks occurring in the same country, one with the clade Ia, where we see more children affected. This is the endemic Mpox, that we used to see in the country, and then the other one, which is new, with the clade Ib, where we see more adolescents and adults affected. But for now, when we compare both [clades concerning mortality], we still have high mortality with clade Ia compared to the clade Ib where we still have a new mortality rate, when we compare both sides. But the reason that we are afraid about the clade Ib is, because it seems to be really very well adapted to human-to-human transmission. And it's a really easy and more transmissible [virus] than the clade Ia that we used to see in the country.

Host [00:09:44]
Can you say anything about the genomic sequence from those two viruses? What makes the difference also in the transmission?

Placide Mbala-Kingebeni [00:09:55]
What made the difference of transmission is, what we observed. First of all, is the fact that we are seeing more like a complete mutation, compared to the clade Ia to the clade Ib which may explain why the virus seems to be adapted to human-to-human transmission. But the other thing is also the fact that some deletion, that we observed there, [is] also helping the virus to evade some of the diagnostic tests that we use in the country. And now, what we would like also to know, is how this

clade Ib can also vary when you move from, for example, Kamituga to South Kivu to Goma and how the expansion is going to other countries. Because there are maybe small differences that need to be also captured when we are working, because we observed that [with] some of the diagnostic tests, that we are using, it's a bit difficult sometimes to diagnose some of those clade Ib samples.

Host [00:11:20]
Thank you, Placide. Marion, please add to it.

Marion Koopmans [00:11:24]
And maybe for the journalists, that are listening, it might be good to explain: a situation that is happening with every new evolving outbreak situation, how difficult it is to get good, robust data for these very obvious questions. Is it more severe, is it more transmissible? And you really need good studies, plus the infrastructure to do those studies in order to answer those questions definitively. So, right now, I think we have to work with what we observe. But it is really difficult to know exactly, how different the virus of the clade Ib is from the viruses, that we've seen before. The transmissibility, of course, also is determined by where a virus pops up, where maybe through bushmeat consumption a virus started to spread. And if that happens to be in a region, where there is a lot of close human-to-human interaction and a sexual network, that's a very different starting situation than if you have a spill-over event in a remote village. So that's why it's very difficult. And I think it's good to understand for a journalist, why it's so difficult to really answer those questions robustly. And the WHO and Africa CDC also have really called for coordinated research efforts to try and get at that information.

Host [00:13:11]
How specifically can this public health emergency situation help? What do you expect now from the PHEIC situation, how it can help to support research and the implementation of measurements in the affected area? Marion, please.

Marion Koopmans [00:13:34]
People may have seen that WHO has put together with the African region leaders a concrete plan of action for the coming six months, which has many different pillars. It is about building or strengthening the capacity to know where these viruses are and are moving by both, having public health expertise, but also diagnostic capacity and sequencing capacity. That's one important element. Another is strengthening the ability to treat patients. There was a recent trial completed, that was Placide, I think. Unfortunately, the medication did not seem to do that much, but it did show some very promising information, that if you have access to good care, the outcomes really are better. So that can be further built. And then, of course, also understanding where these viruses come from: Why do we see these spill-overs increasing? And then finally, the research needs, but also actions around vaccination. So that's a big combined plan, that really calls for a lot of activities and everyone can read, what the request is there.

Host [00:15:09]
From the future back to what we know already. I would like to read the first question: What is now known about coinfections in the current clade I, a and b, like for example coinfection with HIV or TB or other infectional diseases? Dimie or Placide, can you say something to that question?

Dimie Ogoina [00:15:34]
Okay. I will just make some comments and allow Placide to conclude. Coinfections, it's a reality for both, clade I or clade II infections. Because ultimately, especially in Africa, we have several endemic infections, that will coexist with one another. And it's not different from Mpox. Let me speak about what I experienced with clade II Mpox in Nigeria, for instance, from 2017 when we first reported the

outbreak of Mpox in Nigeria, and that was the first time we observed the coinfection with HIV. And then we had some patients that had syphilis and what looked like sexually transmitted infections such as chuncroid distinct from Mpox. That's to tell you, that there is some relationship between some of these sexually transmitted infections and Mpox. In 2022, and even from subsequent outbreaks of Mpox clade II in Nigeria, for instance, what we have noticed significantly is the coinfection with the varicella-zoster virus, that's chickenpox. So, close to 30 percent of Mpox cases in the Nigerian cohort had the concomitant chickenpox infection. And in one of the reviews, that we published, those that had confirmed concomitant chickenpox infection, were more likely to have severe disease and to die. Of course, those that also had advanced HIV, we are also more likely to have severe disease and to die. I think the spectrum of coinfection that relates to Mpox is something, that would need to be unraveled. Maybe Placide will talk about the role of measles, malaria and other prevalent endemic infections in many African countries and how they will have impacted on the clinical outcome of cases of Mpox, because ultimately we are not just treating Mpox. And that's the challenge in Africa. It is not only a challenge of Mpox, it's also the challenge of pre-existent, coexisting endemic infections, that can compound the clinical and natural issue of Mpox and anything we are doing about the response to Mpox. So I think coinfection is an area, that we need to explore to really understand, how it impacts the natural history of Mpox. I will hand over to Placide.

Placide Mbala-Kingebeni [00:18:02]
Thank you, Dimie. According to a few studies that we conduct here in the country, most of the coinfections are endemic infections that we see here. So, like malaria, [...], parasite infections. HIV is very low because the prevalence of HIV in the country is about 1.4 percent. So we have seen maybe four, three cases of Mpox-HIV. But we didn't see any kind of severe disease related to HIV, maybe because they never include, CD4 [immune cells]. So like good immunity because of good CD4 content (During an HIV infection the immune system is attacked by the virus and the number of CD4 cells decreases and the amount of CD8 cells increases; note by the editor). Most of the infections, that we've seen, we had only about 20 percent of coinfections with chickenpox. But in our context, [...] we see some severity, but not fatality related really to this coinfection. Most of the coinfection, that we found to be fatal when associated with Mpox was mostly a pneumonia – a bacterial super infection, which can cause pneumonia. [...] And right now with the new study, we see also cases of sicklecells, anaemia and malnutrition. And with the huge measles outbreak that we are having in the country, we also see a kind of high mortality among under-five year olds and, in most of the reports coming from MSF and others, they also see this coinfection with measles. So this can be also one of the reasons to see maybe this high mortality in children under five, for example, in some places in the country.

Host [00:20:33]
There is actually one question added to that, asking: The figures for children vary greatly, even between countries. What do we know? But, I mean, you partly, answered this now. But are there other reasons, why there are differences between cases of children and between different countries?

Placide Mbala-Kingebeni [00:20:55]
Maybe what I can say, I think, Marion and Dimie can complete. For our situation, for example, in DRC, when we compare the two clades: The clade Ia, which is aquired more zoonotic than through human-to-human infection, we see more introduction more zoonotic diseases and children under 15 are more affected. Why? Because we suspect that the reservoir Ia [is] probably [in] small mammals, that are usually hunted by small children. And so they get infected, and so they can bring the disease to the household. Most of the time they infect also their siblings in the same household. Because the culture in the rural area is mostly, you will see that there are young children, like 14 or 15, who are taking care of the small ones because the fathers are in the forest doing agriculture or

working to find food to bring back home. That means that this person, who is under 15, is the one who will take care of the small ones. And so if it's infected, it can be very easy to surpass the infection to others in the same household. So this can expand. And even when we go to the clade Ib, we see, first of all, this pattern with adolescent and adult. But very quickly we are seeing also more children affected because when the adult and adolescent, that are affected, bring the disease in the household, they can it then transmit to other family members. So, Marion and Dimie can complete.

Host [00:23:00]
Marion, you wanted to add something?

Marion Koopmans [00:23:02]
I think it's important to also understand that different countries may have different clades. So there are differences in the clades and, indeed, this age profile. And for Ib, because it's primarily currently young adults, that also includes, for instance, pregnant women. There we see a very severe profile where particularly pregnancy loss seems to be a big problem. The numbers are fortunately not that high, but that seems to be quite severe in that particular group. And that includes the birth of infected babies that are infected in utero with severe outcomes there as well. It's really the age profile of the outbreak that also determines, in part, which complications you end up seeing.

Host [00:24:06]
All right. Thanks. There is a question that was actually raised twice: So how great do you estimate the risk of confusing Mpox with chickenpox? So we are back again in diagnostics. Is chickenpox currently also being diagnosed or tested more frequently? And what is the chickenpox vaccination rate in the affected countries?

Dimie Ogoina [00:24:29]
Let me just attempt to make also contributions regarding the age distribution of Mpox and also address this issue chickenpox. We in Nigeria, for instance, since 2017, when we observed the upsurgence of Mpox in the country, about 70% or so of the affected persons, or infected laboratory confirmed cases, were adults between the ages of 20 to 40 years and that had been consistent from 2017 to date. Although in 2024 we have just less than 40 cases. And it seems that the number of children impacted is about half or so of this number of 40 cases that were reported in the country. It's not very clear whether the outbreak is now translating to that it affects children, not very clear. And it's actually very curious that we have not had a significant number of children infected with Mpox in Nigeria over the last five years, and there could be several reasons for that. One could be the mode of transmission. It is possible that the transmission dynamics of Mpox in Nigeria is largely sexually related. And that's why it occurs in amongst adults. It's also possible that in Nigeria there is a challenge in distinguishing chickenpox and Mpox. And as you know, chickenpox is a very frequently detected in children in Nigeria and I believe in most African countries. And usually when people have chickenpox, they don't come to the hospital, they are treated at home, self-medication. So it is possible that we are missing out on Mpox in children in Nigeria because we are now confusing chickenpox and Mpox. I think there's also a probability, and that's an area that we need to look and dive deep into, to determine whether some of these cases that we have categorised or classified as chickenpox were actually Mpox cases. And I think that's something to do because we are seeing Mpox and chickenpox coinfection very frequently, especially in Nigeria. From the cases of Mpox and chickenpox I have seen over the years, sometimes it becomes very, very difficult to clinically distinguish Mpox from chickenpox, because we are getting to a point where we have an atypical presentation of Mpox. Even chickenpox has an atypical presentation, especially amongst people with advanced retroviral disease. So I always say that if you want a confirmatory evidence of the differences between Mpox and chickenpox, you rely on the laboratory for that. But essentially, based on clinical experience and what has been published in the literature over time, Mpox lesions are more deep seated. They have significantly more [...], they have more significant sore throats,

they are likely to have lymphadenopathy compared to chickenpox. They [the skin lesions] are more in the extremities compared to chickenpox that is more central. And Mpox lesions are more likely to affect the palms and the soles as opposed to chickenpox. What I have seen: Chickenpox cases affect heads, palms and soles, and Mpox lesions, especially when sexually related, are more likely to cluster around the genital and groyne area. And the Mpox lesions are likely bigger in size than chickenpox. Mpox lesions, on the average, are fewer in number than when you compare it to chickenpox. Well, I would say all this is also very difficult. As I said, sometimes it's difficult to clinically distinguish Mpox from chickenpox. I'm not fully aware of the rates of chickenpox vaccination for instance in Nigeria, the rate at which we are seeing chickenpox even amongst adults is also very alarming. We expected that we should see more chickenpox in children in Nigeria, but we have seen a number of chickenpox cases in adults. And that tells you that population immunity for chickenpox is also limited, over to others.

Marion Koopmans [00:28:45]
So maybe on the diagnostic side, I'm not familiar with Nigeria, but I do think that chickenpox differential diagnostics are not very widely available. I mean, there's already a big effort to try and build diagnostic capacity for Mpox across the region, let alone differentials. But I do think for companies that are working on rapid tests, that combination assays, it would be fantastic if that kind of investment is put forward. But over to Placide.

Dimie Ogoina [00:29:26]
Sorry before I say something just to say that for Nigeria, I think since 2017 or so, maybe 2018, chickenpox (varicella-zoster virus) is routinely done for every case with Mpox that comes to the public health system. So there's laboratory diagnosis for chickenpox. And that has been routine since 2018 or so.

Host [00:29:53]
Placide.

Placide Mbala-Kingebeni [00:29:57]
Just to make the contrast: In our case, in DRC, the disease that is under surveillance is Mpox, but at the same time for all cases that are Mpox negative, we also test for chickenpox. It's almost the same with measles and rubella. So the disease that is under surveillance is measles. But as we know that both diseases can clinically present the same or similar, all samples tested negative for measles, are tested for rubella. What we found is that in most of the area, we can see both outbreaks occurring at the same time or sometimes it's confusing. You have more cases of chickenpox somewhere that are wrongly imported as Mpox and vice versa. What I can mention here is the fact that it's really important for our country that we have availability of positivity [rate] in samples when we compare with the clinical diagnostic. I mean that in areas where they are used to see Mpox cases they usually are good in clinical diagnostics. So you can have a kind of positivity [rate] that can reach 80 or 90%. And in other regions where they are used to see sporadic cases of Mpox, there is more confusion with chickenpox. And then you can see positivity rates that vary, they may be under 30%. But now with the outbreak, as the attention is more on Mpox, we see that in most of those regions who are seeing cases, the positivity rate is increasing because they are now used to diagnose. The bad is, Dimie said it: When you are facing atypical cases of Mpox or chickenpox, it's becoming difficult to to make the diagnostic. And then you need to to collect samples and do another diagnostic.

Host [00:32:28]
Coming from diagnostics to treatment. Thank you. I would like to ask, what are the current treatments? Is there anything available or is there anything, that is coming? Dimie, do you want to say something about treatments?

Dimie Ogoina [00:32:46]
Then I'll start and allow the others to also make comments. We know that Mpox is referred to as a self-limiting illness. It means that the majority of patients will ultimately recover, largely from supportive care. So the mainstay of treatment of Mpox for now is supportive, symptomatic care, to address the major signs and symptoms and troubling challenges, that the patients present with. And most of these challenges include fever, [...], skin rash, ulcers. Common complications include sepsis, bronchopneumonia, encephalitis. If it is sexually related, we could have proctitis and urethral obstruction. What we are seeing in people with advanced retroviral disease, we have necrotic and necrotizing skin lesions. I've seen it at work, there are many in Nigeria. Some people with advanced HIV also come up with complications. It's also important to pay attention to the psychological health, mental health of persons with Mpox because they are prone to stigma, fear, anxiety. For instance, in Nigeria, in the 2017 outbreak, one of our patients committed suicide on account of the diagnosis of Mpox. And I know, a number of my patients have faced psychological trauma related to Mpox. So it's very important that this aspect is addressed. Of course, nutrition is also very important. Mpox cases have this significant sore throat, that makes it difficult for them to even pour appetite and they are not able to eat. So nutritional support is also very important in the management Mpox. Generally supportive care addresses the challenges that the patients face and ensuring that you do it on a case by case basis, because these challenges may vary from one case to the other. Then we will talk about therapeutics. Of course, the drugs that have been known to be available for Mpox include Tecovirimat, Brincidofovir and Cidofovir. These are some of the drugs that have been used in the past and are used currently in the management of Mpox. For instance, observational studies have shown that Tecovirimat could improve resolution of symptoms, skin lesions amongst patients with Mpox in the global north. A few of these observational studies were done in the global north, so Europe and America. But as you highlighted in the initial introduction, the study that was done in the DRC did not show significant benefits on improving clinical resolution of patients with Mpox. I know that Brincidofovir and Cidofovir are being used on an experimental basis in the management of Mpox or 'compassionate' or emergency use and animal models. Animal studies have shown that it could be effective. And there is a number of drugs on the pipeline for the management of Mpox. By the opportunity of looking at that pipeline, one intriguing aspect of what I saw is the use of Ribavirin. Animal models and some other studies have shown that Ribavirin may be a potential candidate for Mpox. I say that because the Ribavirin for research in West Africa is being used for management of Lassa fever so there's some experience. So I think we would need to invest more in understanding the landscape of Mpox therapeutics especially, but it's actually very unfortunate that we have Mpox for 54 years and it took the global outbreak for us to rethink therapeutics. And this is a time we are rethinking therapeutics. We had 54 years to do that. And then we have limited numbers of therapeutics for Mpox, just for now Tecoviramat which is sure not to be effective or efficacious in that context of clinical trials for Clade I. Of course, we are not sure about the impact for Clade II, but for Clade I it has been shown. So I think it's actually unfortunate and there's a need for us for more investments and to widen the landscape of therapeutics so that we have many more drugs that we can use to manage our cases and improve our clinical outcome. Over to Placide and Marion.

Host [00:37:21]
Marion quickly, then we have to move on. Time is running.

Marion Koopmans [00:37:25]
Maybe we need to mention that in these emerging diseases I fully support the need for studies, clinical trials within affected regions, obviously. But with these emerging infections, quite often you have to go by what is called the animal rule, where you have to rely on preliminary data of possible candidates based on animal studies, but they do not always really predict the outcomes in humans. And we've seen a good example of that with Tecoviramat, which looked pretty good in the

preclinical in animal models. But unfortunately, the trial that was just done did not replicate that success. So it is really important to do the studies, even when embedded in an outbreak. And that's very complex and it requires big investments.

Host [00:38:19]
Thank you. Placide I would like to continue from treatment to vaccination.

Placide Mbala-Kingebeni [00:38:27]
Just quickly to mention the fact Dimie and Marion emphasized on the treatment: It is really important that it's mostly stigma and discrimination. And we observe that also in our context, since most of the zoonotic Mpox is linked to finding a dead monkey, dead animals in the forest. And so when a family's affected by Mpox, sometime they are not well received in the community because they feel like you are not able to feed your family very well, and you are eating dead animals from the forest and so on. So I think it's important to also mention that there are very different types of stigma. And now as we are seeing also some MSM affected, some sex workers affected, I think we need to make sure that we really integrate all the programs, all the experts, to make sure that we will address this situation that's becoming more complex.

Host [00:39:46]
Maybe this already fits quite well to the next question on vaccination. Placide, what is the vaccination strategy? Which risk groups should be vaccinated first?

Placide Mbala-Kingebeni [00:39:59]
This is a big question. The vaccination strategy in the country is, mostly, oriented to the hotspot. Right now we are thinking to work on the hotspot and then target the most affected people. So we target children under 15, and also adolescents and adults in the other areas, including sex workers. But at the same time will need to think because we will not have enough vaccine, even if we target this population in the country. So we need to think about what type of strategy we would like to use. There is another strategy that will erase here, it's for example using the ring vaccination. So finding a case and trying to vaccinate around the case, as we did with Ebola. Because in this case, we can target the hotspots and target some cases where we can vaccinate and at the same time try to assess those vaccine in our countries since we know that the vaccine are approved to be used, but there is no (for the moment) efficacy data showing that the vaccine, the level of antibody that we are seeing generally protects against infection. I think, Dimie and Marion can add to that.

Host [00:41:51]
Mentioning if children can be immunized. Can you please involve that to your answer?

Marion Koopmans [00:41:58]
I will defer the children to Dimie. I saw questions also about: Will the vaccines work also for clade Ib? I think the honest answer is: We do not yet know yet. But looking at the build of the virus and the way the vaccines are designed, they are derived from vaccinia virus. That's a different pox virus. But that does confer cross protection. And that's been well documented with the clear to the outbreak globally, where there also is some evidence for clinical efficacy. Although the vaccinations were given also in an evolving outbreak when there's also other things that people do that reduce transmission. So it's not so easy to say exactly is this full vaccine protection? The hope is that there would be sufficient cross protection. But that's I think an urgent, study need. And for the children, maybe Dimie, you can comment?

Dimie Ogoina [00:43:13]

Thank you very much. Just a few comments on vaccines. The first is that ultimately, it's important that we invest in understanding the transmission dynamics and the risk factors on the natural history of Mpox in Africa, because any vaccine strategy should be informed by your understanding of the epidemiology of the disease in your region. And I'm not sure that we fully appreciate or understand the transmission dynamics, risk factors for Mpox in many parts of Africa. And that's why we may ultimately have difficulties when prioritising some of these vaccines that are not even sufficient, to go around. It may be easier when you have a disease that is circulating in a population to during vaccination. As Placide said, identifying all the contacts during the outbreak setting and see how you vaccinate. But what you have is scattered cases all over the country. And sometimes cases are not linked. It becomes very difficult to even determine who is at risk and who is not at risk. And even if you want to use theoretical basis, perhaps use children, use pregnant women and use people with advanced HIV: How many vaccine doses would you need to cover that population? The other challenge is the uncertainties regarding the current vaccines, we have. The uncertainties related to the absence of clinical efficacy studies, the vaccine effectiveness studies that have been done, were done in the global north for Clade IIb and amongst gay and bisexual men. And as in my own say, there are several confounders and biases associated with the vaccine effectiveness studies. And one cannot beat your chest to say, the effectiveness may be only due to vaccine alone. In fact, there are some studies that have shown that behaviour change was responsible for the decline in Mpox cases in some parts of Europe and America, but vaccines also helped. But the other challenges are that we don't know the duration of protection of these vaccines. So I say that it's also very important why we are deploying these vaccines to Africa. We must communicate these uncertainties. Whereas it may be one of the best tool we have available now based on existing knowledge. But there are still uncertainties. We have not replicated these studies, some of these studies in children. And that's a great challenge where indeed in DRC where the majority of people significantly impacted are children. And I believe, the number of studies that are still ongoing in terms of safety and immunogenic studies amongst adolescents has been done. And we have the alternative of LC16, which has been used in Japan and is also shown to be safe in children. But there are still several uncertainties. And so, I think the [...] recommended that, we should use a risk benefit approach, especially during outbreak setting, in determining whether children should be vaccinated. And I think that is the approach the DRC is undertaking. Placide may want to add to that. Thank you.

Host [00:46:22]
Placide, do you want to add?

Placide Mbala-Kingebeni [00:46:27]
Not really. I think Dimie has already explained the situation and it's very clear. The only thing, that I would like to mention here: I see a question regarding the number of vaccine, and we are really concerned because the needs of the continent is about 10 million and we see in the pipeline only about 500.000. And we don't know when those 500.000 could be available. Even if it's not enough, what we seen it's still uncertain when the vaccine will be available and if at that time the disease is still progressing. Now we see that we have cases in Gabon. There will be cases almost everywhere. It's just a matter of time as we say. Marion knows that when we talk about the Kamituga outbreak, we say that it was just a matter of time to see cases uprooting in other countries, because we know that the population in this area is really mobile, is with connection with other countries. We will see cases everywhere. And as Dimie has shown about the herd immunity, we have about, I don't know, 50 or 52 percent of the global population may be born after the 1980s. And so everyone knows this population is susceptible of getting Mpox. So the virus is finding a good environment to, cross or travel from one human to another, to one country to another. So if we don't waste, I can say the best tool that we have, even if we don't have all the data regarding the efficacy, this is something that we should do when the vaccination will be effective. But we need to have enough vaccine at least to provide immunity to our population.

Host [00:48:55]
Since the time is actually more or less up, I hope you maybe have ten more minutes that we can ask a bit more questions, because the next one fits very well. Okay, Marion, you have to give me a sign. Because there are also initial calls to loosen the patents for the vaccines, so that they can also be produced locally in Africa. Some organisations are criticising the price, which could be significantly lower. Would this be a good strategy to contain the situation and would it help or is this unrealistic? Maybe Placide you want to add on it. Or Dimie?

Marion Koopmans [00:49:40]
It's a nice thought, but that will not be a solution for the short term. So the short term really is about who has vaccines, where are they to be used best next and what is the logistics around that? I think there's a lot of things to be done there. Because there's one thing that that there are vaccines available but that doesn't mean that the whole operation of where to put them and how to target the vaccines is in place. So that, I think personally, is currently a huge priority.

Host [00:50:19]
Maybe I can continue with you with the next question. On the global reaction, or maybe this is also for all three of you, how had the WHO been too slow to act when it comes for providing emergency authorisation for an Mpox vaccine? And was it premature for the WHO to end the previous public health emergency before? Who wants to answer that?

Placide Mbala-Kingebeni [00:50:47]
I don't think it's only WHO. It is all of our countries. You cannot wait that someone from outside tells you that you have an issue. I think we raised the situation from a country. The situation was raised at the continental level. This is really good. For me, I find it as a good example because in the past we used to have situation raised from outside the continent. And for the first time, I think the continent takes this courage to say that this is a continental situation before WHO says that. This is really important. First, the second one is the fact that there are some considerations that we need to take into account before making these kind of decisions regarding public demand, regarding the privatisation of all those manufacturer and as, my own say, even if we want to have manufacture in the continent, there are some variables that we need to put in place that are not existing yet. So it's not a solution for a medium or short term. You may take some time. And we tried it with South Africa with Covid-19 and we saw that, it didn't really work as we wanted. So I think it's a process that we need to put in place to make sure that in future we should be able to have the manufacturing that can also provide enough vaccine for the continent.

Marion Koopmans [00:52:55]
Maybe then also the outside of Africa perspective, I think we have to be quite humble here because despite considering Mpox and lineage II as a controllable disease, we did not manage to control it. With all the efforts, with all the money, with all the capacity worldwide it's still ongoing. It's not as big anymore. There were vaccines introduced. There were all sorts of campaigns, but we didn't control it. So it is not really easy and it is really a multi-tiered approach that you need to build to focus on where the problem is currently a priority, but also to step away from this, what is called the cycle of panic and neglect. That's what happened the last time. So there was a public health emergency declared in 2022 when the world outside of the African region experienced Mpox. It was sort of then downscaled. And already then there was discussion and criticism from some countries like this will mean the attention will go away. And that's exactly what happened. And this is something that is typical for all of these emerging disease outbreaks that the world really, I think, needs to learn. How can we more systemically prepare for these? So that we don't have to constantly rely on jumping in response mode, but be ready. And then maybe by being ready, have

less bigger outbreaks or be at the spots where they are early enough to prevent them from becoming so big. I think that's really the key issue that is needed.

Host [00:54:54]
Thank you Marion. I think it's a very good final remark already. I would like to come to an end as well. Maybe Dimie, do you want to say a take home message? What do you think should the journalists take from this? What do you think should be done to improve the situation, what is like the most important issues that also needs to be clarified?

Dimie Ogoina [00:55:18]
Just to say that ultimately health itself related to a public health threat is a collective responsibility of everybody. But ultimately, the primary responsibility here lies with the countries and populations that are most impacted. And it is important that, especially countries in Africa take full responsibility for addressing problems that occur in the region in terms of investments, ownership and commitments. This is very important. Whereas it is important to get assistance and partnership from outside Africa. We must take the bull by the horn and invest in research and development in Africa. This is a time I've said that we are working blindly, largely blindly in Africa. For instance, in the DRC only less than 40 percent of cases are tested, laboratory confirmed. That's working blindly. I believe cases in Africa are largely underreported. Because the number of cases are occurring, the public health system cannot detect those cases. And that is not good for the evolution of the virus and what we see in the future. So this is a time for all of us to collectively invest in surveillance research, in development and prioritise preventive interventions so that we can address this problem of Mpox and then clade Ib or clade I will not also cause another global outbreak. That's something we don't want to happen. Thank you.

Host [00:56:53]
Thanks Dimie. Placide, the last word to you. What are your final remarks, your take home message?

Placide Mbala-Kingebeni [00:57:00]
The take home message: We are facing a complex situation. We have this ongoing outbreak since many years neglected. Now that has lead to new variants, more transmissible. At the same time, we still have our old outbreak. Locate to clade Ia, in Nigeria and the West African countries. Locate to Ib, to more cases – a few cases, not as it was in 2022 – but to cases in some countries. Meaning that the Mpox is taking the place. So we need to act, every kind of world coordination. Very well coordination to make sure that we put the resources where it should be to conduct research, to improve the diagnostic, to improve the treatment, provide adequate, appropriate, supportive treatment and also to work on good communication. Because right now we may end up as with Covid-19, with wrong and bad communication in social media. So as public health leaders we need to make sure that we also provide the right information to the nation.

Host [00:58:41]
Thank you all three for being here today. I would like to finish this meeting now. I would like to tell you, the journalists, thank you for attending. Thank you for all your questions. I'm sorry, we could not ask all your questions. Time was just flying. I'm sure you can contact the experts after this meeting again. If you would like to have a video recording or the transcript, please contact us. Again, the email is redaktion@sciencemediacenter.de. I hope my colleague can post it again. Thank you for your time, thank you for your attention and have a good day. Bye.

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69118 Heidelberg
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HRB 335493

Redaktionssitz
Science Media Center Germany gGmbH
Rosenstr. 42–44
50678 Köln

Vertretungsberechtigter Geschäftsführer
Volker Stollorz

Verantwortlich für das redaktionelle Angebot (Webmaster) im Sinne des §18 Abs.2 MStV Volker Stollorz

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